

# The impact of aversive labelling on approach and avoidance behaviour towards food

<b>Submission date</b> 12/02/2020	<b>Recruitment status</b> Stopped	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 19/02/2020	<b>Overall study status</b> Stopped	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 01/07/2021	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

Background and study aims:

Recent research suggests health warning labels on high energy-dense snack foods could reduce their selection and consumption. However, we don't yet fully understand how the health warning labels achieve this effect. The current study investigates how health warning labels might work.

One possible explanation is that health warning labels reduce selection of high energy-dense snacks because they make people think about their health. The health warning message might be used in their decision-making process to not choose a product that may be harmful to them. Alternatively, they may simply be put off by the visually unpleasant nature of the label.

If the latter is true, then the health message may not be essential to the effects of health warning labels, and a warning label should work even if it has nothing to do with health, as long as it causes a negative feeling.

To distinguish between these two possible explanations, we are investigating the effects of displaying health warning labels, versus health-irrelevant warning labels, on wanting and liking of high energy-dense snacks.

Who are our participants?

200 adults over the age of 18, who eat milk chocolate at least once a week.

What does the study involve?

Participants will be invited to the lab for a 30-minute study session, where a member of the research team will obtain written consent. Participants will be given an explanation in advance about the nature of the task measures and offered a chance to ask any questions. Participants will start by answering questions on their hunger levels, and the time since they last ate.

Participants will complete four practice trials of the approach-avoidance task.

Phase 1. Participants will do the approach-avoidance task in response to unlabelled chocolate bars, and non-food control stimuli (i.e. images of stationery). The approach-avoidance task requires them to move a joystick either towards themselves ("approach") or away ("avoid") in response to the picture and an instructive arrow beside it. Pulling the joystick towards them results in the image expanding while pushing away results in it shrinking.

Next, participants will give initial measures of wanting and liking. Participants will be asked to rate the four unlabelled chocolate bars ("how much do you like this chocolate bar generally?"

and “how much do you want one of these chocolate bars right now?”). Participants will also be asked to rate the four control stimuli (stationery items) (“how much do you like this product generally?” “How much do you want this product right now?”). They will use a cursor to place their response on a scale.

Participants will then fill in a questionnaire, with questions on their education level, income, age, gender and ethnicity.

Phase 2. Participants will then repeat the approach-avoidance task. This time, each of the four bars will be presented displaying i. three different health warning labels; ii. three different irrelevant warning labels; iii. no label on three occasions.

Participants will then repeat measures of wanting and liking. Participants will be randomised to view and rate the four chocolate bars – of which one will display at random one of the three health warning labels, one will display at random one of the three irrelevant warning labels, and two will be unlabelled.

Lastly, participants will give measures of dietary restraints and purchasing and consumption habits. We will also record their height and weight to calculate BMI.

What are the possible benefits and risks of participating?

Participants will be paid standard market research panel rates for participating in this study. There are no known risks of participating in the study.

Where is the study run from?

Behaviour and Health Research Unit, University of Cambridge (UK).

When is the study starting and how long is it expected to run for?

February 2020 to September 2021

Who is funding the study?

Wellcome Trust (UK)

Who is the main contact?

Prof. Paul Fletcher

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## Contact information

### Type(s)

Scientific

### Contact name

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## **Additional identifiers**

**EudraCT/CTIS number**  
Nil known

**IRAS number**

**ClinicalTrials.gov number**  
Nil known

**Secondary identifying numbers**  
PRE.2019.111

## **Study information**

**Scientific Title**  
The impact of aversive food labelling on approach and avoidance behaviour

**Study objectives**  
1. Exposure to aversive warning labels (both health warning labels and irrelevant warning labels) will reduce implicit motivation for labelled food.  
2. This effect will be greater for health warning labels than irrelevant warning labels

**Ethics approval required**  
Old ethics approval format

**Ethics approval(s)**  
Approved 28/01/2020, Cambridge Psychology Research Ethics Committee (School of the Biological Sciences, University of Cambridge, 17 Mill Lane, Cambridge CB2 1RX; +44 (0)1223 766894; Cheryl.Torbett@admin.cam.ac.uk). Ethical approval ref: PRE.2019.111.

**Study design**  
Interventional randomized cross over trial

**Primary study design**  
Interventional

**Secondary study design**  
Randomised cross over trial

**Study setting(s)**  
Other

**Study type(s)**  
Other

**Participant information sheet**

Not available in web format, please use contact details to request a participant information sheet

## **Health condition(s) or problem(s) studied**

Excess calorie consumption

## **Interventions**

The study investigates potential mechanisms underlying the impact of health warning labels on wanting and liking of energy-dense snacks. If health warning labels work by targeting model-based responding, then health warning labels emphasising the relationship between the action and the outcome, i.e. depicting consequences that are causally related to engaging in the behaviour, would produce a bigger effect. Conversely, according to the model-free perspective, i.e. a Pavlovian aversive association with the stimulus, the outcome need not be causally related to the behaviour and the label should instead be selected on the basis of its capacity to drive general aversive conditioning. Thus causally irrelevant aversive stimuli, i.e. irrelevant warning labels, should produce as great an effect.

To investigate this, 200 participants will be invited to the lab for a 30 minute study session, where a member of the research team will obtain written consent. Participants will be briefed in advance about the nature of the task measures and offered a chance to ask any questions. Participants will start by answering questions on their hunger levels, and the time since they last ate. Participants will complete four practice trials of the approach-avoidance task, in which they will practice using the joystick to approach (twice) and avoid (twice) an image of a white rectangle.

Phase 1. Participants will do the approach-avoidance task with chocolate bars that are presented in isolation (i.e. unlabelled), and non-food control stimuli (i.e. images of stationery). We will use a total of four chocolate bars and four stationary items and each will be presented twice (once for an approach and one for an avoid response). The implicit measure requires them to move a joystick either towards themselves ("approach") or away ("avoid") in response to the picture and an instructive arrow beside it. Pulling the joystick towards them results in the image expanding while pushing away results in it shrinking.

Next, participants will give initial explicit measures of wanting and liking. Participants will be asked to explicitly rate the four unlabelled chocolate bars ("how much do you like this chocolate bar generally?" and "how much do you want one of these chocolate bars right now?").

Participants will also be asked to explicitly rate the four control stimuli (stationery items) ("how much do you like this product generally?" "How much do you want this product right now?").

They will use a cursor to place their response on a scale.

Participants will then give their demographics. Participants will fill in a questionnaire, with questions on their education level, income, age, gender and ethnicity.

Phase 2. Participants will then repeat the approach-avoidance task. This time, each of the four bars will be presented displaying i. three different health warning labels; ii. three different irrelevant warning labels; iii. no label on three occasions, leading to 36 permutations. Each stimuli will be presented twice to obtain an approach and avoid measure, giving 72 total different presentations, of which the order will be randomised.

Participants will then repeat measures of explicit wanting and liking. Participants will be randomised to view and rate the four chocolate bars – of which one will display at random one of the three health warning labels, one will display at random one of the three irrelevant warning labels, and two will be unlabelled.

Lastly, participants will give measures of dietary restraints and purchasing and consumption habits. We will also record their height and weight to calculate BMI.

The primary outcome will be the mean implicit motivation. A joystick-based task will be used to quantify speed of response to either an “approach” or an “avoid” instruction in relation to images of chocolate bars displaying different warning labels. When shown an image, a participant has to respond as rapidly as possible, to an accompanying instruction to either push forward or pull back on the joystick. The former movement is the avoid response and will result in a shrinkage of the image (as though it were moving away). The latter is the approach response and results in enlargement of the image. For a given image, both types of response will be measured and the difference in reaction time (RT) will indicate their bias. This mean implicit motivation will be measured in relation to four chocolate bars displaying each of the three label conditions in phase 2. This will be calculated for each label condition by:  
Mean approach RT (for the twelve approach RTs) minus mean avoid RT (for the twelve approach RTs).

Liking and wanting will be assessed immediately after phase 1 and repeated immediately after phase 2, using a 100mm visual analogue scale to two questions based on standard measures used in studies of food and drugs (Rogers & Hardman, 2015):

Liking: ‘How much do you like this chocolate bar generally?’

Wanting: ‘How much do you want one of these chocolate bars right now?’

### **Intervention Type**

Behavioural

### **Primary outcome measure**

Reaction times (ms) to the instructions in the approach-avoidance task

### **Secondary outcome measures**

Liking and wanting will be assessed immediately after phase 1 and repeated immediately after phase 2, using a 100mm visual analogue scale to two questions (described above)

### **Overall study start date**

17/02/2020

### **Completion date**

01/09/2021

### **Reason abandoned (if study stopped)**

Due to the COVID-19 pandemic this study was never conducted

## **Eligibility**

### **Key inclusion criteria**

1. Over 18 years old
2. Eats milk chocolate at least once a week
3. Has basic computer literacy, i.e. able to use a computer for simple tasks
4. Able to provide written informed consent

### **Participant type(s)**

All

### **Age group**

Adult

**Lower age limit**

18 Years

**Sex**

Both

**Target number of participants**

200

**Key exclusion criteria**

1. Non-fluent English speaker

**Date of first enrolment**

01/03/2021

**Date of final enrolment**

01/08/2021

## **Locations**

**Countries of recruitment**

England

United Kingdom

**Study participating centre**

**University of Cambridge**

Behaviour and Health Research Unit

Cambridge

United Kingdom

CB2 0SR

## **Sponsor information**

**Organisation**

University of Cambridge

**Sponsor details**

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**Sponsor type**

University/education

**Website**

[www.admin.cam.ac.uk/offices/research](http://www.admin.cam.ac.uk/offices/research)

**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

## **Results and Publications**

**Publication and dissemination plan**

1. Planned submission of the main results of this study for publication in a peer-reviewed journal
2. Dissemination of the results to the public, policy makers and other researchers through targeted social media

**Intention to publish date**

01/12/2021

**Individual participant data (IPD) sharing plan**

The data sharing plans for the current study are unknown and will be made available at a later date.

## **IPD sharing plan summary**

Data sharing statement to be made available at a later date