Title: Getting the Balance Right - Tackling the obesogenic environment by reducing unhealthy options in a hospital shop without affecting profit

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Abstract

Background: UK hospitals have been criticised for fuelling obesity by allowing contracts with food retailers selling high fat and high sugar products on hospital premises.

Methods: We assessed the impact for a major retailer of increasing healthy food choices at their Royal Free London NHS Foundation Trust outlet. To assess the impact on sales, profit and acceptability to customers, a multi-component intervention based on behavioural insights theory was enacted over two months (November - December 2014) at the Royal Free site WHSmith. Product sales data on all food and drink were assessed over three time periods: two months immediately prior to, and immediately after the intervention, and the equivalent period ten months later. Acceptability to customers was assessed via questionnaires.

Results: Compared to the pre-intervention period, total sales increased immediately after the intervention, and again 10 months after the intervention. Sales of healthier options increased as a proportion of total sales following the intervention, sales of packets of sweets and chocolates decreased, while the relative sales of other items remained similar.

Conclusions: We demonstrated that healthier alternatives could be provided in a hospital retail premises without negatively affecting total sales, retailer satisfaction, or customer satisfaction.

Introduction

As a key contributor to preventable ill health and death, obesity poses a major public health challenge [1-3]. The rise in child and adult obesity in the UK has been linked to the easy availability of high fat, high sugar food and drink which is often priced lower than healthier alternatives [4]. The number of people in England classified as obese (BMI 30kg/m2 or over) has increased from 13% in 1993 to 27% in 2015 in men and 6.4% of women in 1993 to 26.8% in 2015. [5] In addition 20% of children Year 6 (aged 10-11 years) are also classified as obese [6]

There is also a clear health inequality aspect with obesity [4]. Data from 2014 from the Health and Social Care information Centre show that in the lowest income groups, obesity prevalence in women was 31% compared to 20% in the highest income group [8]. The causes of this disparity across the deprivation gradient are complex, but an 'obesogenic' environment has been proposed as a factor [4]. A systematic review in 2011, examined whether physical, social cultural and economic environmental factors are associated with food environment [9]. This study found that lower BMI was associated with greater access to supermarkets, and less access to take away outlets, and that living in a socioeconomically-deprived area was associated with multiple obesogenic dietary behaviours.

There has been increasing criticism of hospitals in the UK for condoning practices that are damaging to health. In particular hospitals have been accused of fuelling obesity by allowing contracts with fast food chains and retailers which market high fat and high sugar food to patients, staff and visitors on hospital premises. The NHS Food Standards Panel Report [2], NICE Guidance on Obesity Prevention [1] and the Five Year Forward View [3] have all called on NHS hospitals to be more health promoting and in particular to ensure that healthier food and drink alternatives are available on site. In 2016, Simon Stevens (Chief executive of NHS England) pledged to introduce a 'sugar tax' in NHS hospitals whereby on site retailers will charge more for high-sugar drinks and snacks sold in shops, cafes and vending machines to discourage staff, patients and visitors from buying them [11].

Modelling the effect of a 20% tax on sugar-sweetened drinks across the UK has predicted a 1.3% decrease in the prevalence of obesity and 0.9% decrease in the number of people who are obese or overweight by 0.9% [12]. There is some evidence that using behavioural insights theory to influence behaviour can 'nudge' people to make healthier choices, and that product placement, such as fruit placed at eye level will influence consumer choice [13]. A study on the impact of removing unhealthy drinks from display at a self-service café in Australia reported that this intervention did not significantly affect sales, and did lead to healthier choices by consumers [14]. However, we are not

aware of published evidence relating to an intervention with retailers in hospitals in England to promote customer behaviour change, or on the impact and sustainability of such changes.

At the Royal Free London NHS Foundation Trust (RFL) it was identified by the Public Health Department as inappropriate to have retail outlets on site promoting unhealthy foods to patients and visitors, while hospital clinics were treating patients with diabetes, cardiac disease, cancer and other illnesses directly linked to obesity [15]. In addition major levels of obesity are reported in nurses [16, 17] and other health care staff. The provision of healthy food and snacks for staff is a key part of the Trust's staff health and wellbeing programme of work.

The RFL Public Health department approached one of the hospital onsite retailers, W H Smith, with a view to changing the range offered by the retailer in their hospital-based outlets from high sugar items to healthier alternatives. The W H Smith shop in the RFL, which also supplies a ward trolley to in-patients, is a medium sized retail outlet with a turnover of approximately £850,000 per year. The RFL leases retail space to WH Smith and receives a share of the profit generated by the retailer, therefore any potential reduction in revenue flows was a concern for both the retailer and the RFL.

The aim of this study was to assess if a retailer such as WH Smith, could change the product range they offered in their hospital shop to increase healthy food choices, and how this would impact on sales, revenue and profit and acceptability to customers.

Methods

Intervention design

The intervention was conducted at the RFL, a major teaching hospital in north London with approximately 5,000 staff on site. The outcome measures were relative sales of healthier food options, with change in sales of different categories of food assessed. A further outcome of retailer satisfaction was considered as a proxy for profit, and acceptability to customers was assessed qualitatively. To implement the intervention, a stakeholder working group was established comprising: a WH Smith Director responsible for NHS retail, RFL staff including a public health specialist registrar, public health consultants, a senior dietician, the RFL Director of Facilities and RFL Head of Property. The stakeholder group chaired by the Deputy Director of Public health met quarterly and communicated by e-mail between meetings.

A multi-intervention approach, based on behavioural science principles was used (Table 1). Components of the intervention included: reducing 'friction costs' to make healthier choices more likely by introducing healthier products, limiting the portion size of unhealthy options, and reducing promotion of unhealthy options; incentivising healthier choices by substituting healthier for unhealthy choices in the meal deal offers; and improving the salience or prominence of healthier options.

Provision of food including snacks and drinks available in the shop was reviewed against national guidelines on recommended levels of salt, sugar and fat content in products including: The Welsh and Scottish Governments guidance on healthy food and drink choices in hospitals [18, 19], NICE obesity guidance [1] NHS Choices [20], and the American Heart Association guidance on sugar consumption [21]. The following criteria were defined as 'healthy': products must contain less than: 20g fat, 5 g saturated fat, 5g added sugar and 1.5g salt per 100g. The criterion for sugar is in line with the definition of low total sugar in NHS choices food labelling information. As well as agreeing the criteria for healthy food and snacks the stakeholder group agreed planned changes outlined in Table 1. A shop refit was also undertaken during November and December 2014, improving attractiveness through visual and spatial design.

Assessment of sales pre and post intervention

Data was obtained on sales of individual food items from routine data collected by the retailer on sales of all food and drink types. Food items included in the analysis were selected to represent the products targeted via the strategies outlined in Table 1. The product categories selected for analysis were: products designated 'healthy food choices' according to the criteria agreed by the stakeholder group, confectionery, chocolate (grouped by portion size), crisps, chewing gum and 'other snacking', all listed in Table 2. Sales data were collected for three time periods: (i) the two month period immediately prior to the intervention (September - October 2014), the 'pre-intervention period', (ii) the two months period immediately after the intervention (January - February 2015) the 'early post-intervention period' and (iii) the equivalent two month period ten months later (September - October 2015), the 'late post intervention period'. Relative sales were calculated for individual product groups as a percentage of total sales at each time point. Percentage of total sales of healthy options in the early post-intervention period (Jan to Feb 2015) and late post-intervention period (Sept to Oct 2015) were compared to Pre-intervention period (Sept to Oct 2014) using Chi-squared tests to assess statistically significant associations.

Questionnaire study to assess customer acceptability of the changes

An interviewer completed a brief survey questionnaire with a random sample of 87 W H Smith shop customers approached as they were leaving the shop over a 3-day period during the 'pre-intervention period' (September 2014). In the early post-intervention period (February 2015) interviewers administered a further survey to a random sample of 40 customers. Customers agreeing to participate in the surveys were asked to indicate which age group they belonged to and whether they were patients, visitors or staff (grouped as medical, nursing, allied health professional, management or other). Customers were asked which product lines they had bought and whether they thought the shop offered a good range of healthy options.

Results

Implementation fidelity for the intervention, which was enacted during November to December 2014, is shown in Table 1. The subsidised 'meal deal' was changed to offer water with a sandwich and a free piece of fruit resulting in an increase in fruit units sold from 40 to over 900 items a week.

Total sales of items listed in Table 2, together with seasonal confectionery, which was excluded from this analysis, increased by 11% in early post-intervention period, with a greater increase (27%) in the late post-intervention period. The increase in total sales indicated that this approach was economically viable for both W H Smith and the RFL Trust. The relative proportion of total sales accounted for by sales of healthier food options increased from 12% in the pre-intervention period to 16% and 17% in the early and late-post intervention periods respectively, these were statistically non significant however. There was little change in sales of most of the other product groups relative to total sales. Packets of crisps, and bars of chocolate accounted for the greatest proportion of total sales 23% and 28% of total sales in the pre-intervention period respectively, relative sales of crisps increasing to 24% for both post intervention periods, and relative sales of bars of chocolate decreasing initially to 26% in the early post-intervention period, and returning to the pre-intervention proportion of 28% of total sales in the late post-intervention period. Overall, sales of unhealthier options did not decrease following the intervention, the exception was packets of sweets and chocolates, sales of which decreased as a percentage of total sales, from 12% in the pre-intervention period, to 7% and 8% in the early and late-post intervention periods respectively (Table 2).

In terms of acceptability of the intervention, 87 shoppers completed a customer opinion questionnaire prior to the intervention, and 40 shoppers in the early post-intervention period. Prior to the intervention, 35% of customers agreed with the statement “the shop offers a good range of healthy options”, and 60% agreed with the statement in the early post-intervention period.

Discussion

Main findings of this study

We demonstrated that it is possible to provide healthier alternatives in a W H Smith hospital retail premises without decreasing overall sales or customer satisfaction. This was the first hospital shop in the UK operated by WH Smith to engage in an intervention to encourage healthier food and drink choices by customers using an intervention based on health behavioural theories including portion reduction and product placement.

To achieve this change required significant personal influence of champions from the Trust and the retailer. Acceptance by the Trust and W H Smith of the potential financial risk from undertaking this intervention was critical to the feasibility of the study. At the outset, 81% of catalogue stock did not meet national guidance on sugar and fat content, and W H Smith both sourced healthier alternatives and negotiated with existing contractors over product size and promotions, this process was difficult and time consuming to undertake.

We conclude that the intervention did not have a negative impact on sales, and suggest in the context of an increase in total sales, although the percentage of sales relative to the total remained almost unchanged for most products, where there were small decreases in sales of unhealthier food choices, this was mitigated by sales of unhealthy food choices being replaced by healthier alternatives. There was high sales performance of the new and enhanced ‘healthy’ ranges, and the increase in sales within this category mitigated the decrease in sales (and profits) of unhealthier products. Continued expansion of the range beyond the initial period during which the strategy was enacted may in part account for the rise in increased sales of products in the snacks and healthy food choices category between the early post-intervention period and the late post-intervention period. Sales of bars of chocolate remained relatively constant post intervention, however this was a range in which portion size was reduced to around 48g, and overall a positive health message could be inferred in that despite the reduced portion size of chocolate bars, there was very little change in

relative sales of large bars of chocolates (~160g), suggesting customers were not switching to a product group with a larger portion size to compensate.

The survey of customer views suggested that the intervention had a positive effect on customer and staff opinion with almost two thirds post intervention agreeing that the agreeing that the shop offered a good range of healthy options.

What is already known on this topic

There are no published UK studies which show the impact of introducing healthier food and drink options on total sales in a hospital setting. There have been studies which have shown the use of behavioural insights into encouraging the purchase of healthier snacks and modelled estimates of the impact on sales of increased taxes on products high in sugar.

What this study adds

This work has also highlighted the need to develop a RFL Trust-wide policy for incorporating public health principles into all future commercial contracts. It is easier to agree health standards for products to be offered for sale in premises during the contracting stage than to change retrospectively once a retailer has obtained an often long-term lease. Trust-wide policy for public health input and approval of contracts during the procurement process and for building Public Health principles into commercial practice have been agreed as a consequence of this work. Companies will in future be held to account for the delivery of these principles and the more detailed action plans, which will underpin them. In March 2016, NHS England published a National Staff Health and Wellbeing Commissioning for Quality and Innovation (CQUIN) for NHS Trusts in England [22]. One part of this states that NHS Trusts are required to ban all advertising of high fat, sugar and salt products, ban all price promotions on these products and remove them from the checkout by March 2017. This is the first time the NHS has set out its intention to tackle the obesogenic environment across the NHS.

Limitations of this study

The retailer provided sales data but we did not have access to data relating to turnover and profit, and have therefore used retailer satisfaction as a proxy for profit in this study. Limitations of this study also include the small sample taking part in the customer survey and there may have been other factors to account for changes in customer behaviour though this is unlikely.

The retailer agreed to be involved in this study as part of their commitment to healthy eating. The results reported are encouraging, and have shown that 'nudges' can be effective in promoting healthier food choices. Tackling the obesogenic environment across the NHS has gained momentum and our work demonstrates that it is possible provide a healthier product range to staff, patients and visitors using a hospital retail premises without affecting financial profits or customer satisfaction. We would urge other hospital retailers to consider a similar approach.

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Competing interests

Angela Bartley has provided consultancy advice for the Compass Group on an *ad hoc* basis, the Royal Free London NHS Foundation Trust were paid for this consultancy.

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