Determining the ‘healthiness’ of foods marketed to children on television using the Food Standards Australia New Zealand nutrient profiling criteria

Wendy L. WATSON, Aimee JOHNSTON, Clare HUGHES and Kathy CHAPMAN
Health Strategies Division, Cancer Council NSW, Woolloomooloo, New South Wales, Australia

Abstract
Aim: To investigate the potential of the Food Standards Australia New Zealand nutrient profiling criterion to underpin restrictions on the advertising of ‘unhealthy’ foods to children by comparing it to other established criteria.
Methods: Two weeks of food advertising from 6:00 a.m. to 9:00 p.m. on three Sydney television channels was categorised as passing or failing the nutrient profiling criteria. Nutrition information on energy, saturated fat, sodium, sugar, protein, dietary fibre and fruit, vegetable, nut and legume content was obtained from food labels, company websites and manufacturers. Results were compared to criteria based on identifying core and non-core food groups and the criteria set by companies in the voluntary industry codes for marketing to children.
Results: Of the 116 unique food advertisements, 61% failed nutrient profiling and were considered ‘unhealthy’ foods. Of the advertisements that passed nutrient profiling, 64% were promoting core foods, while 93% of those that failed nutrient profiling were promoting non-core foods. Sixty-three per cent of advertisements that met the nutrition criteria outlined in the grocery manufacturers’ company action plans passed nutrient profiling. Only one advertisement for fast food passed the fast food company criteria and nutrient profiling.
Conclusions: The Food Standards Australia New Zealand nutrient profiling criteria provide an independent assessment of the overall healthiness of a product and have potential to form the basis of nutrient criteria for regulating food marketing to children in Australia. Current criteria within voluntary self-regulatory initiatives are complex and lenient, and fail to cover many foods advertised.

Key words: advertising, children, food marketing, nutrient profiling, regulation.

Introduction
Childhood obesity is a significant and increasing problem in Australia and globally.1,2 Food marketing of energy-dense nutrient-poor food contributes to weight gain, and reducing children’s exposure to energy-dense nutrient-poor foods is one policy area identified to contribute to an environment supportive of healthy lifestyles.3,4 The World Health Organization recommends governments and industry to develop or strengthen policies on food marketing to children to reduce the impact of foods high in saturated fats, free sugars and salt.5

Internationally, industry self-regulation is the most common approach to regulating food marketing to children.6 In Australia, there is limited government regulation dealing with food advertising to children on television, and no regulation specifically addressing food advertising to children through other media.7,8 There are two voluntary food industry initiatives, the Quick Service Restaurant Initiative (QSRI), applicable to fast food outlets, and the Responsible Children’s Marketing Initiative (RCMI), applicable to food and grocery manufacturers.9,10 Research has shown that these initiatives have not reduced children’s exposure to unhealthy food advertising over time.11–15

Any policies restricting the marketing of foods and beverages to children require clear definitions of the foods that are subject to restrictions.5,7,16,17 In the United Kingdom (UK), consistency in determining nutritional quality of food products, as a basis for restricting advertising to children, has been achieved through a nutrient profiling model developed by the Food Standards Agency (FSA).18,19 The use of nutrient profiling has been recognised as having valuable applications across various areas of public health nutrition,20,21 including food marketing to children, as shown by
the success of the UK model. The Australian food regulator, the Food Standards Australia New Zealand (FSANZ), adapted the FSA nutrient profiling model to develop the nutrient profiling scoring criterion (NPSC) for determining whether foods are eligible to carry health claims on labels. Foods are firstly categorised within the nutrient profiling model into three categories—beverages; foods or oils; and cheeses with a calcium content more than 320 mg/100 g. The model provides a score taking account of the content of energy, saturated fat, sodium, sugars, protein, dietary fibre, and the content of fruits, vegetables, nuts and legumes in foods. The FSANZ criteria have been tested using a database of over 10 000 Australian and New Zealand foods.

The NPSC is used to reduce the risk of misleading and deceptive health claims about food and ensure that health claims are not allowed on foods high in energy, saturated fat, sugar or salt. The foods identified by the NPSC as not eligible to carry a health claim are the same types of foods identified to restrict in recommendations to reduce the impact on children of food marketing. The World Health Organization recommends that where a food classification system already exists, the same system should be used for other food regulation purposes to avoid inconsistencies and repetition. Therefore, it may be feasible to use the NPSC to classify foods suitable to market to children.

The current Australian self-regulatory initiatives vary in their definitions of ‘healthy’ foods that are eligible to be advertised to children.roll 2 The RCMI, individual signatory companies establish their own nutrition criteria to determine foods appropriate for marketing to children in their company action plans. Many company action plans do not establish criteria as those companies state that they do not advertise to children under 12 years of age. The QSR applies a single nutrition standard for designated children’s meals and does not take account of other food items available to all ages.

Previous studies of Australian children’s exposure to television advertising have used classification systems based on core/non-core food groupings to assess the healthiness of foods. One study in New Zealand has applied the UK FSA nutrient profiling tool to food advertising data. An Australian study in 2009 compared the nutrient criteria in five company action plans under the RCMI with the NPSC. The present study builds on this previous work and applies the NPSC to food advertisements for both industry self-regulatory initiatives by signatory and non-signatory companies. By comparing the NPSC to a core/non-core classification and the criteria in food industry self-regulatory initiatives, the present study also aims to assess the potential of the NPSC as a regulatory tool to restrict advertising of high-fat, high-sugar or high-salt foods to children on Australian television.

Methods

Television food advertisements were purchased from an independent monitoring company (Ethicity) for the three main Sydney commercial channels (Seven Network, Nine Network and Network Ten) during a two-week period, including one week of school term and one week of school holidays (11 July 2011–24 July 2011). Advertisements aired between the hours of 6:00 a.m. and 9:00 p.m. were analysed for food products advertised.

The updated January 2013 NPSC was used to classify the advertised foods. The NPSC includes points assigned for negative nutrients (energy, saturated fat, sodium and sugar content) and points deducted for positive nutrients and ingredients (protein, dietary fibre and fruit, vegetable, nut and legume content). The calculation was based on the nutrition information of the food as sold and the definition of food groups and thresholds according to Standard 1.2.7—Nutrition, Health and Related Claims. Products that were categorised as eligible to carry health claims were classified as passing nutrient profiling and therefore healthy enough to be advertised to children. Those that were not eligible to carry a health claim were classified as failing and not healthy enough to be advertised to children.

Nutrition information was obtained directly from the nutrition information panel on the label of advertised products during supermarket visits in the Sydney metropolitan area, and by accessing fast food nutrition information online in August 2011. When nutrition information was not readily available, manufacturers and fast food chains were contacted. In the few instances where neither of these options provided dietary fibre content, it was estimated using similar products. If not listed on the label, the fruit, vegetable, nut and legume content of each product was estimated from its ingredients list. Most products were unlikely to meet the 40% threshold required to earn points for fruit, vegetable, nut and legume content according to the criteria. For products estimated to contain 30–50% fruit, vegetable, nut and legume content, nutrient profiling was performed using 30, 40 and 50%. In all instances, even if the nutrient profiling score was affected, the overall eligibility for a health claim remained unchanged.

For advertisements for mixed meals from fast food chains or those promoting multiple food products, each component of the advertised meal or product range was analysed separately. Where all components passed or failed, the advertisement was classified as pass or fail, respectively. If the meal/ range had a mix of products that passed and failed but the majority were products that failed, it was classified as fail because it was deemed to be promoting unhealthy food regardless of the presence of some healthy food products. Advertisements that included reference to a brand but no specific product were noted as unclassified, as were advertisements for coffee and condiments.

For grocery manufacturers, the nutrient criteria in company action plans of signatories of the RCMI were accessed in April 2013 to determine compliance.

The core/non-core criteria were adapted from criteria used previously to assess television food marketing to children. The general criteria categorised foods based on the Australian Guide to Healthy Eating ‘core’ food groups. However, some subcategories were considered non-core (e.g. high-sugar breakfast cereal) as they were foods rela-
Table 1 Proportion and number of food advertisements classified using the FSANZ nutrient profiling scoring criterion (NPSC)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of advertisements</th>
<th>Proportion of all advertisements (%)</th>
<th>Number of unique advertisements</th>
<th>Proportion of unique advertisements (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass NPSC</td>
<td>554</td>
<td>32</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>Fail NPSC</td>
<td>992</td>
<td>57</td>
<td>71</td>
<td>56</td>
</tr>
<tr>
<td>Unclassifieda</td>
<td>187</td>
<td>11</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>1733</td>
<td>100</td>
<td>127</td>
<td>100</td>
</tr>
</tbody>
</table>

a No specific food referenced or advertisement for coffee or spice.

Results

There were 1733 food advertisements aired during the study period with 127 unique advertisements (Table 1). Of these unique advertisements, 11 (9%) were unclassified because they were either for a brand without products featured (n = 4) or they were miscellaneous products such as coffee (n = 6) or herbs and spices (n = 1). There were 85 unique advertisements for groceries (67%) including 11 for a food product range and 31 fast food advertisements (24%), including 14 for a range of products.

Products in 71 unique advertisements (56%) failed the NPSC. This included 16 advertisements for a product range where the majority of products failed the NPSC. For example, a fast food advertisement for a mixed hot dinner included a large potato and gravy, which passed nutrient profiling, but the remaining items, soft drink, chicken nuggets and fried chicken pieces, all failed. A dairy range also produced mixed results when products were profiled, with milks passing, but cream and spreads failing nutrient profiling.

The most common types of food that failed nutrient profiling were confectionery, fast food, and spreads and sauces to add to meals. The most common foods that passed nutrient profiling were dairy and protein sources such as eggs and chicken. There were only four advertisements (3%) for fruits and vegetables.

Of the advertisements that passed NPSC (n = 45), 64% promoted core foods (n = 29) and 93% of those that failed NPSC (n = 71) were classified as promoting non-core (n = 66). Cohen’s kappa statistic was at the high end of moderate agreement between the NPSC and core/non-core classification (K = 0.60). Table 2 compares the number of unique advertisements that pass/fail each classification system. Most inconsistency was found in the fast food category. The core/non-core classification tool categorises all fast food as non-core while the NPSC passed six advertisements for fast food products with a healthier nutrient profile. The differences between the two criteria were primarily because the NPSC considered nutrient content such as sodium and sugar in each individual food while the core/non-core classification considered the healthiness of food groups. The grocery products that failed NPSC but were considered core were a cheese (low in calcium), a range of breads (higher in sodium and saturated fat than other breads) and a noodle dish (low in fibre). A higher fat cheese, some breakfast cereals, and frozen fish and potato products passed NPSC but were considered non-core foods, as the non-core food classification was based on general food groups such as ‘full fat cheese’, ‘high-sugar breakfast cereal’ and ‘crumbed meat’ rather than specific nutrient levels.

Table 3 shows the breakdown of advertisements according to whether the advertiser was a signatory to a self-regulatory initiative. Considering all advertisements, the advertisements by RCMI signatories were more likely to promote products that failed (68%) than passed NPSC (32%), while the number of advertisements by non-signatories that failed NPSC (49%) was similar to the number that passed (51%). The majority of all fast food advertisements were from companies that were signatories to the QSRI (76%). There were similar numbers of advertisements by non-signatories that passed (47%) and failed (53%) the NPSC, while failed products dominated the advertising by signatories (83%).
Figure 1 shows the number of unique advertisements by signatories categorised according to Company Action Plan (CAP) criteria showing those that passed/failed nutrient profiling scoring criterion (NPSC). 'No CAP criteria' means company has criteria in its CAP but not for that product. 'Do not advertise' means company says it does not advertise to children in its CAP.

Table 3 Categorisation of unique and total advertisements by signatories and non-signatories to the self-regulatory initiatives

<table>
<thead>
<tr>
<th></th>
<th>Unique advertisements</th>
<th>Total advertisements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number that pass NPSC (%)</td>
<td>Number that fail NPSC (%)</td>
</tr>
<tr>
<td>QSRI</td>
<td>Signatory</td>
<td>Non-signatory</td>
</tr>
<tr>
<td></td>
<td>5 (21)</td>
<td>1 (14)</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>RCMI</td>
<td>Signatory</td>
<td>Non-signatory</td>
</tr>
<tr>
<td></td>
<td>19 (37)</td>
<td>32 (63)</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QSRI</td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>Non-signatory</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>RCMI</td>
<td>51</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Total number</td>
<td></td>
</tr>
<tr>
<td>QSRI</td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>Non-signatory</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>RCMI</td>
<td>51</td>
<td>34</td>
</tr>
</tbody>
</table>

NPSC, nutrient profiling scoring criterion; QSRI, Quick Service Restaurant Initiative; RCMI, Responsible Children’s Marketing Initiative.

Discussion

The NPSC was able to determine the unhealthy foods advertised on Australian television with moderate agreement to both a classification system based on core/non-core food groups and industry-set criteria. The NPSC is able to differentiate products with healthier profiles within a product category such as lower saturated fat levels within the dairy category. The model is able to differentiate healthier fast food options that could be eligible for advertising such as chicken wraps and healthier children’s meals, and therefore support product innovation and encourage healthier menu choices.

The number of advertisements judged as unhealthy by NPSC criteria indicates that companies signed up to the self-regulatory initiatives do not have effective nutrition criteria to identify healthier foods appropriate for advertising to children. The 17 signatories to the RCMI have nominated 14 different nutrition criteria, creating complexity for the industry, consumers, and regulators. A study of five company criteria found that they specified higher thresholds for negative nutrients compared with existing independent criteria such as the Australian National Heart Foundation Tick program. In many cases, the company criteria are complicated and technical. The present study also highlighted the number of advertisements by signatories that would not be regulated by the RCMI because companies state they do not advertise to children, although many advertise to the general population during programs watched by large numbers of children. Other companies do not have criteria for certain advertised categories such as confectionery. The QSRI has a single nutrition standard but it is limited to children’s meals, while the majority of fast food advertisements shown are for foods that are not designated children’s meals and therefore are not covered by that initiative.

A limitation of the NPSC is that it does not address brand-only advertisements. However, all criteria share this limitation. Regulations need to address this, as branding of foods and beverages has been shown to influence young children’s taste perceptions. This could be addressed by placing restrictions on brand-only food advertisements in programs where there are large numbers of children watching.

A clear definition, such as that used in the present study, is also needed to address methodological issues with nutrient profiling of ‘mixed meals’ and ‘product ranges.’
Advertisements for a product range failed if the majority of products failed when profiled individually, as the advertisement was perceived to be promoting less healthy items and therefore should be restricted from children’s viewing. A New Zealand study used the nutrient profile of the ‘main component of the meal’ for fast food meals, but this method could not be used in the case of a product range as it would be difficult to determine the main component. Another study averaged components of mixed meals but acknowledged the effect this may have on diluting nutrient density. Any method that allowed healthy products to ‘balance’ unhealthy products could be used by advertisers to promote unhealthy products in advertisements.

Comparison of eight nutrient profiling models from around the world using a UK television data set found a large variation in the percentage of advertisements that passed the different models (2–47%). The moderate agreement of the NPSC to a core/non-core classification verifies its usefulness in Australia. The findings of the present study that 37% of unique advertisements by signatories to the RCMI passed the NPSC agree with a previous study (38%). Hebden et al. found 83% of advertisements by signatories to the RCMI passed the company action plan criteria. The present study showed a lower result (53%); however, the products that were not specified in company action plan criteria were excluded in this result whereas Hebden et al. included those as passing the RCMI company action plan criteria.

The industry criteria are more permissive than the NPSC. This has also been shown in a comparison of government and industry-led criteria from countries around the world. The more permissive nutrient criteria used by individual companies allow advertisements for more of their products. The failure of the self-regulatory initiatives to include a standard criteria for all foods is a limitation of the self-regulatory approach that results in children being exposed to advertisements for unhealthy foods. The role of the food industry in non-communicable disease prevention and the motives behind the voluntary initiatives continue to be questioned, with suggestions that these initiatives are little more than a way of deflecting governments from taking more comprehensive action.

The strength of the present study is that it tested the NPSC on a relevant data set, a sample of Australian television advertisements. However, it is limited in reflecting advertising in only one period and in only one city. Another limitation is the lack of detail on the food label. If values for fibre and the percentage of fruits, vegetables, nuts and legumes were not on a food label and were not available from the manufacturer, they were estimated using similar products. Efforts were made to use a close approximation, and in all cases the assumptions did not affect the pass/fail result.

The NPSC provides an indication of which elements of individual products are contributing to the unhealthy score. This has the potential to encourage food manufacturers to reformulate products to pass established criteria. The NPSC is already used in Australia to regulate health claims on labels, and a modified form has been developed to underpin an interpretive front-of-pack labelling system. It was originally based on the UK model used to reduce children’s exposure to food marketing. The World Health Organization Framework for the marketing of foods to children acknowledges that nutrient profiling models are complex and challenging to develop but can provide highly precise specifications in relation to food products available in a given country. In the case of Australia, where a nutrient profiling system already exists, the World Health Organization recommends that the same system be used.

The inadequacy of company action plan criteria within the definitions of the initiatives, definitional issues that exclude some advertised foods from the scope of the voluntary initiatives, and companies attesting that they do not direct advertising to children under 12 mean that food advertising on Australian television is dominated by unhealthy foods. The prominence of unhealthy food advertisements is exacerbated by the fact that many companies have not signed the voluntary initiatives. The variability and lack of criteria to underpin the self-regulatory initiatives is an example of the failure of food industry strategies to reduce children’s exposure to advertising of unhealthy foods.

Funding source
No external sources of funding.

Conflict of interest
The authors declare no conflict of interest.

Authorship
W.L. Watson and C. Hughes conceived the experimental design and coordinated data collection. A. Johnston contributed to data collection. W. Watson and A. Johnstone analysed the data. W. Watson drafted the manuscript. All authors contributed to the interpretation of data, revised draft manuscripts, and read and approved the final manuscript. The authors would like to thank Fiona McHugh for contributing to the data collection and initial analysis.

References


33 Australian Communications and Media Authority. Industry self-regulation of food and beverage advertising to children. ACMA Monitoring Report 2011.


