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Calorie-labelling in catering outlets: Acceptability and impacts on food sales

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ABSTRACT

Objective. Obesity is the biggest challenge facing preventive medicine. Calorie-labelling has been suggested as a way of changing the architecture of an 'obesogenic' environment without limiting consumer choice. This study examined the effect of calorie-labelling on sales of food items at catering outlets on a city-centre university campus.

Methods. Sales data were collected for two consecutive months in 2013 on three UK university sites (two with calorie-labelling during second month, one control) and analysed with chi-square 'Goodness-of-Fit' tests. A questionnaire seeking consumers' views and use of the calorie-labelling was administered and analysed at group-level with chi-square tests.

Results. In intervention vs control sites, total sales of all labelled items fell significantly (−17% vs −2%, $p < 0.001$) for the month with calorie-labelling. Calorie-labelling was associated with substantially reduced sales of high-calorie labelled items, without any compensatory changes in unlabelled alternative items. Among 1166 student- and 646 staff-respondents, 56% reported using the calorie-labels, 97% of them to make lower-calorie choices. More females (63%) than males (40%) reported being influenced by calorie-labels when choosing foods ($p = 0.01$).

Conclusions. This study provides evidence, beyond that from single-meal exposures, for the acceptability of meal calorie-labelling and its potential as an effective low-cost anti-obesity measure.

Introduction

The recent rapid increase in obesity is clearly related to the 'obesogenic' environment of post-industrial communities which provides unlimited, heavily-promoted energy-dense foods and limited physical activity opportunities (Huneault et al., 2011). Eating out is nowadays a part of everyday life with an average 26% of a person's weekly budget spent on food eaten outside home (Department for Environment, Food and Rural Affairs, 2011). This now presents a health problem because catered meals are not subject to any nutritional constraints or to even minimal requirement to provide information about calorie and nutrient contents. They are usually higher in fat, protein, and calories and lower in carbohydrates (Department for Environment, Food and Rural Affairs, 2012a,2012b), so the present nutritional mix will more likely result in weight gain and other negative health effects such as adverse lipid profiles (Roy et al., 2002). Small catering facilities, in particular, commonly provide meals with calories in excess of consumers' needs (Urban et al., 2013).

Young adults, who are at their most critical life-stage for weight gain, often rely on catering outlets at work-places or on university campuses, for their meals. To try to assist consumers, calorie-labelling in catering outlets has been implemented in various commercial and geographic settings, such as New York City and it has been urged elsewhere, for example among large caterers in England, under voluntarily pledges such as the 'Responsibility Deal' (Department of Health, 2011). Calorie-labelling is in line with current 'libertarian paternalism' politics, as it may 'nudge' people towards less calorific choices, without restricting free choice and will (Thaler and Sunstein, 2008). The proposed rationale is that altering the 'food-choice architecture' through providing information about the energy content of meals might help people to make informed food choices (Marteau et al., 2011; Nestle, 2010) and therefore nudge them towards controlling their calorie intakes and body weights.

The present study examined the 'nudging' effect on sales of posting the calorie contents at the point of purchase within catering outlets, all commercially-run by the same in house caterer and located within a large urban university site. It tested the hypothesis that calorie-labelling might lead to altered food selections.

Methods and materials

The study was approved by the Medicine Veterinary and Life Sciences (MVLS) Ethics Committee of Glasgow University (07/01/2012).

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Location

The study was carried out in catering outlets within a large multidisciplinary university, at an inner-city location such that the catering facilities are in direct competition with many local commercial outlets located off-campus. Three catering outlets on the campus, all serving the same selections of foods to similar mixes of students and staff, were identified as sites for the study. All three outlets were open for the same time daily, and offered the same items for sale. The labelled items available were all on display on one wall of shelves and in chilled units at eye-level grouped according to the caterers' descriptors' terms. Hot foods were on display on the opposite wall. Two outlets were located very close together and received calorie-labelling, while a third was a 'control outlet' where no calorie information was posted (Fig. 1).

Study timescale

The month of April was chosen for the intervention, with March as a comparator month (Fig. 1). These months were recommended by the catering director as the most similar months in season, number of holiday days and with no graduations or public events, so few visitors, who might have altered sales, were expected. Those months were also comparable in terms of university holidays, with each month including a two week holiday period (last two weeks of March and first two weeks of April) during which the catering services provided scaled down service. Calorie-labels were posted during the last two weeks of April when students were back on campus and catering services were fully operational.

Food-items

The catering outlets provided chilled and hot foods. All chilled-food items for which the caterers had nutritional data were calorie-labelled. The salads, new items which accounted for very few sales (one rice- and one noodle-based, both 455 kcal), were calorie-labelled but not available in all outlets so they were not included in the analyses. Nineteen bread-based items (rolls and sandwiches with a variety of fillings, referred to collectively in this paper as 'sandwiches') accounted for about half of the total sales, and were included in the analysis. A variety of hot items were also available, but not calorie-labelled.

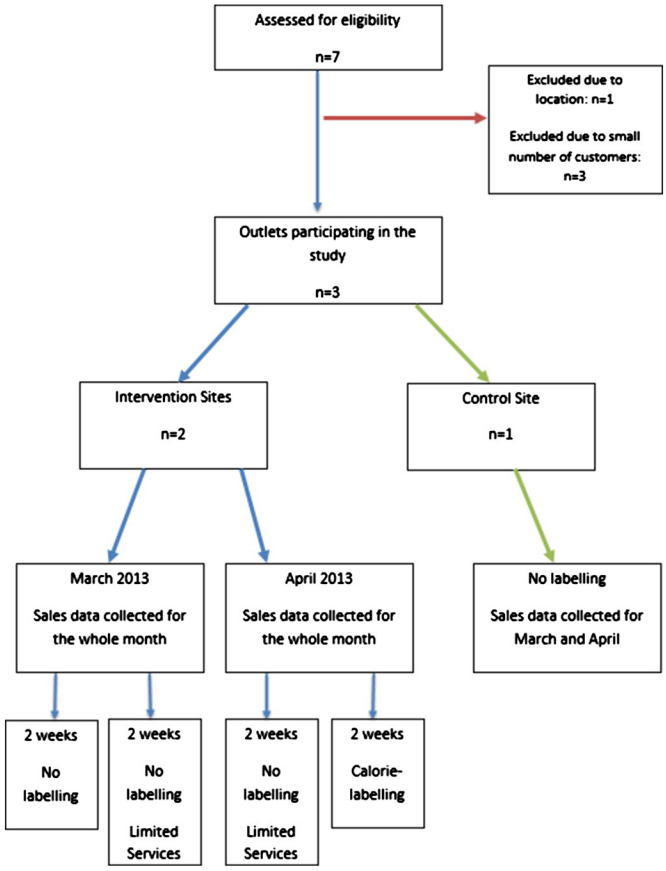

Fig. 1. Study flow-chart.

Calorie-label posting

Calorie-labels were displayed prominently beside all sandwiches available in the two intervention catering outlets, for a period of two weeks in April 2013 (last two weeks of April). Laminated 5.4 × 9.9 cm labels gave the item its name and its calorie content in bold text, and also included the university coat of arms and the 'Human Nutrition' department logo which is well-recognised within the university, as marks of authenticity for the information-source (Appendices 1, 2). The calorie-labels were considerably bigger than any other labels on or around the items. The calorie-labels were placed in the chilled cabinets where items to be labelled were displayed for sale, in front of each item. The positions of calorie-labels were checked every morning after restocking the chilled cabinets by catering staff.

Nutritional information

The caterers had applied UK traffic light guidelines to categorise these 21 items as high, medium or low for fat, saturated fat, sugars, and salt contents (Food Standards Agency, 2007): traffic light labels were posted online, gradually, but were not well known and they were not at the point of sale before or during the present study. Separately from the present study, the caterers had assigned sandwiches to one of five 'caterers' descriptor-terms', without any reference to their nutritional compositions; 'Plain', 'Simple', 'Classic', 'Special', and 'Healthy' and these were included on the packaging. Mean energy contents and nutritional compositions, as %energy (%E) of these categories were; Plain: energy = 319 kcal, fat = 42%E, saturated fat = 17%E, Classic: energy = 345 kcal, fat = 36%E, saturated fat = 12%E, Simple: energy = 344 kcal, fat = 26%E, saturated fat = 8%E, Healthy: energy = 464 kcal, fat = 35%E, saturated fat = 9%E, and Special: energy = 385 kcal, fat = 33%E, saturated fat = 12%E. The purchasing power for food energy per pound sterling spent (kcal/£) for each caterers' descriptor-category range item was calculated from mean calorie content and price.

Nutritional information for all chilled foods was provided to researchers by the catering staff. Based on their nutritional contents, categories (not revealed to customers) were created for data analysis; 1) low-fat ≤ 10 g of fat/100 g, 2) high-fat ≥ 10 g of fat/100 g, 3) low-calorie ≤ 400 kcal/item, and 4) high-calorie ≥ 400 kcal/item. The prices of items were categorised as low price < £2 or high price ≥ £2.

Sales data

Data on sales for all the sandwiches from the three catering outlets participating in the study were collected for the months of March and April 2013, through the receipt and sales system. Sales data were available monthly from the catering department, but not for shorter periods. The data for April thus included two weeks of university holiday when labelling was not in place and catering was reduced, and then two weeks with full student numbers and full catering activities when calorie-labelling was in place. The April data were compared with March, when there was no calorie-labelling and when there were also two weeks of holiday with reduced catering activities. Amounts and types of foods presented to customers remained constant. Sales data for hot foods on sale which were not labelled at the same catering outlets were also collected in order to check whether calorie labelling changed purchase patterns for unlabelled items or for total sales. Under the agreements negotiated with catering services, it was not possible to vary the order of the calorie-labelling intervention, or to extend it beyond two weeks. However, no seasonal variations or changes in the numbers of students or staff based on campus were expected during the study period.

Consumers' evaluation and use of the calorie-labels

A short evaluation questionnaire on customers' understanding, views and use of the labels was devised, and distributed after calorie-labelling has been in place for a week, using a site-wide email. To maximise responses from students and staff exposed to the calorie-labelling paper copies of the questionnaire and collection-boxes were also placed at the intervention catering outlets. The questionnaire included nine questions in total (Appendix 3); five multiple-choice questions addressing label use and reasons for using them,