



# Pairing images of unhealthy and healthy foods with images of negative and positive health consequences: impact on attitudes and behavioural choice

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# Background



- Visual images of potential adverse health consequences of behaviour widely used to motivate behaviour change
- Graphic picture warnings on tobacco packaging are most prominent example
- Evidence of the behavioural impact of affective images limited due to non-experimental designs and focus on smoking

# Theoretical background

- Evaluative conditioning process = Repeatedly pairing an attitude object (e.g. a product) with emotionally valenced stimuli to affect associations and responses
- Applying such a process in an experimental setting can be used to assess behavioural impact of eliciting affective associations with products
- Potential to ultimately inform interventions to alter selection or consumption

# Current study

- Replication and extension of previous experimental study (Hollands, Prestwich & Marteau, 2011, *Health Psychology*)
  - Paired associations of snack foods with aversive images of potential negative health consequences led to healthier food choices, mediated by changes in implicit attitudes
- Current study aims to:
  - Replicate. Little causal evidence that eliciting affective associations alters health behaviour via implicit attitudes
  - Extend. To examine effects of positive images and of pairing with healthy foods (fruit) + in larger general population sample

# Hypotheses

## Hypothesis 1

Pairing images of food with

- i) images of **negative** health consequences **reduces** behavioural preferences for that food
- ii) images of **positive** health consequences **increases** behavioural preferences for that food

## Hypothesis 2

Effects on behaviour mediated by changes in implicit attitudes

# Design and Intervention

- Online, experimental between-subjects design with six arms
- Participants (n=711) randomized in a 2 x 3 factorial design manipulating food type (snacks; fruit) and affective valence (negative; control; positive).
- Slideshow of images of either i) energy-dense snack foods or ii) fruit, paired with either: (a) negative health-related images; (b) positive health-related images; or (c) blank screens (no image control)

# What this looks like

# I) food image presented (Is)



**OR**





## 2) affective image presented (I s)



**OR**



**3) inter-trial interval (.5s)**

# Measures

- Primary behavioural outcome = two choices made between fruit and snacks: i) from an image of an array of fruit and snacks, ii) from a fruit or snacks voucher offered as compensation
- Secondary outcomes = implicit attitudes (IAT) and explicit attitudes towards fruit relative to snacks

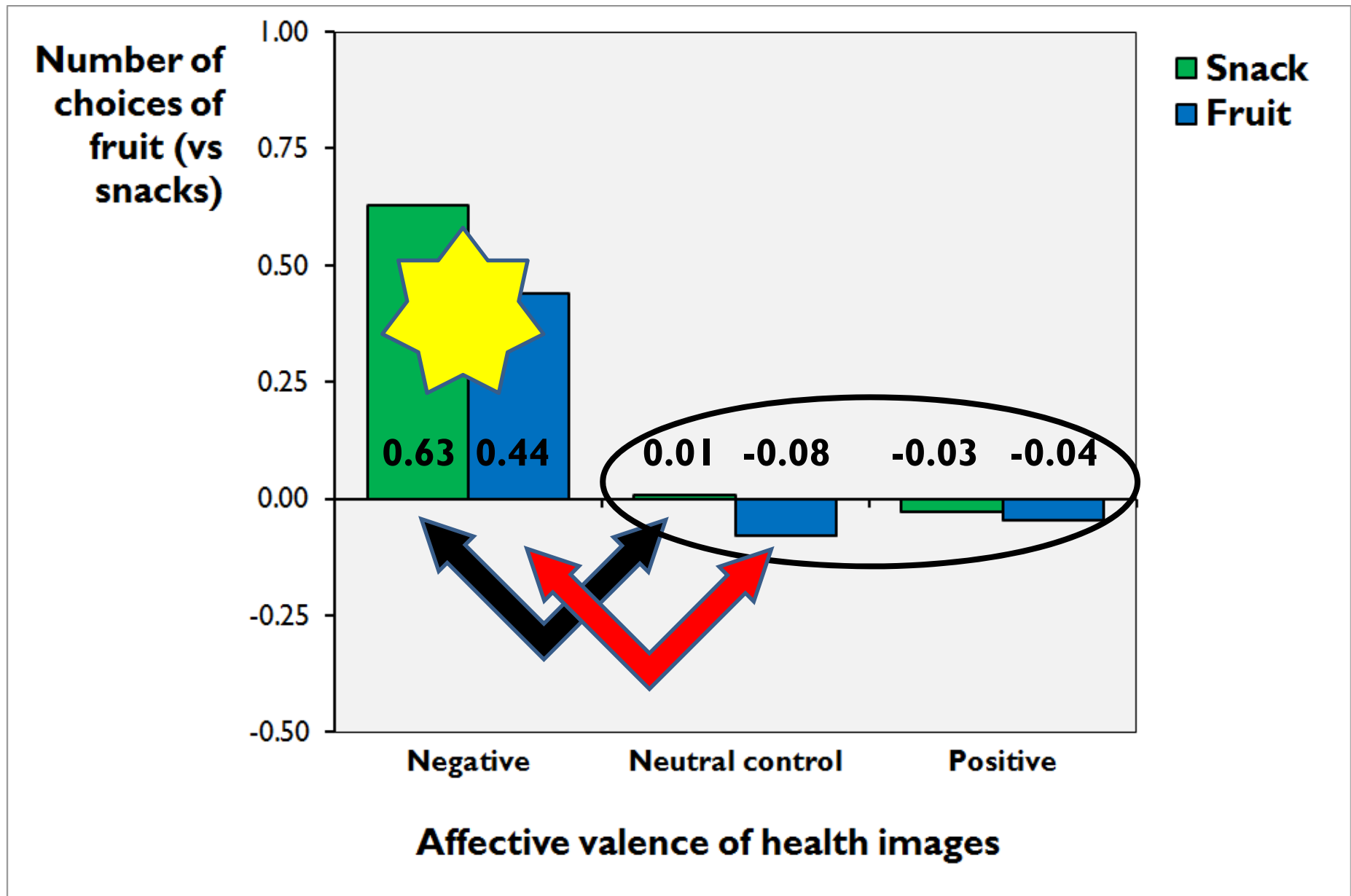
# Results

## Hypothesis 1

### Pairing images of food with

- i) images of **negative** health consequences **reduces** behavioural preferences for that food
- ii) images of **positive** health consequences **increases** behavioural preferences for that food

- As predicted, participants in the Snacks + Negative condition chose fruit more often than snacks **BUT** unexpectedly, so did participants in the Fruit + Negative condition
- Factorial ANOVA revealed a main effect of affective valence,  $p < .001$ : irrespective of the paired food, negative images increased healthy choices
- No effect of positive images and no interaction effect



# Results 2

## Hypothesis 2

Effects on behaviour mediated by changes in implicit attitudes

- As hypothesised, changes in the primary behavioural outcome were mediated by changes in implicit attitudes **BUT** also by explicit attitudes (multiple mediation analysis using a bias-corrected bootstrap,  $p < .05$ )

# Discussion

- Replicated prior findings: pairing food with negative images increased healthy choices and implicit attitudes
- BUT contrary to hypothesis, this was result of main effect of negative images, irrespective of whether paired with snacks or fruit
- Interpretation of prior findings as reflecting EC process not corroborated
- Results more consistent with priming explanation: images of ill-health activate healthy eating goals or elicit existing positive representations of healthy products, shaping behaviour and attitudes

# Discussion 2

- Observed effects need further investigation (e.g. effect of negative images on own, or requires food context?)
- Key limitation = behavioural measure does not reflect complexity of real-world behaviour outside the laboratory setting
- Laboratory-based experimental methods may provide insights relevant to interventions that use aversive visual images to reduce consumption of unhealthy products



# THE END

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