Statistical Analysis Plan

Evaluation of Interventions in Online Grocery Shopping for Sustainability and Health: An Adaptive Design Randomized Controlled Trial

4 April 2024

Helena Bentil (University of Warwick)

Oyinlola Oyebode (Queen Mary University London)

Thijs van Rens (University of Warwick)

on behalf of the SALIENT consortium

Protocol paper

For background and more detail on research questions, study design, interventions, and outcomes, please refer to the protocol paper.

Sample Size Calculation

The sample size calculation is based on an assumed minimum meaningful effect size. If on average participants swap 2 out of 34 products (the average basket size in the pilot study) for a more sustainable alternative, upgrading the eco-score for that product from D to B (-14.5 points) or from F to D (-35.0 points), then the expected effect size for the average basket score ranges from -0.85 points to -2.1 points. The standard deviation of the basket score across participants in our pilot study was 21 points. Therefore, to achieve a 5% significance level in a simple 2-arm trial, the required sample size ranges from 400 to 2760.

We expect that we need to survey about 10,000 potentially eligible Prolific panellists to recruit 2760 participants for this study. This number is based on the results of the pilot study and expected increases in recruitment rates based on improvements in the study design (34% of screened panellists are eligible for the study, and we assume that 50% of those eligible will download the browser extension, and 80% of those who install the extension will complete at least 2 grocery shops during the study period). With an expectation that we will run 4 waves (but with time and resources available to run 5 waves if necessary), we will start by contacting 2,500 participants for the baseline survey in wave 1, with numbers recruited at further waves determined after our sample size, recruitment rate and attrition numbers are updated.

Data Analysis

Data will be analysed in Stata SE 17 (Stata Corp LP, TX, US).

Descriptive statistics will be used to examine participants' socio-demographic characteristics and purchasing behaviour.

Difference-in-means tests will be used to assess the impact of eco-labels and price discounts on the primary outcome (average eco-score of baskets) and secondary outcomes by comparing the intervention (treatment) group to the comparator (control) group.