**The Effects of Liking Norms and Descriptive Norms on Vegetable Consumption: A Randomized Experiment: Study 1**

*Aim*

The aim of this lab-based study was to test whether a liking norm about vegetable consumption would enhance the intake of vegetables by habitual low consumers of vegetables and whether the effects would be sustained over a 24-h delay. The effects of the liking norm message were compared with the effects of a vegetable related descriptive social norm message, a health message, a message about vegetable variety, and an control message about the age of the University.

*Design*

Participants completed what they thought were two separate studies: one evaluating educational posters (which contained the experimental messages) and the other a taste test in which they were asked to select foods from a buffet, either immediately after exposure to the poster or after a 24-h delay.

A between-subjects design was used that had three factors: Delay (no delay and delay between the poster study and the buffet), Message (neutral control, vegetable variety condition, health, descriptive norm, and liking norm), and habitual consumption of vegetables (low vs. high, as established by self-report measures). Participants in the No Delay condition saw the poster message and chose from a food buffet within the same test session. Participants in the Delay condition saw the poster message on the first day and then returned 24 h later to choose from the food buffet.

*Messages*

The messages being compared were:

* The liking norm: “Did you know more students like vegetables than you might realize? Although, a lot of people aren’t aware, 80% of students actually like vegetables a lot”)
* The descriptive social norm message about vegetable consumption: “Did you know most students eat a lot more vegetables than you might realize? Although, a lot of people aren’t aware, the typical student eats over three servings of vegetables each day”
* The health-based message: “Did you know eating a lot of vegetables is good for your health? Although, a lot of people aren’t aware, heart health and cancer risk can be improved by eating over three servings of vegetables each day”)
* The vegetable variety message: “Did you know there are more types of vegetables than you might realize? According to the latest estimate, there are over one thousand different types of vegetables
* The neutral control message: “Did you know that The University of Birmingham is over 100 years old? According to a recent survey, most students prefer to study at a University with an established record”

*Measures*

Participants completed the following questionnaire measures:

* Questions relating to demographics: age, gender, medical illnesses, food intolerances, psychiatric issues, and smoking and drinking (variables 2-7, 24-27)
* An eating questionnaire, which consisted of two open-ended questions asking participants what they had eaten and drank that day and when to check that the participant had not eaten for 2 h prior to attending the laboratory [EATENINLASTTWOHOURS]
* To maintain the cover story for the first study, participants completed a poster evaluation questionnaire, rating the poster on key aspects (trustworthiness, believability, relatability, meaning, clarity, comprehension, and professional appearance) using a five-point Likert scale with the response scale ranging from strongly disagree to strongly agree
  + [Poster\_PROFESS, Poster\_TRUST, Poster\_BELIEVE, Poster\_RELATE, Poster\_MEANING, Poster\_CLEAR, Poster\_COMP]
* The Three Factor Eating Questionnaire (TFEQ—Stunkard and Messick, 1985) to assess whether there were differences in eating styles between conditions.
  + Cognitive Restraint subscale: [TFEQ\_CR]
  + Disinhibition subscale [TFEQ\_D]
  + Hunger subscale [TFEQ\_H]
* Visual Analog Scales (VAS) were used to assess mood and appetite.
  + VAS items included: alert, drowsy, light-headed, anxious, happy, nauseous, sad, withdrawn, faint, hungry, full, desire to eat, and thirst. Participants indicated how much they felt a particular state, by marking on a 100mm horizontal line, between the anchors “Not at all” and “Very.”
  + [VAS1ALERT] – [VAS1THIRSTY], [VAS2ALERT] – [VAS2THIRSTY],
* Participants also completed a VAS scale similar to that described above to rate their liking for buffet foods.
  + [LIKED\_CUCUMB] – [LIKED\_crackers]
* They were also asked to record using a tick box response whether they dipped the food in the dip provided.
  + [CUCUMB\_YOG] – [crackers\_SALSA]
* Usual vegetable intake was assessed using two open- ended questions asking “How many servings of vegetables do you normally eat a day?” [VEG\_SERVINGS\_A\_DAY] and “Think back carefully—How many servings of vegetables did you eat yesterday?”[ VEG\_SERVINGS\_YESTERDAY].
* Participants completed questions asking what they thought the study’s aim was [STUDYAIMS] (in order to check whether they were aware that the studies were linked), before being asked explicitly whether they knew they were linked [EXPLICITAWARENESSQUESTION].
* They were also asked what percentage of students they thought met the recommended guidelines for fruit and vegetable intake (VAS scale with the anchors 0 and 100%) [PERCENTAGE\_STUDENTS\_EATING\_RECOMMENDEDAMOUNT] and what the usual intake of vegetables was for other students (scale from 1 to 10 servings per day) [NO\_OF\_VEG\_BELIEVE\_STUDENTS\_EATADAY].
* Finally, they were asked to recall the salient points from the poster that they had seen earlier using an open-ended response format.

*Procedure*

On arrival at the laboratory, the participant completed the “Poster Study.” Participants were then handed the poster corresponding to their condition and completed a poster rating questionnaire.

Participants in the No Delay condition were then taken to a different room with a different researcher to complete the “appetite and mood study.” Those in the Delay condition were told to attend the different room the following day at the same time.

On arriving at the second testing venue, participants were presented with a new information sheet and consent form. They then completed the Lifestyle Questionnaire and Eating Questionnaire before completing a baseline set of VAS assessing mood and appetite. Then, they were provided with the snack food buffet on a trolley and instructed to select and consume whatever they wished.

The buffet consisted of six bowls of snack food items and two pots of dipping sauces: raw cucumber slices (160 g, 18 calories), raw celery sticks (140 g, 14 calories), raw broccoli florets (100 g, 33 calories), ready-salted Pringles (60 g, 313 calories), ready-salted tortillas chips (60 g, 293 calories), Ritz crackers (80 g, 404 calories), salsa dip (100 g, 29 calories), and a paprika yogurt dip (100 g, 49 calories).

To corroborate the cover story for this “study,” when leaving, the researcher left a new set of VAS with the participant with instructions to complete it immediately after eating. Participants selected and consumed their food alone. After consuming the food and completing the VAS, the participants were asked to complete the food liking ratings and TFEQ. They were then asked to guess the aims of the study, report on their usual vegetable intake, and complete the manipulation checks. Weight and height were then measured using a stadiometer and digital scales. Participants were then asked if they had realized that we were interested in whether exposure to the message affected later food intake and were finally debriefed and compensated for their time.