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Evaluation of interventions in online grocery shopping for sustainability

Submission date
25/03/2024

Recruitment status
No longer recruiting

Registration date
27/03/2024

Overall study status
Completed

Last Edited
18/03/2025

Condition category
Nutritional, Metabolic, Endocrine

[X] Prospectively registered
[X] Protocol
[X] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
The food system makes a large contribution to global warming and unhealthy diets cause many preventable deaths in the UK each year. To fix these problems, we need to change what we eat to benefit both people and the environment. Therefore, effective interventions are urgently needed to promote sustainable and healthier food choices. With the rise of online grocery shopping, little is known about intervening effectively in real-life online shopping environments to encourage sustainable and healthier purchasing. This study aims to investigate whether providing environmental impact scores for products and offering discounts can help people make healthier and more sustainable food choices when shopping for groceries online.

Who can participate?
Primary grocery shoppers aged 18 years or older who live in any part of the UK and purchase groceries online.

What does the study involve?
Participants will complete a screening/baseline survey administered online via Qualtrics to assess eligibility and collect data on demographic characteristics. If eligible, they will receive download instructions for a browser extension, which will be used to implement the interventions. After installing the browser extension, participants will complete their normal online grocery shopping on the website of a large UK supermarket over 8 weeks. During this period, the browser extension will collect participants' grocery purchases. At the end of the intervention period, participants will receive an invitation to complete another online survey about their experiences using the browser extension and the interventions.

What are the possible benefits and risks of participating?
There are no risks involved in participating in this study. By participating, participants will help to identify ways to promote choices in online grocery shopping in the UK that are better for the environment.

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

When is the study starting and how long is it expected to run for?
June 2023 to April 2025

Who is funding the study?
Economic and Social Research Council (UK)

Who is the main contact?
Prof. Thijs van Rens, J.M.van-Rens@warwick.ac.uk

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
AEA RCT Registry, Protocol Exchange

Study information

Scientific Title
Evaluation of interventions in online grocery shopping for sustainability and health: an adaptive design randomized controlled trial

Acronym
SustainableOnlineGroceries

Study objectives
The null hypothesis is that eco-labels and price discounts have no effect on the purchase of more sustainable choices against the alternative that these interventions promote more sustainable choices. The two interventions will be independently randomized within the same study population so that these will be two independent tests. The researchers will attempt to also test the hypothesis that both interventions together are more or less effective than the sum of both (factorial design), but they do not expect that this test will be significant with the number of participants that they are able to recruit.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 26/02/2024, Humanities and Social Sciences Research Ethics Committee (Department of Economics, Coventry, CV4 8UW, United Kingdom; +44 (0)2476524760; Karen.Julian@warwick.ac.uk), ref: HSSREC 123/23-24

Study design
Cross-sectional randomized controlled field trial

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Diet-related disease

Interventions
The researchers will evaluate the following two interventions:

Eco-labelling: Eco-labels provide consumers with information on the environmental impact of their food purchases, graded from A (lowest impact, most sustainable) to G (highest impact, least sustainable) based on an underlying numerical score ranging from 0 (most sustainable) to 500 (least sustainable). These environmental impact scores were calculated based on the ingredients in 1kg of each product, which are then linked to the life-cycle analysis (LCA) database Agribalyse. The scores take into account the environmental impact of a product in 16 categories, including land use, water scarcity, resource use, human health, wildlife damage, and climate change.

Price discounts on more sustainable alternative products: Price discounts will be offered through swaps at the first checkout screen. Participants will see a pop-up window suggesting a more sustainable alternative for a particular product in their basket, which is offered at a randomly varying price discount. The alternative products are selected to not cost £2.00 more than the original product, and price discounts will be offered at three levels: £1.00, £0.50 or no discount. The intention is that this will result in discounts being roughly equally spaced between 0 and 100% of the price difference between the original and the alternative products (explicitly offering percentage discounts is not feasible for technical reasons, because it would involve “live” scraping of the prices). The researchers will use this information to calculate the willingness to pay for more sustainable products. As an example, a participant may be prompted

to swap Greek yoghurt (500 g) priced at £2.30 for dairy-free coconut yoghurt (600 g) priced at £3.60, and the pop-up will notify participants that they can buy the coconut yoghurt for £2.60, £3.10 or the full price of £3.60, depending on the trial arm that the participant was assigned to. If the shopper accepts the swap, they will be reimbursed for the price discount. Each participant will get offered a swap for a (potentially discounted) alternative product on up to three products in their shopping basket. The products for which a swap is offered are randomly chosen from a list, composed by the researchers, of not-so-sustainable products with suitable alternatives. To avoid offering alternative products with an inferior macronutrient profile, alternative products on the list will be selected so that they are in the same or a better category for fat, sugar and salt content on the traffic-light label.

Participants will be randomly allocated into different arms at the start of the trial using a simple randomisation method. The two interventions will be independently randomised within the same study population so that there are effectively two independent trials. One of these will be a two-arm trial where the researchers will randomly assign half of the sample to the eco-labels group and the other half to the no eco-labels group. The other will be a three-arm trial where roughly one-third of participants will receive a £1.00 price discount, one-third will receive a £0.50 discount, and one-third will not receive a price reduction on the alternative products they are offered. Both interventions will be implemented at the same time over a duration of 8 weeks.

Intervention Type
Behavioural

Primary outcome(s)
The average eco-score of the basket of groceries purchased, with a lower score meaning more sustainable purchases. Using this outcome variable, the researchers will estimate the effect size of introducing eco-labels (intervention 1) and the price-elasticity for sustainable alternative products (intervention 2), allowing them to calculate the willingness to pay for sustainable groceries. They aim to measure both short- and long-term responses to price discounts to see if trying a more sustainable alternative may shift demand persistently beyond a one-time purchase. All outcomes will be measured either over the 8-week intervention period or at the end of that period.

Key secondary outcome(s))
1. Basket eco-score for 16 impact categories of the Product Environmental Footprint (PEF): climate change, water use, resource use: minerals and metals, resource use: fossils, land use, ozone depletion, human toxicity: cancer, human toxicity: non-cancer, ionising radiation and human health, particulate matter, eutrophication: marine, acidification, eutrophication: terrestrial, eutrophication: freshwater, ecotoxicity: freshwater). This outcome will give some insight into what type of improvements can be expected from more sustainable grocery shopping because of the interventions. It is likely that the largest sustainability gains can be realised on the impact category climate change (greenhouse gas emissions).
2. The nutritional value of the basket of groceries purchased, as measured by the Food Standard Agency's (FSA) Nutrient Profiling Model. The researchers will use the changes in the nutritional composition of groceries purchased to model the health impact of their interventions if these were delivered at scale in the UK using the PRIMEtime model, a multi-state life table model, to calculate the impact of the interventions on diet-related diseases.
3. Total cost of the shopping basket: The total cost of the shopping basket per household expressed in £ will be used to understand the impact on grocery costs.
4. Total number of products in the basket. This is primarily to check whether shoppers respond to eco-labels by buying more (less sustainable) products elsewhere (e.g. by adding them to their

order on the mobile or by buying them at a different supermarket).
All outcomes will be measured either over the 8-week intervention period or at the end of that period.

Completion date
14/04/2025

Eligibility

Key inclusion criteria
1. Be 18 years or older and located in the UK
2. Be the primary grocery shopper of their household
3. Frequently buy groceries online (at least once per month, self-reported)
4. Usually shop at the supermarket(s) included in this study
5. Usually use a laptop or desktop with the Google Chrome browser for online grocery shopping or be willing to do so for the duration of the study
6. Consent to participate and be willing to download and install the plug-in and use it for the duration of the study

Participant type(s)
Population

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Key exclusion criteria
Has participated in the pilot study or previous wave(s) of the study

Date of first enrolment
15/04/2024

Date of final enrolment
30/11/2024

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University of Warwick
University House
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Sponsor information

Organisation
Economic and Social Research Council

ROR
https://ror.org/03n0ht308

Funder(s)

Funder type
Research council

Funder Name
Economic and Social Research Council

Alternative Name(s)
Economic and Social Research Council (ESRC), ESRC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated and analysed during the current study will be published as a supplement to the results publication

IPD sharing plan summary

Published as a supplement to the results publication

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Other files	Reports on PPI engagements		27/03/2024	No	No
Other files	Survey questionnaires	15/01/2023	27/03/2024	No	No
Other files	Sustained scoring methodology - Consumer		27/03/2024	No	No
Other files	Topic Guide for SALIENT Common Process Evaluation		27/03/2024	No	No
Participant information sheet		15/01/2024	27/03/2024	No	Yes
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Protocol file			27/03/2024	No	No
Statistical Analysis Plan		04/04/2024	04/04/2024	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes