



Research report

Why don't poor men eat fruit? Socioeconomic differences in motivations for fruit consumption [☆]



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ABSTRACT

Background: Those of lower socioeconomic status (SES) tend to have less healthy diets than those of higher SES. This study aimed to assess whether differences in motivations for particular foods might contribute to socioeconomic differences in consumption. **Methods:** Participants (n = 732) rated their frequency of consumption and explicit liking of fruit, cake and cheese. They reported eating motivations (e.g., health, hunger, price) and related attributes of the investigated foods (healthiness, expected satiety, value for money). Participants were randomly assigned to an implicit liking task (Single Category Implicit Association Task) for one food category. Analyses were conducted separately for different SES measures (income, education, occupational group). **Results:** Lower SES and male participants reported eating less fruit, but no SES differences were found for cheese or cake. Analyses therefore focused on fruit. In implicit liking analyses, results (for income and education) reflected patterning in consumption, with lower SES and male participants liking fruit less. In explicit liking analyses, no differences were found by SES. Higher SES participants (all indicators) were more likely to report health and weight control and less likely report price as motivators of food choices. For perceptions of fruit, no SES-based differences were found in healthiness whilst significant interactions (but not main effects) were found (for income and education) for expected satiety and value for money. Neither liking nor perceptions of fruit were found to mediate the relationship between SES and frequency of fruit consumption. **Conclusions:** There is evidence for social patterning in food motivation, but differences are modified by the choice of implicit or explicit measures. Further work should clarify the extent to which these motivations may be contributing to the social and gender patterning in diet.

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Introduction

There are substantial socioeconomic inequalities in the prevalence of non-communicable diseases including diabetes, cardiovascular disease and cancer, the key determinants of which are behavioural risk

factors, including unhealthy diets (World Health Organization, 2011). The consumption of unhealthy diets (in particular, eating fewer fruits and vegetables) is also strongly patterned by socioeconomic status (SES) (Appelhans et al., 2012; Darmon & Drewnowski, 2008; Giskes, Avendaño, Brug, & Kunst, 2010; Pechey et al., 2013; UK Department for Environment, Food and Rural Affairs, 2011).

Population-level factors implicated in the association between SES and fruit and vegetable consumption include food environments, with those in lower SES groups having less physical access to healthier food outlets and greater exposure to unhealthy outlets (Cummins et al., 2009; Molaodi, Leyland, Ellaway, Kearns, & Harding, 2012; Smith et al., 2010), and economic access, with more energy-dense foods often providing cheaper sources of calories (Monsivais, McLain, & Drewnowski, 2010). These socioeconomic differences in fruit and vegetable consumption may also be influenced by cross-cultural differences, with large purchasing gaps by SES observed for

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fruit in the UK, Belgium and Germany, but non-significant differences in Sweden, Italy and Spain (Fernández-Alvira et al., 2013; UK Department for Environment, Food and Rural Affairs, 2011).

Numerous individual-level factors have also previously been identified as partial mediators of the relationship between socioeconomic status and diet quality, including: attitudes to healthy eating (Ball, Crawford, & Mishra, 2006; Le et al., 2013), nutrition knowledge (Ball et al., 2006; McLeod, Campbell, & Hesketh, 2011), stressors and psychological resources (Mulder, de Bruin, Schreurs, van Ameijden, & van Woerkum, 2011), diet cost (Aggarwal, Monsivais, Cook, & Drewnowski, 2011) and higher consumption of takeaways (leading to lower fruit and vegetable consumption) (Miura, Giskes, & Turrell, 2011).

Another individual-level factor, food motivation – defined as the extent to which participants value a particular food in comparison to other food items or to non-food alternatives – was identified in a recent review as one of the most reliable neurobehavioural correlates of obesity, associated with a range of food-related behaviours (Vainik, Dagher, Dubé, & Fellows, 2013). One factor in determining motivation is liking for different foods, which may be socially patterned – e.g., lower compared with higher income groups report greater dislike for healthier versions of selected foods including wholemeal bread, rice and pasta, low fat yoghurt and unsweetened fruit juice (Turrell, 1998). Limited evidence exists on the social patterning of motivation towards different foods, however – this has mostly been generated using explicit, self-report measures of liking. Additionally investigating implicit measures of liking is of interest, given these have previously been suggested to predict impulsive rather than controlled behaviour (Friese, Hofmann, & Wänke, 2008; Hofmann, Rauch, & Gawronski, 2007).

As well as liking, several other diet-related motivations have been shown to influence food choice, reflected in measures developed to assess the range of eating motivations (Eating Motivations Survey; Food Choice Questionnaire: Renner, Sproesser, Strohbach, & Schupp, 2012; Steptoe, Pollard, & Wardle, 1995). In particular, studies looking at the importance given to price and health considerations consistently reveal socioeconomic disparities (Bowman, 2006; Kontinen, Sarlio-Lähteenkorva, Silventoinen, Männistö, & Haukkala, 2013; Steptoe & Wardle, 1999). Individuals would be expected to choose foods according to their reported eating motivations where possible. Disparities in eating motivations could therefore be exacerbated by differences in nutritional knowledge, but whilst SES differences in knowledge have been shown at an aggregate level (Ball et al., 2006), the consistency of perceptions (e.g., healthiness) of particular foods across socioeconomic groups has not been investigated to our knowledge. Beyond cost and health considerations of different types of foods, the perceived satiety of these foods is of interest, given that satisfying hunger is a primary motivation to eat, and of particular importance for those with limited resources for purchasing food.

In this study, we tested the hypothesis that social patterning for food motivation, using both implicit and explicit measures of liking, reflects the social patterning observed in food choices. In addition, we investigated social patterning in usual eating motivations and related perceived attributes of the investigated foods. The aim was to assess the extent to which differences in food motivations might contribute to socioeconomic differences in food choice, with possible implications for policies aimed at reducing the social patterning of diet quality and subsequent health inequalities.

Material and methods

Sample and design

Seven hundred thirty-two members of an online panel (aged 18+) were recruited via a research agency, with interlocking quotas set

for occupational group and gender. To be eligible, participants had to pass quality control check questions (e.g., participants had to respond correctly after certain questions when the following message was shown: “(PLEASE NOTE: This question is to check that you are reading questions carefully. Please ignore the question above, and instead select ‘other’, and write the word ‘X’)”). Participants completed the study online, on their own computers.

A mixed between- and within-design was used for the study: all participants completed the majority of measures but participants were randomly allocated to complete tasks with a high response burden (the Single Category Implicit Association Task) for just one of the three food categories under investigation. Sample size calculations suggested a total sample size of 738 to detect differences in food motivation (including the Single Category Implicit Association Task) by socioeconomic status and gender (interactions) in each food category (for power of 0.8, α of 0.05, and an effect size of 0.2, based on Lien, Jacobs, & Klepp, 2002).

Measures

Socioeconomic status

A range of indices to assess different aspects of socioeconomic status were collected:

- (1) occupational classification of the respondent, using the UK Registrar General's social classification (Rose & Pevalin, 2001), categorised into three groups: A&B: higher managerial and professional; C1&C2: white collar and skilled manual; and D&E: semi-skilled and unskilled manual
- (2) total household income before tax (categorised into four groups of roughly equal sizes, recoded from initial responses where participants selected from 15 income bands)
- (3) highest educational qualification (questions and categorisations used were in line with the approach in the 2011 UK census, but combining ‘no qualifications’ and ‘1–4 GCSEs or equivalent’ groups due to the low number of respondents falling into the ‘no qualifications’ category, giving four groups): ‘No qualifications, GCSE D–G grades, or Level 1 NVQ’; ‘GCSE A*–C grades, or Level 2 NVQ’; ‘A/AS level, or Level 3 NVQ’; ‘Degree or Professional Diploma’¹

Other participant characteristics

Data on gender, age, ethnicity, self-reported height and weight (used to calculate participants' body mass index: BMI), current hunger (measured via a 7-point scale, from ‘Very hungry’ to ‘Very full’), and the number of adults and children living in their household (used to calculate a household composition equivalence score (Organisation for Economic Co-operation and Development-modified scale): households score 1 for the respondent, 0.5 for each additional adult and 0.3 for each child) were also collected.

Food categories

The three categories – fresh fruit, cheese and cake – were selected as categories which have previously been observed to be social patterned (Pechey et al., 2013), that all require little preparation prior to consumption, and that reflect a range of healthiness.

Frequency of consumption

Participants were asked to indicate how often they consumed cheese, fruit and cake (along with a selection of other ‘filler’ food

¹ GCSEs (General Certificate of Secondary Education) are usually taken at age 15–16 in the UK; AS Levels at age 16–17; A-Levels at age 17–18; NVQs (National Vocational Qualifications) are work-based awards, with levels approximately equating to academic qualifications in their category.

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