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Food promotions and the cost of a healthy diet

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With approximately two in three UK adults overweight or obese, one in five living in poverty and our emergence from the Covid-19 pandemic with implications for employment and income status there is an urgent need to understand what it costs to eat healthily and the role that promotions can play in helping householders manage food budgets. The literature suggests that, in affluent countries, price promotions appear to increase consumer food purchases and are applied more frequently to less healthy products than their healthy counterparts. This review discusses the cost of a healthy diet, identifies the prevalence of promotions in both the supermarket setting generally and a typical shopping basket specifically, and discusses the barriers to affording a healthy diet. Given the current policy focus on the cost of living and population health emphasising the need for food shopping to represent health and value for money for better public health outcomes, this review contributes to the evidence base for retailers’ and policymakers’ consideration as policy solutions are sought to reduce population obesity levels, while ensuring the affordability and accessibility of nutritious food. It is important, given the shift in consumer purchasing behaviour to online shopping as a result of self-isolating or reticence to physically access stores in response to the Covid-19 pandemic, that retail food promotions are available irrespective of the chosen mode of shopping (in-store or online).

Key words: Retail food promotions: Healthy eating: Food budget

Recent data indicate that almost two-thirds (63.3 %) of the UK population is overweight or obese and more than one in four (26 %) is obese⁽¹⁾. Almost one in five (18 %; 11.7 million people) was living in relatively low income, meaning that these households had less than 60% of the UK average income before housing costs were deducted in 2019/20, with children overrepresented in this category (23 %)⁽²⁾. The statistics have remained steady in recent years, but this is an unacceptable outcome in the fifth richest world economy in 2021⁽³⁾. Coupled with this is the population’s emergence from the Covid-19 pandemic with implications for employment and income status and levels of indebtedness. There is an urgent need to understand what it costs to

eat healthily and the role that retail food promotions can play in helping householders manage food budgets.

Retail food promotions are considered to be ‘temporary changes to the price of foods and beverages, usually occurring in supermarkets and other food retail settings to increase customer purchases’^(4,5). Price promotions can be classified as price-based discounts or multi-buy discounts, for example, buy one get one free deals.

Supermarkets are significant gatekeepers of our food supply and what we eat in the home due to being a key source of fresh and unprocessed foods. To facilitate access to a choice of foods, supermarkets also offer high levels of availability of processed foods that are typically energy-dense and high in fat, sugar and salt. A

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systematic literature review⁽⁵⁾ suggests that, in affluent countries, price promotions appear to increase consumer food and beverage purchases and are applied more frequently to less healthy products than their healthy counterparts. This review discusses the cost of a healthy diet, identifies the prevalence of promotions in both the supermarket setting generally and a typical shopping basket specifically and discusses the barriers to affording a healthy diet.

The literature recognises that a number of factors impact upon consumers' general food choices. Sobal *et al.*⁽⁶⁾ conceptualise food choice as operating at physical, biological, psychological and sociocultural levels. At the individual level, in recent years, the consumer has been impacted by a range of macro-issues; namely, the recent recession in terms of rising food, fuel and housing costs alongside decreasing wages and proposals for welfare reform⁽⁷⁾. A Department of the Environment, Food and Rural Affairs UK report (2010)⁽⁸⁾ on people's reactions to rising food prices showed people noting and responding quite dramatically even before the introduction of austerity measures. Global food prices are rising and according to the UN Food Price Index, food prices in May 2021 were 4.8% higher than that in April – the largest monthly rise since October 2010 – and 39.7% higher than that in May 2020⁽⁹⁾. Furthermore, media reports present the inevitability of price rises as a result of the UK's exit from the European Union.

Rising food costs have implications for public health, whereby consumers for whom food becomes prohibitively expensive respond by reducing the nutritional quality and quantity of food they eat⁽¹⁰⁾. Such coping strategies may result in malnutrition, overweight and/or obesity.

At the population level, in Northern Ireland the direct and indirect costs of overweight and obesity in 2009 were estimated to be £369 799 820⁽¹¹⁾; the equivalent of more than £1 million daily highlighting that a great deal of attention in public spending is focused on public health. In attempting to reduce this public health spending burden, a cross-departmental policy imperative – *A Fitter Future for All: Framework for Preventing and Addressing Overweight and Obesity in Northern Ireland 2012–2022* – has focused the attention of relevant stakeholders to make a collective effort to combat the obesity epidemic. The strategy recognises the importance of continuing to encourage Northern Ireland food manufacturers to reformulate their food and drink products to reduce saturated fat, sugar, salt, energetic value and provide smaller portion sizes of energy-dense foods and beverages. Furthermore, the strategy recognises the role of retail promotions in consumers' food and drink purchasing behaviour and has committed to encouraging and enabling food retailers to 'consider reducing point of sale placement of foods which are high in fat, salt, sugar and increasing exposure to promotion of healthier foods'⁽¹²⁾. Similarly, the Government in England recently confirmed its intention to impose a UK-wide pre-9 pm ban on TV adverts for food high in sugar, salt and fat and new rules on online promotion. Additionally, the National Food Strategy (p. 121)⁽¹³⁾ outlines deliberative panel participants' 'overwhelming support for much stronger restrictions on the advertising and promotion

of junk food' with some wanting 'tougher regulations for retailers selling junk food'.

Online grocery sales are particularly strong in the UK and online shopping for groceries was the fastest growing sector of the supermarket industry between 2010 and 2018 in the UK⁽¹⁴⁾. In the UK in 2018, 7% of supermarket shopping was conducted online, representing over £11 billion annually⁽¹⁴⁾. Kantar Worldpanel data (2020)⁽¹⁵⁾ indicate that the effects of the Covid-19 pandemic are likely to further support this trend. This review discusses the cost of a healthy diet, identifies the prevalence of promotions in both the supermarket setting generally and a typical shopping basket specifically and discusses the barriers to affording a healthy diet.

Literature review

The integral relationship between diet, health and income is well known. Food poverty manifests itself as a short-term dilemma of putting food on the table alongside the long-term effects of food poverty including the habitual consumption of poor nutritional quality foods to the extent that lower income consumers are compromising food and nutritional quality to satiate hunger. The food budget has long been appreciated as being the flexible item in the household economy^(16–20). Consequently, food budgets are the most likely to be reduced during financial crisis^(21,22). It is a fundamental human right that food is available and affordable, yet this moral is undermined when a basic healthy diet is out of reach of our most vulnerable citizens.

UK population's spend on food and non-alcoholic beverages

The *Living Costs and Food Survey*^(23,24) indicates how the average UK household spent £62.20 per week on food which equates to 11% of total expenditure (2018–20 figures). Lower income households spent a higher proportion of their total expenditure on food and non-alcoholic drinks: households with the lowest income spent 14% of their total expenditure on food and non-alcoholic drinks, compared to their highest-income counterparts spending 8% of their total expenditure on this category. Therefore, 'efforts to effectively and equitably improve population nutrition, the price and affordability of healthy foods and diets, relative to less healthy options, are increasingly being recognised as priority areas for policy intervention'⁽²⁵⁾.

Shopping basket research

Shopping basket research is a longstanding methodology to investigate the affordability and availability of food given its utility in collating a depth and breadth of information using a formulaic structure to facilitate consistency of approach to data collection, and its relevance to the research objectives of ascertaining the availability and affordability of foodstuffs. The problems of devising a shopping basket and defining which foods should be included that are both typical and acceptable to

consumers has been discussed elsewhere^(18,26–28). Caraher and Furey⁽²⁹⁾ provide a useful overview of shopping basket studies.

Joint research by the FSA in NI, *safefood* (Republic of Ireland) and The Consumer Council in Northern Ireland⁽³⁰⁾ has developed standard weekly shopping baskets, by using the methodological approach of the consensual budget standards process where essential food items are specified by a majority opinion⁽³¹⁾ achieving a social consensus of what everyone 'should be able to afford'⁽³²⁾ (p. 3). This means that the food items contained within reflect local diets and realistic purchasing behaviours^(20,33).

However, when analysed against the average UK household spend on food and non-alcoholic beverages, the cost of a healthy shopping basket appears prohibitively expensive. For example, the above shopping basket research⁽³⁰⁾ for four household types in Northern Ireland found that low-income families in Northern Ireland have to spend up to 46% of their weekly income to afford a healthy food basket. Specifically, a nutritionally adequate shopping basket of weekly food for a two-parent, two-child household type (primary-school and secondary-school age) is £162 (approximately £23.14 daily; 46% of household income if dependent on social security). The total weekly cost of a minimum essential food basket for a one-parent, two-child household type (pre-school and primary-school age) is £105 (approximately £15 daily; 34% of household income if dependent on social security). The total weekly cost of an equivalent food basket for a pensioner living alone household is £61; 32% of their household income, if dependent on a state pension (approximately £8.71 daily). Finally, a two-parent, two-child household (pre-school and primary-school age) dependent on state benefits would need to spend 34% of their weekly income (£122, equivalent to £17.43 daily) to buy a minimum essential food basket.

The phenomenon is not particular to the UK. Barosh *et al.*⁽³⁴⁾ investigated the price differential of a healthy and sustainable shopping basket in Australia. They found that the cost of the healthy and sustainable basket was greater than the typical basket in all neighbourhoods, irrespective of socioeconomic status. However, households in the lowest income quintile would have to spend up to 48% of their weekly income to buy the healthy and sustainable basket, whereas households in the highest income quintile would have to spend significantly less (9%) of their weekly income.

Individuals on a low income therefore spend less money on food although they actually spend a greater percentage of their income on food products⁽³⁵⁾. MacMahon and Weld's study⁽²⁰⁾ found the cost of minimum essential food baskets to be considerably greater for those in low-income households with many individuals having to relinquish 'necessary' food items.

The role of promotions in managing the food budget

Promotional activity is an important part of the food retail landscape for both consumers and retailers. Kantar World Panel data found that up to 83% of

purchases made on price promotion are 'impulse purchases', with only 17% 'planned purchases'⁽³⁶⁾. Consumers are 'value' conscious and demonstrate savviness in their shopping behaviours having come to expect reduced prices and are increasingly reliant on discounters⁽²⁰⁾. Consumers can save money on their average shop by seeking out promotional in-store food offers – an aspect which is important given the relative cost of food in the current economic context^(37,38). The British Retail Consortium (2009)⁽³⁹⁾ commissioned consumer research and concluded 'price' to be the main barrier to eating a healthier diet for one-fifth (21%) of shoppers. Shoppers opined that healthy foods are too expensive and unhealthy foods are promoted more than their healthy counterparts.

For the purposes of the present paper, retail food promotions will be defined as forms of promotion which are primarily associated with a temporary reduction in price⁽⁴⁰⁾. A recent systematic review of the academic literature on retail food promotions has found some evidence that the purchasing of price-promoted foods and/or beverages was either similar across socio-economic groups or was greater for households with higher income – a finding that contrasts the literature that suggests that those of a lower socioeconomic position are more price sensitive in terms of their grocery purchasing⁽⁵⁾.

The healthfulness of food products on promotion

An obesity epidemic and rising food prices have implications for health since dietary quality and dietary costs are positively related. Food and drink innovation through food manufacturers' product reformulation strategies has received significant attention in recent years^(12,15,41) since product reformulation can support current strategies that align price-based promotions with prominent placement strategies to increase the availability, accessibility and affordability of food and drink choices to consumers. Given the considerable effort to reformulate the food and beverage retail product offering, it will be important that retailers utilise price-based promotions and prominent placement tactics to make these food and drink innovations available to the broadest number of consumers as possible. To do so will help to realise the population benefits that are possible, with the potential to influence supply and demand, and serve as a further catalyst for product reformulation.

The academic literature is clear that there is a dichotomy presented between the cost and healthfulness of food. For example, Waterlander *et al.*⁽⁴²⁾ cite several studies^(43–46) confirming that lower-income consumers' primary influencing factor when buying food is price. These studies explain how more price-sensitive consumers appear less concerned about the health aspects of food.

Retail food promotions have been attributed to support such consumers to afford food and drink products they may not otherwise be minded to purchase. Milliron *et al.*⁽⁴⁷⁾ identify that the average shopper arrives at the store undecided about what to buy and is influenced by other cues such as displays and packaging. Public Health England found that volume promotions



such as buy one get one free increase purchases of a product by an average of 15%⁽⁴⁸⁾. Martin *et al.*⁽³⁶⁾ found that the products most likely to be discounted through multi-buy promotions were unhealthy foods and that this type of discount drives the greatest increase in sales compared with temporary price reductions.

There is consensus among the literature that consumers' responses to such sales promotions tactics have been found to have a significant impact on short-term sales, due to brand switching, product switching, category switching and temporal switching (stockpiling)⁽⁴⁹⁾, but do not shift dietary patterns^(4,49,50).

However, Hawkes⁽⁴⁾ found that sales promotions of food contribute to increased consumption of food – a finding more recently corroborated by Martin *et al.*⁽³⁶⁾ which concluded that price promotions on unhealthy foods and beverages were ubiquitous and increased purchase volume of these products. Hawkes⁽⁴⁾ tested the expectation that highly impulsive people are less resistant to sales promotions and found that sales promotion, weight status and inhibitory control appeared to have an effect on participants' purchases of snack food. Using sales data as a proxy for dietary intake indicates that sales promotions have the potential to influence consumer purchasing and may encourage consumers to buy and eat more^(4,51–54). This further reinforces the merits of the food industry's investment in innovation to achieve product reformulation.

To develop this point further, Ni Mhurchu *et al.*⁽⁵³⁾ evaluated the effect of price discounts and education (tailored to match participants' purchasing habits) on supermarket purchases. Sales data were again used to assess nutrients purchased and identify any change in the number of healthy food items purchased. The research concluded that while there was no difference attributed to energy intake as a result of price discounts, nutrition education or both; participants who received price discounts on healthful foods bought significantly 'more healthful' foods at 6 and 12 months. This indicates that there is merit in coupling price promotions to reformulated products to incentivise more healthful food purchasing and eating behaviours. Research^(55,56) confirms that pricing strategies hold more influence when focused on encouraging healthy eating than converse pricing strategies which focused on discouraging unhealthy eating.

A 2019 systematic review of the literature⁽⁵⁾ found that fourteen of the sixteen included studies concluded that price promotions for unhealthy foods and beverages were either more frequent or had greater influence on purchasing compared with price promotions for healthy items.

Price promotions are widely used by supermarkets to encourage purchase of targeted products more quickly, more frequently and/or in greater quantities⁽⁵⁷⁾. Price promotions⁽⁵⁸⁾ have been shown to be extremely effective at altering consumer behaviour with a 200–1000% uplift in product sales⁽⁵⁹⁾, albeit in the short term⁽⁴³⁾. This behaviour change is evident particularly in shoppers with a lower socioeconomic status, females aged 30–40 years, those with no shopping list and those who are more receptive to price promotions^(60,61).

This responsiveness to food promotions has also been used successfully as a tool to increase the sales of healthier food^(55,56,62,63) suggesting the potential of pricing strategies to improve diets at the population level. However, a Public Health England evidence review⁽⁶⁴⁾ in relation to actions to reduce sugar consumption found that food retail price promotions are more widespread in Britain than anywhere else in Europe; that foods on promotion account for about 40% of all expenditure on food and drinks consumed at home and that higher sugar products are promoted more than other foods. The review also found that price promotions serve to augment the amount of food and drink people buy by about one-fifth (22%) and are purchases that people would not make if the price promotions did not exist.

Coker *et al.*⁽⁶⁵⁾ concluded that high-promotional shoppers (upper quartile) purchased a greater quantity of unhealthy foods (higher in sugar and lower in fibre) and beverages and less fruits and vegetables compared with low promotion shoppers (lower quartile). Additionally, the prevalence of obesity for the main household shopper was found to be greater for high-promotional shoppers (36%) compared with low-promotional shoppers (28%).

English research⁽⁶⁶⁾ investigating whether food retailers' pricing techniques contribute to overbuying and obesity found that retailers offer a wide range of special offers. Dobson⁽⁶⁶⁾ concluded that there is a healthy choice of supermarket offers available and the onus was placed firmly on consumers to shop carefully and avoid overbuying less healthy food (particularly for very prominent offers, which can appear very tempting).

Prominence of retail food promotions receives much attention in the literature. In-store marketing strategies that draw attention to healthier products may be effective and sustainable for improving diet quality and health⁽⁶⁷⁾. They found that 'straightforward placement strategies can significantly enhance the sales of healthier items in several food and beverage categories. Such strategies show promise for significant public health effects in communities with the greatest risk of obesity' for reasons of their scalability⁽⁶⁷⁾. Kerr *et al.*⁽⁶⁸⁾ agree and concluded that areas of high-promotional prominence have an apparent power and the placement of healthy products in high-promotional-prominence areas is a more effective approach than simply increasing the number of locations for healthy products. Similarly, University of Cambridge, University of East Anglia and MRC Human Nutrition Research recommended that prohibiting or limiting prominent placement strategies for less healthy options, or augmenting their use for healthier products, holds the promising possibility of encouraging healthier lifestyle choices⁽⁶⁹⁾.

The literature is clear that there is merit in aligning price discounts and prominent promotional efforts to increase the availability, accessibility and affordability of food and drink choices to consumers. Waterlander *et al.*'s studies^(42,55,56,62), when considered together, conclude that the experts and the consumers agree on the potential success of making healthy food and drinks cheaper by either discounts or price cuts, as well as offering little extras with healthy foods.

Discussion

Promotions and product (un)availability

Promotional strategies with their associated potential to result in a significant uplift in consumer purchasing necessitates there to be effective stock management. Product unavailability is considered to be a frequently occurring and universal issue, and a major concern for retailers and manufacturers alike⁽⁷⁰⁾. Stockouts are considered to be a persistent problem in retailing and something that the supply chain is eager to avoid because of the widespread increase in retailers' and manufacturers' awareness of the sales, customer loyalty and market share losses induced by poor on-shelf-availability^(71–76).

Promotions and the perception of 'price' and 'quality'

McDonald and Milne⁽⁷⁷⁾ found that, per kilogram of foods and beverages purchased, groceries that were price promoted were 30 % more expensive, after discounts, compared with generic or low-cost brands that are typically not price promoted. McDonald and Milne suggest that consumers are not necessarily purchasing the cheapest item available when they purchase price-promoted products. This raises important questions regarding how consumers perceive and define value and quality across different income groups⁽⁵⁾.

The literature suggests that promotions were not readily available on retailers' own generic brands, possibly because they are already perceived as being lower-priced⁽²⁵⁾. However, given the likely impact of the economic recovery from Covid-19 and the UK exit from the European Union on household budgets, it will be prudent for retailers to continue to monitor the availability, purchasing and promotion of generic brands into the future⁽²⁵⁾, particularly given the research finding from a Northern Ireland study⁽⁷⁸⁾ that generic brands were often found to be superior to market brands with regards to overall healthfulness when measured using a score aligned to the Food Standards Agency's Front of Pack nutrient labelling system.

Importantly, Bennett *et al.*'s⁽⁵⁾ systematic review did not identify any studies that examined how shoppers may swap between stores in response to discounts and the impact this may have on their overall purchasing pattern. This is an important research topic for the future because it is well established that the 'discipline of poverty'^(79,80) dictates that people shop around to secure the best deal and the best prices may be achieved across different stores and not by shopping from a single retailer⁽²⁹⁾. The fierce competition between the supermarket chains is one thing that could insulate British households from food price inflation. At the moment, food prices are being pulled lower by the return of promotional deals which were dropped as food stores concentrated on keeping shelves full at the height of the health crisis⁽⁸¹⁾.

Parity of esteem between in-store and online promotions

Bhatnagar *et al.*⁽⁸²⁾ found in a general sample, 85 % (95 % CI 80, 90) of products found in physical stores could

be matched with an online product, and prices were similar between online and physical stores making the online exercise a good proxy for product availability and prices. Therefore, although Bhatnagar *et al.*⁽⁸²⁾ found that online tools were good proxies for product availability and price, there was only fair agreement in the general sample for the presence of price promotions (Cohen's $\kappa = 0.40$ (95 % CI 0.26, 0.55)). However, they found that there were more price promotions present in physical supermarkets (32 % of products) compared with online supermarkets (24 % of products) with potential for impacting health inequalities for those reliant on online sources alone when grocery shopping in physical stores may represent an easier means to achieve better value for money. For this reason, and for reasons of parity of approach between physical stores and online shopping, the literature calls for further research into online promotions to better understand patterns in promotions, the impact on purchasing behaviour and the implications for policy. This is an area requiring additional investigation particularly in the UK context given the recent moves to ban food retail promotions on less healthy foods in support of the Childhood Obesity Plan and National Food Strategy.

Conclusions

Given the current policy focus on the cost of living and population health emphasising the need for food shopping to represent health and value for money for better public health outcomes and reduced morbidity, this review contributes to the evidence base for retailers' and policymakers' consideration as policy solutions are sought to reduce population obesity levels, while ensuring the affordability and accessibility of nutritious food. It makes some observations and recommendations that could helpfully inform retailers' promotional strategies in respect of the breadth of products to which promotional offers apply including manufacturers' and retailers' own brands. It is important, given the shift in consumer purchasing behaviour to online shopping as a result of reticence to go outside during the Covid-19 pandemic, that retail food promotions are available irrespective of the chosen mode of shopping (in-store or online). It is incumbent upon consumers, within their capabilities and interest, to shop around for the best deal. Finally, it would be beneficial if retailers kept apprised of healthy food basket research as they strive to ensure a balance of promotional activity against such popularly purchased products and produce.

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Authorship

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