Appetite 121 (2018) 309–315

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Assessing the potential impact of a front-of-pack nutritional rating system on food availability in school canteens: A randomised controlled trial

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ARTICLE INFO

Article history:
Received 1 March 2017
Accepted 22 November 2017
Available online 24 November 2017

Keywords:
Child diet
Public health nutrition
Product labelling
School
Canteen

ABSTRACT

Background: Front-of-pack graphical nutritional rating of products is becoming an important strategy in many countries to improve healthy food purchases by consumers. Evidence of the effectiveness of such on facilitating healthy food choices by school food service providers has not been reported. The primary aim of the study was to assess the impact of providing front-of-pack nutritional rating information on school canteen managers' likely food selections. Secondary outcomes were canteen manager awareness, attitudes and reported barriers to using the front-of-pack information.
Methods: A randomised controlled trial involving primary school canteen managers was conducted in a single region in New South Wales, Australia. Eligible participants were randomised to an intervention or control group and asked in a telephone interview which of 12 common food products sold in school canteens they would sell. Both groups received product name and brand information. The intervention group also received information regarding the nutritional rating of products.
Results: Canteen managers in the intervention group were significantly more likely than those in the control group to indicate they would sell three of the six 'healthier' products ($p = 0.036, 0.005, 0.009$). There was no difference between groups in the likelihood of making available for sale any of the six 'less healthy' products. The majority of canteen managers who had heard of a product nutritional rating system agreed that it was helpful in identifying 'healthier' foods (88%, $n = 31$).
Conclusions: The inclusion of product nutritional rating information has the potential to improve the availability of some 'healthier' items on canteen menus and contribute to improving child dietary intake. Further research is required to determine whether the use of product nutritional rating information actually makes a difference to canteen manager choices.

1. Background

In response to the global increase in childhood overweight and obesity, addressing excessive weight gain in childhood has been identified by the World Health Organization (WHO) as one of the key public health challenges of the century (WHO., 2014). Policies targeting foods provided by or available for sale in schools have considerable potential to improve child public health nutrition (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008), given the near universal access such settings provide to children during key developmental phases and as children consume a substantial

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https://doi.org/10.1016/j.appet.2017.11.103
0195-6663/

proportion of their daily energy intake whilst at school (Bell & Swinburn, 2004).

Consistent with WHO recommendations, governments across the globe have introduced school based healthy eating policies based on national dietary guidelines (Department of Education, 2013; United States Department of Agriculture, 2016). For example, in the United States, the National School Lunch Program aligns with the Dietary Guidelines for Americans and aims to increase the availability of fruits, vegetables, whole grains, and reduced fat dairy in school meals to improve child nutrition and prevent unhealthy weight gain (United States Department of Agriculture, 2016). Similarly, in Australia, where children can pre-order their lunch or purchase foods and beverages over the counter from a canteen or tuckshop, all states and territories have introduced policies to promote 'healthy' foods and restrict the availability of 'less healthy' foods for sale (Woods, Bressan, Langelaan, Mallon, & Palermo, 2014).

One impediment to implementation of such nutrition policies in schools is the difficulty that food service staff experience in classifying the nutritional value of food products (Blythe O'Hara Consulting, 2014; Woolcott Research and Engagement, 2015). In Australia, for example, school canteen managers are required to use and apply back-of-pack nutrition panel information to classify food and beverage products using a 'traffic light' system to determine if the item is consistent with dietary guidelines (products classified as 'green') and state school canteen policy (NSW Department of Health, 2012). For canteen managers, particularly those with no formal nutrition qualifications, interpretation and application of such information can be complex and time consuming (Ardzejewska, Tadros, & Baxter, 2012). As a consequence, adherence to such policies is typically poor (Wu, Berg, & Neeson, 2016). For example, a recent study (2014) of the adoption of healthy eating policies in Australian schools found that the proportion of schools that complied with such policies ranged from 5 to 62%, and in the majority of states $\leq$35% of schools achieved compliance (Woods et al., 2014).

Front-of-pack food labelling systems that provide simplified information regarding the nutritional content of packaged food items are being introduced internationally for all food products in all settings. For example, the Netherlands has introduced a 'Choices logo', which is a single summary checkmark symbol that appears on products meeting certain standards for low levels of sodium, added sugar, saturated fat, trans fat and caloric content (Roodenburg, Popkin, & Seidell, 2011). The United Kingdom has a multiple traffic light labelling system for products that uses 'green', 'yellow' and 'red' symbols to alert consumers to low/med/high levels of saturated, fat, sodium and sugar per serving (British Heart Foundation, 2017). In Australia, a voluntary front-of-pack labelling system known as the Health Star Rating was introduced in 2014 (Department of Health, 2016).

The use of simple graphically presented information on the front of food products that provides an overall nutritional rating of a food or beverage is suggested to also facilitate the identification of healthy foods by school food service staff to improve the availability of such items to children (Dunford, Cobcroft, Thomas, & Wu, 2015). However, despite the potential of such food labelling systems to inform canteen manager decision making regarding canteen menu content, the impact of such a system on their selection of foods included on school canteen menus has not been assessed. Given this evidence gap, a study was undertaken to assess the impact of providing product nutrition information on canteen manager's intentions regarding products they would make available for sale in their canteen. Secondary objectives were to assess current awareness, attitudes and barriers to using the food labelling system in decisions regarding canteen food availability.

2. Methods

Approval to conduct the study was obtained from Hunter New England Area Health Service Human Research Ethics Committee (no. 06/07/26/4.04), the University of Newcastle (H-2008-0343), the New South Wales Department of Education (#2012277); and relevant Catholic School Offices.

2.1. Context

In 2014, the Australia and New Zealand Ministerial Forum on Food Regulation agreed to a voluntary nutritional labelling system for all packaged, manufactured or processed foods known as the Health Star Rating system (The Department of Health, 2016). The system was developed by the Australian, state and territory governments in collaboration with industry, public health and consumer groups. Using an algorithm designed to determine positive and risk nutrients in foods, items within a food category (e.g. fruit juices) are assigned a rating ranging from half a star to five stars, with a higher rating representing a 'healthier' food item. The system is increasingly prevalent in the food and grocery market, where it is currently present on over 5500 packaged products across 115 companies (Food Regulation Secretariat, 2016).

As the use of health star rating information becomes more ubiquitous, they have the potential to be used to support canteen managers to identify both 'healthier' and 'less healthy' foods within a food or drink category in a way that does not require interpretation of nutritional information. The Australian Health Star Rating system has been recommended as an appropriate tool to support identifying foods and beverages that are acceptable for inclusion on a school canteen menu (Dunford et al., 2015), in particular, 'discretionary' foods with less than 3.5 stars have been identified as 'poorer choices' (Dunford et al., 2015).

2.2. Design and setting

A randomised controlled trial of primary school canteen managers from the Hunter New England (HNE) region of NSW was conducted between February 2016 and June 2016. The HNE region covers a large geographic area (more than 130,000km2) and consists of a socioeconomically and demographically diverse population of approximately 112,000 children aged 5-12 years (Health Stats NSW, 2014).

2.3. Sample and recruitment

Three-hundred-and-thirty-eight canteen managers from primary schools of all sectors (government, Catholic and Independent schools) were invited to participate in the study via a computerised assisted telephone interview. Permission to contact canteen managers was sought from school principals through a separate telephone interview. Special purpose schools catering for students with special needs, juvenile justice or hospitalised, and schools already participating in other research trials or quality improvement initiatives were ineligible.

2.4. Randomisation

During the telephone interview conducted by a trained interviewer, a random number generator randomly allocated eligible participants to either an intervention or control group in a 1:1 ratio. Canteen managers, but not telephone interviewers were blind to group allocation.