

# Food at checkouts in non-food stores: a cross-sectional study of a large indoor shopping mall

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## Abstract

**Objective:** To investigate the display of food at non-food store checkouts; and to classify foods by type and nutrient content, presence of price promotions and whether food was at child height.

**Design:** Cross-sectional survey of checkout displays at non-food stores. Foods were classified as 'less healthy' or healthier using the UK Food Standards Agency's Nutrient Profile Model. Written price promotions were recorded. Child height was defined as the sight line of an 11-year-old approximated from UK growth charts.

**Setting:** A large indoor shopping mall, Gateshead, UK, February–March 2014.

**Subjects:** Two hundred and five out of 219 non-food stores in the shopping mall directory which were open for trading.

**Results:** Thirty-two (15.6%) of 205 non-food stores displayed food at the checkout. All displayed less healthy foods, and fourteen (43.8%) had healthier foods. Overall, 5911 checkout foods were identified. Of these, 4763 (80.6%) were 'less healthy'. No fruits, vegetables, nuts or seeds were found. Of 4763 less healthy foods displayed, 195 (4.1%) were subject to price promotions, compared with twelve of 1148 (1.0%) healthier foods ( $\chi^2(df=1)=25.4, P<0.0001$ ). There was no difference in the proportion of less healthy (95.1%) and healthier (96.2%) foods displayed at child height.

**Conclusions:** Almost one-sixth of non-food stores displayed checkout food, the majority of which was 'less healthy' and displayed at child height. Less healthy food was more likely to be subject to a written price promotion than healthier food. Further research into the drivers and consequences of checkout food in non-food stores is needed. Public health regulation may be warranted.

**Keywords**  
Nutrition  
Obesity  
Marketing  
Shops  
Public health

The increasing prevalence of overweight and obesity in the UK and globally is due to an imbalance between energy intake and expenditure<sup>(1–3)</sup>. Among numerous other factors, the exposure of individuals to energy-dense, nutrient-poor foods in everyday life has been recognized as a contributory factor in the development of obesity<sup>(1–3)</sup>. An obesogenic environment is defined as 'the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations'<sup>(4,5)</sup>. One potential contributor to the obesogenic environment which has gained media<sup>(6,7)</sup>, campaign group<sup>(8,9)</sup> and international research<sup>(10–16)</sup> attention is the display of unhealthy foods at supermarket checkouts.

Previous research in UK convenience supermarkets found that food was often displayed at checkouts and

tended to be both unhealthy and in a position to attract children<sup>(10)</sup>. Similar findings have been reported from Australia<sup>(13,15)</sup>, the USA<sup>(14)</sup> and in an international comparison across eight countries<sup>(16)</sup>. Checkout food prompts impulsive purchases and purchasing requests from children<sup>(15,17)</sup>, which consumers find hard to resist and recognize as a potential contributor to obesity<sup>(9)</sup>. Children are a large market for retailers<sup>(18)</sup> and food marketing is known to affect children's food preferences, knowledge and behaviour<sup>(18)</sup>. The balance of healthy to less healthy foods displayed at checkouts influences customers' behaviour, with healthy foods being more likely to be selected when they are in the majority<sup>(19)</sup>. Price promotions are also known to influence purchasing<sup>(20,21)</sup> and may further contribute to impulse purchases.

Anecdotal reports<sup>(22–24)</sup> and a 2011 survey in London of six stores by the Children's Food Campaign<sup>(8)</sup> suggest that the practice of displaying and promoting unhealthy food at checkouts extends beyond supermarkets to non-food stores.

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Research in pharmacies in the USA confirms that more than half of them display food (including sugar-sweetened beverages) for sale within 3 m (10 ft) of checkouts<sup>(25)</sup>. A convenience sample of 1082 non-food stores in the USA found that 41 % stocked food and that 44 % of this was within arm's reach of the checkout queue<sup>(26)</sup>. As far as we are aware, to date no published research has particularly focused on checkout food across all types of non-food stores and none has been conducted outside the USA. Therefore the aims of the present research were to: (i) investigate the display of foods at non-food store checkouts; and (ii) classify foods by type and nutrient content, presence of price promotions and whether food was displayed at child height.

## Method

A cross-sectional survey of non-food stores was conducted in an indoor shopping mall in Gateshead, UK, February–March 2014. The out-of-town indoor shopping mall is the largest in Europe<sup>(27)</sup> and a regional centre with good car, bus and train links. It attracts 23 million visitors per year<sup>(27)</sup> (approximately 63 000 daily) and is equivalent in scale to a UK city centre shopping area. Seventy-three per cent of shoppers are female, 53 % are aged 16–44 years and 57 % are middle class (ABC1<sup>(28)</sup>)<sup>(27)</sup>. Hence, the survey encompassed a large number of stores with different price points and merchandise, serving a wide demographic in a relatively compact area, including all the main UK high-street stores.

The centre store directory provided for visitors was used as the sampling frame and to identify stores which met the inclusion criteria. Supermarkets and other stores that primarily sold food items, either hot (e.g. fast food) or cold (e.g. confectionery stores), and food departments within department stores, were excluded. Stores in the surrounding retail park were also excluded, as were the apparently temporary retail carts found in the centre's walkways. The store directory was also used to define and assign store category (book/card/stationery, customer services, department stores, jewellery, music/technology, opticians, shoes, specialist, sports/outdoors, toys/games/gadgets, travel agents, fashion and hair/beauty), which enabled analysis of whether checkout displays varied according to the type of non-food store.

Checkouts were defined as any compulsory areas that shoppers had to pass through to pay for their goods<sup>(10)</sup>. This included checkouts at store exits as well as anywhere else in stores. Many stores have one shared queuing aisle that is used for a number of payment points. In these cases, the total number of checkouts was recorded as the number of payment points present with each checkout beginning in the shared main queuing area. Food within arm's reach of any point of the checkout was defined as checkout food. We included both foods for sale and

complimentary foods provided free to customers. Food was recorded in terms of the total number of food lines available (irrespective of package size), rather than the total volume of food or number of packets of food displayed.

Two researchers (E.K. and J.W.) visited each store and checkout food was identified and recorded using a pre-piloted bespoke survey tool. Digital photographs were taken to assist with classification. Based on pilot data, the type (sweets, chocolate, high-calorie drinks, salty food, snack bars, biscuits, cake, chewing gum, low-calorie drinks/water, bruschetta/crackers) of all food lines available at each checkout was recorded. The nutritional content of all checkout food was obtained from product packages or manufacturers' websites and used to determine whether it was 'less healthy' or not using the UK Food Standard Agency's Nutrient Profile Model<sup>(29)</sup>. Those food lines that were classified as not 'less healthy' are referred to throughout as 'healthier' (the Nutrient Profile Model is not explicitly designed to identify foods which are healthy<sup>(29)</sup>).

It was also recorded which food lines were subject to written price promotions displayed on the food package or checkout display area. Child height was defined as the sight line of an 11-year-old approximated from UK growth charts<sup>(30)</sup>. The height used was 146 cm, which is 10 cm below (to approximate eye level) 156 cm, which in turn is 2 SD above the mean height of an 11-year-old female (girls are taller than boys at this age)<sup>(30)</sup>.

To explore inter-rater reliability of the data collection methods, a random sample of 10 % of stores, stratified by store type, was revisited by a second pair of researchers. There was more than 90 % concordance for all variables collected.

The proportion of stores displaying food at checkouts was calculated as a percentage of all stores as well as by store category. To reflect customer experience, checkout food exposure was determined, which was defined as the total number of different food lines displayed on the journey from the start of the queuing area to the payment point. Any food lines displayed in a shared queuing aisle were multiple counted to reflect the total number of checkouts and hence possible different journeys from the start of the queue to each payment point. The percentage of checkout food exposures by food type that were less healthy or healthier was calculated for all stores and by store category. The mean number of food lines displayed per checkout for each store was calculated, and the mean number of food lines per checkout by store category (average checkout food exposure) derived from these. Previous research has found chewing gum to be the most common healthier alternative at checkouts. Chewing gum has limited nutritional value<sup>(10)</sup>, although it may have benefits in short-term appetite regulation<sup>(31)</sup> and for dental health<sup>(32)</sup>. With this in mind, sensitivity analysis was undertaken and the mean healthier checkout food

exposures recalculated after exclusion of chewing gum. The ratio of less healthy to healthier mean checkout food exposures was calculated overall and for each store category. The proportion of less healthy and healthier checkout food exposures on promotion, and at child height, was calculated. The  $\chi^2$  test was used to assess differences in proportions.

### **Ethical considerations**

Ethical approval was not required as the study did not involve human subjects.

### **Results**

A total of 313 stores were in the sampling frame, of which 219 (70%) met the inclusion criteria. Fourteen stores listed in the directory were not present in the mall. The total number of stores open for trading and visited was 205 (94% of those meeting the inclusion criteria).

Table 1 shows the proportion of stores with checkout food and the types of foods found by store category. Thirty-two (15.6%) stores displayed checkout food; 83.3% of book/card/stationery stores, 71.4% of department stores, 33.3% of sport/outdoors stores and nearly a third (30.0%) of toy/games/gadget stores had food at checkouts (Table 1). Stores in the customer services, jewellery, opticians, shoes and travel agent categories had no checkout food. All stores with checkout food had less healthy foods on display. Fourteen (43.8%) of thirty-two had healthier food at checkouts. In total 5911 checkout food exposures were identified across 353 checkouts. Of these, 4763 (80.6%) were less healthy foods, the majority of these being lines of sweets 2123 (44.6%) and chocolate 2119 (44.5%). Of the healthier exposures, 686 (59.8%) were chewing gum and 403 (35.1%) were water/low-calorie drinks (Table 1).

Averaged across all stores displaying food, the mean number of food lines displayed per checkout was 15.0 (SD 19.7), with a mean of 11.9 (SD 14.8) being less healthy lines (Table 2). The average varied across store category (Table 2). There was also substantial variation between stores within each store category in terms of the average checkout food exposures, reflected in the frequently large standard deviations (Table 2).

Averaged across all stores displaying food, fashion had 21.5 less healthy checkout food exposures for every one healthier food exposure. The one store in the music/technology category only displayed less healthy foods. With sensitivity analysis to exclude chewing gum from the healthier food lines, specialist and fashion stores also displayed only less healthy foods and books/cards/stationery and hair/beauty had the highest ratio of less healthy to healthier foods exposures, 68:1 and 30:1 respectively.

Of the eight categories of stores displaying less healthy checkout foods, five had less healthy lines subject to price

promotions (Table 3). Overall, of 4763 less healthy food exposures, 195 (4.1%) were subject to written price promotions. Only two categories of stores (books/cards/stationery and sports/outdoors) had healthier food lines subject to price promotions. Of a total of 1148 healthier food exposures, twelve (1.0%) were subject to price promotions (Table 3). The difference in promotional activity for less healthy and healthier food types was statistically significant ( $\chi^2$ (df = 1, *n* 5911) = 25.4, *P* < 0.0001).

The majority (95.3%) of checkout food was displayed below child height. However, there was no statistically significant difference between the proportion of less healthy (4528/4763, 95.1%) and healthier (1104/1148, 96.2%) checkout foods displayed below child height ( $\chi^2$ (df = 1, *n* 5911) = 2.5, *P* = 0.11).

### **Discussion**

The present study is the first one we are aware of to particularly investigate the display of food at checkouts across the full range of non-food stores and the first study of food in non-food stores outside the USA<sup>(25,26)</sup>. In addition, and unlike previous research<sup>(25,26)</sup>, we classified foods by type and nutrient content, presence of price promotions and whether food is at child height. A notable proportion (16%) of non-food stores had food on display at their checkouts and all of these displays included less healthy foods. More than 80% of checkout food displayed was defined as less healthy and was mostly confectionery. Healthier checkout food was almost exclusively either low-calorie drinks/water or chewing gum. No fruit, vegetables, nuts or seeds was found at any checkouts. Among stores with checkout food, the average customer would be exposed to twelve less healthy food lines and three healthier food lines during his/her journey through the checkout.

The presence of checkout food varied between store category, being absent in jewellery, customer services, opticians, shoe stores and travel agents, and most common in book/card/stationery and department stores. There was also variation between stores within each store category in the average number of lines of food displayed per checkout. The great majority of checkout food was displayed at child height, with no difference between less healthy and healthier foods in this respect. Written food promotions were uncommon and we did not pursue an analysis by store type for this reason, but less healthy foods were more frequently on promotion than healthier foods. The sampling frame chosen enabled the analysis of a large number of stores with different price points and merchandise, including all the main UK high-street stores. Visitors to the shopping mall span a cross-section of the population, by age, sex and social class<sup>(27)</sup>. Therefore, our findings are likely to be generalizable to other shopping malls and indeed the UK high-street shopping experience in general. However, a different range of non-food stores

**Table 1** Number and percentage of non-food stores with food at checkouts, and type and health status classification of food checkout exposure by store category; survey of 205 non-food stores in a large indoor shopping mall, Gateshead, UK, February-March 2014

Store category	Stores in category	Stores with checkout food		Checkouts	Checkout food exposures*	Less healthy checkout food exposures*												Healthier checkout food exposures*													
		n	%			Total (% of all food exposures)		Sweets		Chocolate		High-calorie drinks		Salty food		Snack bars		Biscuits		Cake		Total (% of all food exposures)		Chewing gum		Non-chewing gum					
						n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%		
Book/card/stationery	6	5	83.3	34	611	515	84.3	160	31.1	294	57.1	20	3.9	22	4.3	0	19	3.7	0	96	15.7	82	85.4	14	14.6	14	14.6	0			
Customer services	8	0		18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Department stores (excluding food departments)	7	5	71.4	199	2394	1769	73.9	418	23.6	1022	57.8	102	5.8	83	4.7	10	0.6	128	7.2	6	0.3	625	26.1	217	34.7	408	65.3	349	55.8	59	9.4
Fashion	61	8	13.1	231	1788	1616	90.4	1202	74.4	365	22.6	0	0	49	3.0	0	0	0	0	172	9.6	172	100	0	0	0	0	0	0		
Hair/beauty	27	4	14.8	47	514	402	78.2	94	23.4	252	62.7	42	10.4	0	0	14	3.5	0	0	112	21.8	98	87.5	14	12.5	14	12.5	0	0		
Jewellery	15	0		30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Music/technology	23	1	4.0	138	45	45	100.0	42	93.3	0	0	0	0	0	0	0	3	6.7	0	0	0	0	0	0	0	0	0	0	0		
Opticians	3	0		5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Shoes	12	0		23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Specialist†	20	3	15.0	54	469	352	75.1	178	50.6	174	49.4	0	0	0	0	0	0	0	0	117	24.9	117	100	0	0	0	0	0	0		
Sports/outdoors	9	3	33.3	31	35	29	82.9	5	17.2	1	3.4	8	27.6	0	0	10	34.5	5	17.2	0	0	6	17.1	0	0	6	100	6	100	0	
Toys/games/gadgets	10	3	30.0	35	55	35	63.6	24	68.6	11	31.4	0	0	0	0	0	0	0	0	20	36.4	0	0	20	100	20	100	0	0		
Travel agents	4	0		35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
All stores	205	32	15.6	880	5911	4763	80.6	2123	44.6	2119	44.5	172	3.6	154	3.2	34	0.7	155	3.3	6	0.1	1148	19.4	686	59.8	462	40.2	403	35.1	59	5.1

\*Checkout food exposures = number of food lines available for each checkout (i.e. food lines displayed in a shared queuing aisle will be identified against more than one checkout and hence included multiple times).

†'Specialist' was a miscellaneous store category which included, for example, 'Pound' stores (deep discount, general stores with a maximum item price of £1 (£1.21, \$US 1.67)), art/print stores and wedding stores.

**Table 2** Mean checkout food exposures per store by store category and food health status classification; survey of 205 non-food stores in a large indoor shopping mall, Gateshead, UK, February-March 2014

Type of store	Stores with food		Checkout food exposures*		Less healthy checkout food exposures		Healthier checkout food exposures		Healthier checkout food exposures (excl. gum)		Ratio of mean less healthy to healthier checkout food exposures	Ratio of mean less healthy to healthier checkout food exposures (excl. gum)
	<i>n</i>	%	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Book/card/stationery	5	83.3	26.0	19.7	20.4	14.4	5.6	9.4	0.3	0.6	3.6:1	68.0:1
Customer services	0	0	0	0	0	0	0	0	0	0	n/a	n/a
Department store (excluding food departments)	5	71.4	23.7	28.6	17.5	20.2	6.2	8.9	4.4	8.7	2.8:1	4.0:1
Fashion	8	13.0	9.1	8.5	8.6	7.4	0.4	1.3	0	0	21.5:1	n/a – only less healthy food available
Hair/beauty	4	14.8	19.0	36.0	15.0	28.0	4.0	8.0	0.5	1	3.75:1	30.0:1
Jewellery	0	0	0	0	0	0	0	0	0	0	n/a	n/a
Music/technology	1	4.0	5.6	0	5.6	0	0	0	0	0	n/a – only less healthy food available	n/a – only less healthy food available
Opticians	0	0	0	0	0	0	0	0	0	0	n/a	n/a
Shoes	0	0	0	0	0	0	0	0	0	0	n/a	n/a
Specialist	3	15.0	15.2	18.4	11.2	15.5	4.0	3.6	0	0	2.8:1	n/a – only less health food available
Sports/outdoors	3	33.3	5.7	5.0	5.0	5.3	0.7	1.1	0.7	1.1	7.1:1	7.1:1
Toys/games/gadgets	3	30.0	4.8	5.5	3.1	2.7	1.7	2.9	1.7	2.9	1.8:1	1.8:1
Travel agents	0	0	0	0	0	0	0	0	0	0	n/a	n/a
All stores	32	15.6	15.0	19.7	11.9	14.8	3.0	5.9	1.0	3.6	4.0:1	11.9:1

n/a, not applicable, no checkout food within this category.

\*The average number of food lines displayed per checkout for each store with checkout food was calculated, and the average food lines per checkout (mean checkout food exposure) by store category derived from these.

**Table 3** Number and percentage of checkout exposures to foods subject to written promotion, and at child height, by store category and food health status classification; survey of 205 non-food stores in a large indoor shopping mall, Gateshead, UK, February-March 2014

Type of store	Less healthy checkout food exposures*					Healthier checkout food exposures				
	On promotion			At child height		On promotion			At child height	
	<i>n</i>	<i>n</i>	%	<i>n</i>	%	<i>n</i>	<i>n</i>	%	<i>n</i>	%
Book/card/stationery	515	112	21.7	508	98.6	96	8	8.3	61	63.5
Customer services	0	–	–	–	–	0	–	–	–	–
Department store (excluding food departments)	1769	27	1.5	1649	93.2	625	0	–	616	98.6
Fashion	1616	0	–	1548	95.8	172	0	–	172	100
Hair/beauty	402	45	11.2	402	100	112	0	–	112	100
Jewellery	0	–	–	–	–	0	–	–	–	–
Music/technology	45	0	–	38	84.4	0	–	–	–	–
Opticians	0	–	–	–	–	0	–	–	–	–
Shoes	0	–	–	–	–	0	–	–	–	–
Specialist	352	0	–	319	90.6	117	0	–	117	100
Sports/outdoors	29	7	24.1	29	100	6	4	66.7	6	100
Toys/games/gadgets	35	4	11.4	35	100	20	0	–	20	100
Travel agents	0	–	–	–	–	0	–	–	–	–
All stores	4763	195	4.1	4528	95.1	1148	12	1.0	1104	96.2

\*Checkout food exposure = number of food lines available for each checkout (i.e. food lines displayed in a shared queuing aisle will be identified against more than one checkout and hence included multiple times).

and checkout displays may have been encountered in suburban high streets or rural stores.

The observational survey method had high inter-rater reliability, indicating that the recording of food products was accurately and objectively undertaken. Furthermore, using the Nutrient Profile model ensured objectivity in classifying foods as less healthy or not<sup>(29,33)</sup>. Although the Nutrient Profile model was originally designed for determining which food advertisements could be shown on children's television<sup>(29)</sup>, it has been used in research on supermarket checkout food<sup>(10)</sup> and enables comparisons across contexts.

Data were collected during February and March, and in line with previous research carried out in the same season<sup>(10)</sup>, a large amount of the less healthy foods found was related to Easter and Mothers' Day. It is possible that there are seasonal variations in checkout food, although it is likely that different seasonal foods are on display throughout the year. This could be confirmed by repeating the study at different points through the year.

The study did not assess the amount of food available at checkouts, only the variety of food lines available to customers. This is because it was not possible to quickly or accurately calculate display size or product volume (e.g. number of bags of confectionery) without handling products. This would have been more intrusive and disruptive and hence potentially less acceptable to shoppers and retail workers.

The eye line of 95% of 11-year-old girls was taken as the arbitrary cut-off to define child height for several reasons. First, products are most likely to be purchased when they are displayed at eye level<sup>(34)</sup>. Second, previous research has highlighted that lower heights fail to capture checkout food exposure for children riding in shopping carts<sup>(10)</sup>. Third, pester power from children occurs at

checkouts<sup>(17)</sup> and is a problem for parents<sup>(8,9)</sup>. The use of pester power extends beyond pre-schoolers to older children who are more actively involved in purchase decisions<sup>(35,36)</sup>. Children in the UK leave primary school at 11 years and as such this is an arbitrary marker for when children may be less likely to accompany parents to stores and exert pester power. As nearly all the food documented was present below the height chosen, it may be informative to explore foods displayed at several different heights.

The majority of price promotions identified were '2 for 1' or price reductions. Although not classed as price promotions here, many other less healthy products were advertised as 'great value' or available in a 'bigger pack' which could be misconstrued by customers as indicating the product is on offer<sup>(37)</sup>. Three stores in the hair/beauty category displayed free checkout food in the form of jars of sweets at child height for customers to take once they had paid.

The present study investigated only written price promotions displayed on or near products. Verbal prompts promoting foods from the store staff at the checkout were not included. Assessing verbal promotion would require test purchases in all stores or observation of customer checkout interactions. Neither was feasible in the current study. Furthermore, the research only explored the presence or absence of checkout food, not how this influences food purchasing or eating behaviours. It is reasonable to assume that stores would only stock products at their checkouts that are purchased.

The current research suggests the display of food at non-food stores is less widespread than in supermarkets<sup>(10,13,14,16)</sup>. Nevertheless, a notable proportion of non-food stores did display checkout food. Unlike supermarkets, checkout food in non-food stores may target people who do not intend to purchase food and at times of the day when they are not considering eating.

In line with supermarkets<sup>(10,13,14,16)</sup>, non-food stores stocked primarily less healthy checkout foods and during an average checkout journey customers would be exposed to four times as many less healthy foods as healthier ones. This is important because when a higher proportion of checkout foods displayed are less healthy, people tend to choose less healthy foods<sup>(19)</sup>.

The almost ubiquitous display of food at child height is consistent with research in supermarket contexts<sup>(10)</sup> and important given concerns over food marking to children and childhood obesity<sup>(18)</sup>. Ninety-five per cent of food displayed at child height at non-food store checkouts in the present study is banned from being advertised during children's television in the UK<sup>(29)</sup>. Further consideration of where and when it is and is not appropriate to market less healthy foods to children may be valuable. Price promotion leads to a significant increase in sales<sup>(20,21)</sup>. The higher proportion of less healthy foods on promotion may steer customers to choose these over any healthier options available.

Investigation of the display of food at non-food stores in other sociodemographic and retail contexts, and research focusing on mechanisms aside from written price promotions for promoting the sale of food at checkouts, would further our understanding of the relationship between checkout food and consumer behaviour. Mixed-methods research is needed to examine the drivers and consequences of food displayed at checkouts of non-food stores.

Substantial literature has documented the display of unhealthy foods at the checkout in supermarkets<sup>(10,13,14,16)</sup>, leading to advocacy for public health action<sup>(8,9,12)</sup>. Such action may have to extend to non-food stores. The variation in the display of checkout food between and within store categories found suggests action targeted at specific stores or chains of stores, rather than universal action across the non-food retail sector or by retail category, is appropriate.

Several supermarkets in the UK and elsewhere have recently pledged to remove unhealthy foods from checkouts<sup>(16,38,39)</sup>. However, this self-regulatory approach is haphazard and not all retailers have committed to more responsible stocking of checkouts<sup>(6)</sup>. Regulation, such as that limiting television marketing of food products to children in the UK<sup>(40)</sup>, may be warranted. However, regulation is viewed by some as unfairly constraining consumer choice<sup>(35)</sup>. Encouraging retailers to increase the provision of healthier, relative to less healthy, checkout food may also be worth considering<sup>(16,19)</sup>, as could working with the non-food retail industry to find substitute checkout products that protect profit margins without potentially adversely impacting on customers' health.

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