ISRCTN87225572 https://doi.org/10.1186/ISRCTN87225572

Improving employees' diets by changing the size and availability of foods in workplace cafeterias

Submission date
23/05/2019

Recruitment status
No longer recruiting

Registration date
24/05/2019

Overall study status
Completed

Last Edited
21/09/2021

Condition category
Nutritional, Metabolic, Endocrine

[X] Prospectively registered

[X] Protocol

[_] Statistical analysis plan

[X] Results

[_] Individual participant data

Plain English summary of protocol

Background and study aims

The number of people who are overweight or obese has been increasing in the UK, which has led to high rates of type 2 diabetes, heart disease, and numerous cancers. Education has been shown to be ineffective at changing these patterns of behaviour at the scale needed. In part, this reflects the powerful impact on behaviour of environmental cues that readily shape unhealthier behaviours regardless of intentions to act differently. As up to 20% of calories are purchased at work, this is a good venue to create a healthier food environment and thus help people improve their diets. The aim of this study is to test the impact of increasing the availability of lower calorie food and drinks and reducing the portion size of higher calorie food and drinks on the number of calories that are purchased in worksite cafeterias

Who can participate?

Employees attending worksite cafeterias located at a UK supermarket's distribution centres in England and Scotland

What does the study involve?

The first intervention involves increasing the number of low calorie options in worksite cafeterias. For example, there are four hot meals available per day at the start of the study. On most days 1/4 of these meals are low in calories, and on some days there are no low calorie options. This intervention would guarantee at least 2/4 lower calorie options every day. This intervention would also be applied to side dishes, soft drinks, sandwiches, snacks, and desserts. The second intervention involves reducing the portion size of higher calorie foods by around 10%. For example, when using a ladle to spoon curry and rice onto a plate, a slightly smaller ladle could be used to ensure a smaller portion for the customer. The price is also reduced proportionately with the reduction in size. The first intervention, availability, is evaluated in isolation. The second intervention, portion size, is added to the first to evaluate in the combined impact of both interventions. To test if these interventions are effective, 19 cafeterias receive the interventions after a period in which the cafeteria runs as normal and sales data is collected. After the interventions, the data is used to show whether the intervention resulted in fewer calories being purchased across the 19 sites.

What are the possible benefits and risks of participating?
These results will help determine if these two interventions can help people reduce the number of calories that they consume while in the workplace. It is possible that sales may decrease (or increase) as a result of the changes over intervention period when the availability and portion size of certain foods are changed.

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

When is the study starting and how long is it expected to run for?
October 2018 to February 2020

Who is funding the study?
1. Wellcome Trust
2. Cancer Research UK

Who is the main contact?
Dr James Reynolds
jpr63@medschl.cam.ac.uk

Contact information

Type(s)
Scientific

Contact name
Dr James Reynolds

ORCID ID
https://orcid.org/0000-0003-1536-1557

Contact details
Institute of Public Health
Forvie Site
Robinson way
Cambridge
United Kingdom
CB2 0SR
+44 (0)1223 762569
jpr63@medschl.cam.ac.uk

Additional identifiers

Study information

Scientific Title
Impact of increasing availability of healthier foods and reducing portion sizes on energy purchased in worksite cafeterias: a stepped-wedge randomised controlled trial

Study objectives

1. Fewer calories will be purchased during the availability intervention period when compared to the baseline
2. Fewer calories will be purchased during the availability + portion size intervention period when compared to the baseline and when compared to the availability intervention period

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 14/05/2019, Cambridge Psychology Research Ethics Committee based at the University of Cambridge (School of the Biological Sciences, 17 Mill Lane, Cambridge, CB2 1RX; Tel: +44 (0)1223 766876; Email: Cheryl.Torbett@admin.cam.ac.uk), Ref: PRE2019.006

Primary study design
Interventional

Study design
Randomised stepped-wedge design

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Excess energy intake

Interventions
There will be a four-week baseline period in which data are recorded without any intervention. Two sites per week, selected by the randomisation, will begin the first intervention phase (Availability) and data will continue to be recorded for a further eight weeks. After these eight weeks with the first intervention, each site will in addition receive the second intervention (Portion Size, plus continuing Availability) in the same order that they received the first intervention. Data will be recorded for four weeks after the last site has received the second intervention. Assuming that 19 sites complete the trial, the trial will last for 25 weeks in total.

Control: no treatment/baseline

Intervention 1: Availability.
This intervention comprises increasing the number of healthier food options while decreasing the number of less healthy food options, while maintaining the same total number of options (an Availability x Product intervention within the TIPPME intervention typology (Hollands et al., 2017)). In this case, healthiness is defined by energy content, with the term 'healthier' indicating foods containing less energy (kcals). Energy content is not the only factor in determining the healthiness of a specific food item, but we have selected it because excess energy is a major contributor to population level excess weight and obesity. It also enables an unambiguous and quantifiable scale of healthiness (Pechey et al., 2019). The proposed implementation of this intervention will be similar to that of our pilot trial (Pechey et al., 2019).
The items selected to be removed from the cafeterias will be those with the highest energy (kcal) content per pack, or per 100ml if applied to cold drinks, within each targeted food category. Exceptions include fruit, vegetables, nuts and seeds without added sugar or salt, and 100% fruit juice, which are classed as healthy regardless of energy content.
If a site is unable or unwilling to swap a particular item, then the next highest energy item within

that category will be selected instead. The healthier replacements will be agreed with each site, and chosen to best match the category of the original item e.g. a high sugar drink such as Pepsi® or Coca Cola® would be replaced by a no-sugar equivalent such as Pepsi Max® or Coke Zero®.

Intervention 2: Portion size.
This intervention comprises reducing the portion size, by volume, of the targeted food categories (a Size x Product intervention within the TIPPME intervention typology (Hollands et al., 2017)). The proposed implementation is consistent with that of the aforementioned pilot trial (Hollands et al., 2018). It requires that items reduced in size are priced proportionately to the reduction so that value-for-money remains consistent, and the range of available food products is unchanged.
Within target food categories, changes will be requested for - but not limited to - all products that are trayed (e.g. pies), countable in pieces (e.g. scampi), wet/served with a ladle (e.g. curry, rice) or sliced or portioned by the sites (e.g. cakes), as these enable reductions to be made most readily and precisely. The reductions in portion size will vary by site and specific product but will be requested to be at least a 10% reduction by volume in each targeted product (Hollands et al., 2018).

Target food categories for availability and/or portion size interventions:
The precise target food categories and products within those that receive each of the interventions, being those that changes are requested for, will depend on discussions with cafeteria managers and catering companies but will likely include the following:
Main meals: The meat or vegetarian principal element of a meal
Sides: carbohydrate-rich portions (e.g., chips) and protein pots (e.g., tuna, cheese)
Sandwiches: sandwiches, wraps, bread rolls
Paninis: toasted paninis
Desserts and cakes: hot deserts (e.g., crumbles), dessert pots (e.g., yoghurt, cheesecake, mousse, jelly, granola) and sliced cake
Snacks: savoury snacks (e.g., crisps), sweet snacks (e.g., chocolate bars)
Drinks: cold drinks
Some items may only be eligible to receive one of the two interventions, e.g., higher calorie crisps may be replaced by lower calorie crisps in the Availability intervention but if they are not available in a smaller size they will not be a target in the Size intervention.

Intervention Type
Behavioural

Primary outcome(s)
Total energy (kcal) purchased from intervention food categories per day after controlling for the total transactions. This measure is calculated from the total number of sales for all items within an intervention food category and the total number of calories for each of these items. Sales data are recorded using electronic tills every day of operation during the trial.

Key secondary outcome(s)
1. Total energy (kcal) purchased per day of analysis from (a) non-intervention food categories, and (b) all food and drink products, after controlling for the total sales/transactions. This measure is calculated from the total number of sales for all items within an intervention food category and the total number of calories for each of these items. Sales data are recorded using electronic tills every day of operation during the trial.
2. Total revenue from each cafeteria. This is calculated from the number of all items sold in the cafeterias and the price of each of these items. These data will be collected using the electronic

tills for every day of operation for all cafeterias during the length of the trial.
3. Overall sales data from any vending machines located in each distribution centre. This consists of the total number of individual product sales from vending machines across each distribution centre (i.e. the wider building that houses the cafeterias in which we are intervening). These data will be collected every day of operation for all distribution centres during the length of the trial.

Completion date
01/02/2020

Eligibility

Key inclusion criteria
The study does not use individual-level data; therefore any people attending the cafeterias are eligible.
The inclusion criteria for the cafeterias are:
1. At least 350 employees
2. Electronic Point of Sale (EPOS) tills which are able to record electronic sales data
3. Cafeteria is based in a distribution centre that belongs to the UK supermarket chain that we have partnered with for this project

Participant type(s)
All

Healthy volunteers allowed
No

Age group
Adult

Sex
All

Total final enrolment
19

Key exclusion criteria
Sites not meeting the inclusion criteria

Date of first enrolment
27/05/2019

Date of final enrolment
20/12/2019

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Institute of Public Health
Forvie Site
Robinson Way
Cambridge
United Kingdom
CB2 0SR

Sponsor information

Organisation
University of Cambridge

ROR
https://ror.org/013meh722

Funder(s)

Funder type
Charity

Funder Name
Wellcome Trust

Alternative Name(s)

Funding Body Type
Private sector organisation

Funding Body Subtype
International organizations

Location
United Kingdom

Funder Name
Cancer Research UK

Alternative Name(s)

CR_UK, Cancer Research UK - London, Cancer Research UK (CRUK), CRUK

Funding Body Type
Private sector organisation

Funding Body Subtype
Other non-profit organizations

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are not expected to be made available as they are commercially sensitive, and are to be provided by the participating worksites on condition that they are not shared beyond the research team.

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	14/09/2021	21/09/2021	Yes	No
Protocol article	protocol	02/12/2019	05/12/2019	Yes	No