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Short Communication

Nutritional quality of food items on fast-food 'kids' menus': comparisons across countries and companies

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Abstract

Objective: To compare energy (calories), total and saturated fats, and Na levels for 'kids' menu' food items offered by four leading multinational fast-food chains across five countries.

Design: A content analysis was used to create a profile of the nutritional content of food items on kids' menus available for lunch and dinner in four leading fast-food chains in Australia, Canada, New Zealand, the UK and the USA.

Setting: Food items from kids' menus were included from four fast-food companies: Burger King, Kentucky Fried Chicken (KFC), McDonald's and Subway. These fast-food chains were selected because they are among the top ten largest multinational fast-food chains for sales in 2010, operate in high-income English-speaking countries, and have a specific section of their restaurant menus labelled 'kids' menus'.

Results: The results by country indicate that kids' menu foods contain less energy (fewer calories) in restaurants in the USA and lower Na in restaurants in the UK. The results across companies suggest that kids' menu foods offered at Subway restaurants are lower in total fat than food items offered at Burger King and KFC, and food items offered at KFC are lower in saturated fat than items offered at Burger King.

Conclusions: Although the reasons for the variation in the nutritional quality of foods on kids' menus are not clear, it is likely that fast-food companies could substantially improve the nutritional quality of their kids' menu food products, translating to large gains for population health.

Keywords
Nutrition
Chronic disease
Population health
Children

Dietary patterns are associated with chronic conditions among both children and adults[1–4]. The WHO estimates that preventable nutrition-related diseases in high-income Westernized countries are responsible for one-fifth of all deaths[5]. Children are an important target for nutrition interventions given that in high-income countries such as Australia, Canada and the USA the majority of children have high-Na diets and nearly one-third of children are overweight or obese[6]. Over the lifespan, children of unhealthy weights are 80 % more likely than children of normal weight to be overweight or obese in adulthood, and twice as likely to have a diminished quality of life due to disability and a shorter life expectancy[6–8].

Children's diets are influenced by a wide range of factors, including access to and the availability of foods, as well as socio-economic and sociocultural factors[9–11]. Parents also play a direct role in children's eating patterns through their own behaviours, attitudes and feeding styles[11]. The frequency of eating 'outside the home' at fast-food outlets is also related to increased energy intake and poor diet[11–13]. Food eaten outside the home is associated with higher intakes of energy, Na, and total and saturated fats, which in turn are associated with unhealthy weights and poorer health[14–18]. Several prospective studies among both children and adults have demonstrated that frequent eating at fast-food restaurants

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is associated with excess weight gain over time[19–21]. Eating out has become increasingly common in high-income countries. For example, almost half of adults in the USA eat at least one meal prepared outside the home each day, with one-third of US children eating fast food every day[22,23]. Eating out now accounts for almost one-third of children's daily energy intake, twice the amount consumed away from home three decades ago[24,25]. Similar trends among adults and children have also been found in Canada, the UK, New Zealand and Australia[26–28].

Fast-food 'kids' meals' are the top-selling fast-food item sold to children under the age of 13 years[29]. In the past, the food products offered in fast-food kids' meals and listed on 'kids' menus' were almost exclusively poor-nutrient, high-energy foods. A recent study of the nutrient quality of kids' meals available at fast-food restaurants in the USA found that only 3 % met nutrition criteria for school-aged children[30]. That study also found that more than half the food items listed on kids' menus exceeded recommended Na levels for children[30]. However, there is very little evidence on the nutritional quality of food items offered on fast-food kids' menus in other high-income countries outside the USA, such as Australia, Canada, New Zealand and the UK.

In light of the association between eating out and unhealthy dietary patterns, some countries have enacted legislation mandating energy (calorie) labelling on restaurant menus and menu boards and have released recommendations for voluntary targets for Na reduction in processed foods and those served in food establishments[31,32]. In addition to these policies, a number of leading multinational fast-food companies have made voluntary commitments to reduce energy, Na and saturated fats, and offer more nutritious choices on their kids' menus[33,34]. There is, however, limited evidence to verify whether the food industry has adhered to its commitments or the voluntary targets announced by government. Moreover, it is also unknown if the nutritional quality of food items offered on fast-food kids' menus varies across companies or across countries with and without government targets and regulations related to nutrition.

The objective of the current study was to compare the reported energy (calories), total and saturated fats, and Na levels for kids' menu food items offered by four leading multinational fast-food chains across five countries.

Methods

Content analysis was used to create a profile of the nutritional content of food items on kids' menus available for lunch and dinner in four leading fast-food chains in Australia, Canada, New Zealand, the UK and the USA. The data were collected in August 2012.

Fast-food companies

Food items from kids' menus were included from four fast-food companies: (i) Burger King (known as Hungry Jack's in Australia); (ii) Kentucky Fried Chicken (KFC); (iii) McDonald's; and (iv) Subway. These fast-food chains were selected because they are among the top ten largest multinational fast-food chains for sales in 2010[35], operate in high-income English-speaking countries, and have a specific section of their restaurant menus labelled 'kids' menus'.

Data collection

To be eligible for content analysis, food items had to be listed on the restaurant menu, offered during the lunch and/or dinner period as an entrée or side dish, and labelled under 'kids' menu' or 'children's menu'. Data were obtained from the companies' websites in each participating country. When information was not available on the companies' websites, telephone calls were made to the restaurants' headquarters in the participating countries or in-store visits were made to the restaurant when possible. The country, company name, product name, serving size (g), energy (kcal), total fat (g), saturated fat (g) and Na (mg) levels for each menu item were recorded. When information on salt content was provided rather than Na content, the value was converted by dividing by 2·5 (i.e. the atomic weight of Na is 23, whereas the molecular weight of NaCl (salt) is 58·5). Data accuracy was checked by selecting a random sample of 5 % of entries and comparing the information in the database against the original source.

Analyses

The mean levels, standard deviations, confidence intervals and ranges for energy, total fat, saturated fat and Na for all food items on restaurant kids' menus were calculated overall and separately for each country and company. Interaction effects between companies and countries were assessed to determine if the differences among companies were different across countries. The mean differences in energy, total fat, saturated fat and Na across countries and among different companies were compared using ANOVA. The non-parametric Kruskal–Wallis rank-sum test was used to confirm the results of the one-way ANOVA. Pair-wise comparisons of energy, total fat, saturated fat and Na were also tested between countries and companies using the Tukey–Kramer adjustment for multiple testing. Finally, Forest plots were generated to illustrate the variability in outcomes.

Results

A total of 138 kids' menu food items, including eighty-five entrées and fifty-three side dishes, in the four fast-food chains operating across five countries met the inclusion criteria and were analysed. All product and nutrition

Table 1 Energy (calories), total fat, saturated fat and sodium content of food items on kids' menus, August 2012

	Australia			Canada			New Zealand			UK			USA			Overall (by company)		
	(*n* 19)			(*n* 29)			(*n* 26)			(*n* 32)			(*n* 32)			(*n* 138)		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Energy (calories) content per food item (kcal*)																		
Burger King	239·6	89·1	116·4–323·6	263·8	121·9	50·0–450·0	271·4	89·4	129·3–378·1	209·0	101·4	28·0–322·0	206·0	106·0	30·0–290·0	237·7	101·5	28·0–450·0
KFC	279·6	130·2	202·4–474·2	228·8	96·3	100·0–370·0	256·4	67·8	188·7–376·0	165·4	83·8	67·0–269·0	156·6	75·6	25·0–290·0	198·0	94·2	25·0–474·2
McDonald's	213·6	85·5	27·0–284·0	191·9	98·4	45·0–300·0	203·9	78·8	42·0–269·0	173·0	102·0	29·0–295·0	171·0	114·7	15·0–300·0	192·8	90·6	15·0–300·0
Subway	165·5	4·9	162·0–169·0	186·8	58·8	104·0–270·0	158·6	59·5	42·0–227·0	210·5	17·6	171·0–231·0	148·8	76·4	35·0–200·0	182·3	51·3	35·0–270·0
Overall (by country)	228·7	92·8	37·0–474·2	221·0	99·7	45·0–450·0	218·8	83·2	42·0–378·1	210·3	78·9	28·0–322·0	166·1	85·4	15·0–300·0			
Total fat content per food item (g)																		
Burger King	10·8	3·7	5·7–14·4	12·4	7·9	0·0–26·0	13·4	4·6	7·2–20·5	8·0	5·4	0·0–15·0	9·6	6·3	0·0–17·0	10·7	6·0	0·0–26·0
KFC	13·4	8·2	6·5–25·1	12·5	7·2	5·0–25·0	13·1	1·7	10·2–15·2	6·5	4·3	0·6–11·9	6·9	5·4	0·0–17·0	9·4	6·1	0·0–25·1
McDonald's	10·2	5·3	0·0–17·9	7·6	5·0	0·5–13·0	9·9	5·3	0·2–18·8	7·0	5·0	0·0–12·0	7·6	5·1	0·0–12·0	8·6	5·0	0·0–18·8
Subway	2·7	0·6	2·3–3·1	4·1	4·5	1·0–12·0	3·6	3·2	0·0–9·5	7·7	4·6	1·5–11·8	1·9	1·3	0·0–3·0	4·9	4·2	0·0–12·0
Overall (by country)	10·2	5·9	0·0–25·1	9·7	7·0	0·0–26·0	9·8	5·5	0·0–20·5	8·0	4·6	0·0–15·0	6·8	5·4	0·0–17·0			
Saturated fat content per food item (g)																		
Burger King	3·3	2·3	1·3–6·2	4·6	4·3	0·0–13·0	4·0	2·7	1·0–7·4	2·5	2·6	0·0–6·0	2·9	2·2	0·0–6·0	3·5	3·0	0·0–13·0
KFC	2·4	1·3	1·2–3·9	1·8	1·1	1·0–4·0	2·1	0·8	1·4–3·5	1·7	1·7	0·1–5·7	2·1	1·1	0·0–3·5	1·7	1·2	0·0–5·7
McDonald's	2·6	1·8	0·0–6·0	2·7	2·3	0·4–6·0	2·3	1·7	0·1–5·5	1·7	2·1	0·0–6·0	2·4	2·4	0·0–6·0	2·4	2·0	0·0–6·0
Subway	1·0	0·1	0·9–1·0	1·0	0·7	0·3–2·0	2·1	1·7	0·0–4·9	5·9	2·4	0·5–6·0	0·6	0·4	0·0–1·0	2·1	2·2	0·0–6·0
Overall (by country)	2·5	1·7	0·0–6·2	2·7	2·9	0·0–13·0	2·5	2·0	0·0–7·4	2·8	2·4	0·0–6·0	1·7	1·6	0·0–6·0			
Na content per food item (mg)																		
Burger King	431·8	216·9	248·0–698·0	527·5	289·5	0·0–950·0	544·3	252·5	141·0–846·0	452·2	207·4	0·0–705·0	384·0	254·0	0·0–690·0	475·1	237·8	0·0–950·0
KFC	456·9	178·8	214·0–634·0	510·0	210·3	180·0–770·0	519·7	280·0	288·0–1010·0	213·8	281·9	0·0–840·0	438·1	268·1	0·0–810·0	422·9	266·3	0·0–1010·0
McDonald's	352·1	219·0	0·0–747·0	395·6	314·4	25·0–750·0	389·1	226·4	2·0–753·0	247·0	220·8	0·0–589·5	328·0	297·9	0·0–720·0	346·2	247·2	0·0–753·0
Subway	415·5	6·4	411·0–420·0	375·8	172·5	89·0–530·0	380·9	218·5	3·1–665·0	227·3	119·1	100·0–400·0	335·0	224·9	0·0–470·0	317·8	174·7	0·0–665·0
Overall (by country)	400·2	189·2	0·0–747·0	460·1	255·8	0·0–950·0	450·5	240·3	2·0–1010·0	312·8	221·9	0·0–840·0	397·5	256·8	0·0–810·0			

*To convert to kJ, multiply kcal by 4·184.

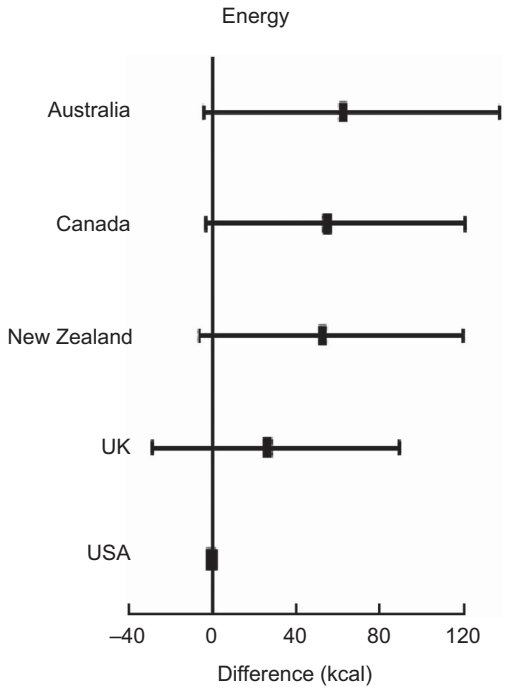

Fig. 1 Forest plot comparing relative estimates of the energy (calories) content (kcal; to convert to kJ, multiply kcal by 4·184) of fast-food kids' menu foods across countries, August 2012. Values are the differences of the means, with 95 % family-wise confidence intervals represented by horizontal bars

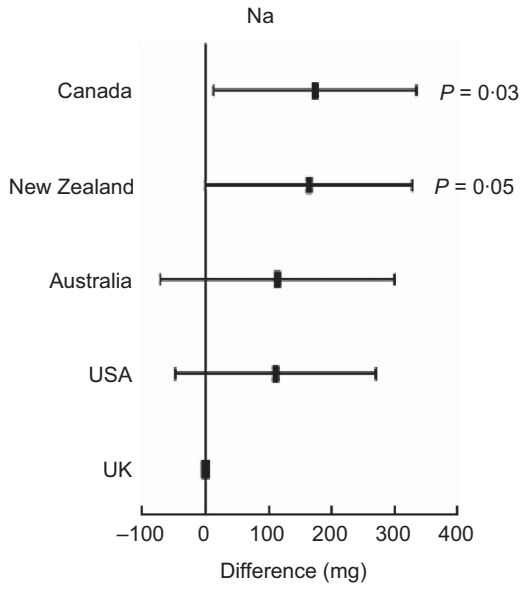

Fig. 2 Forest plot comparing relative estimates of the sodium content (mg) of fast-food kids' menu foods across countries, August 2012. Values are the differences of the means, with 95 % family-wise confidence intervals represented by horizontal bars

information for kids' menu food items at each of the four establishments across the five countries was available except for serving size. As shown in Table 1, within all fast-food restaurants across the five countries, average energy per food item was 202·7 kcal (848 kJ) and ranged from 15·0 kcal to 474·2 kcal (63 kJ to 1984 kJ), average total fat content per food item was 8·4 g and ranged from 0 g to 26·0 g, average saturated fat content per food item was 2·4 g and ranged from 0 g to 13·0 g, and average Na content per food item was 390·5 mg and ranged from 0 mg to 1010·0 mg.

Variation in energy

Across countries, there was significant variability in the energy content of kids' menu food items overall ($F = 2{\cdot}5$; $P = 0{\cdot}049$). As shown in Fig. 1, results between countries showed marginally significant differences in the energy content of food items between the USA and Australia ($P = 0{\cdot}11$), the USA and Canada ($P = 0{\cdot}11$), and the USA and New Zealand ($P = 0{\cdot}15$). The marginal significance of the pair-wise comparisons between countries was likely due to the Tukey–Kramer adjustments being relatively conservative. Results of the Kruskal–Wallis rank-sum test confirmed these results.

Across companies, overall differences in the energy content of kids' menu food items did not reach statistical significance. Results of the pair-wise comparisons and Kruskal–Wallis rank-sum test confirmed these results.

Variation in total fat content

Across countries, differences in the total fat content of food items overall did not reach statistical significance. Results of the Kruskal–Wallis rank-sum test and pair-wise comparisons also did not show significant differences between countries.

Across companies, however, there were significant differences in the total fat content of food items overall ($F = 6{\cdot}66$; $P = 0{\cdot}0003$). Results of comparisons between companies indicated the total fat content of food items offered at Subway restaurants was significantly lower than at Burger King ($P = 0{\cdot}00051$) and KFC ($P = 0{\cdot}002$) restaurants. Again, results of the Kruskal–Wallis rank-sum tests confirmed these results.

Variation in saturated fat content

Across countries, differences in the saturated fat content of kids' menu food items overall did not reach statistical significance. Results of the Kruskal–Wallis rank-sum test and pair-wise comparisons also did not show significant differences.

Across companies, however, there was marked variation overall in the saturated fat content of food items ($F = 3{\cdot}63$, $P = 0{\cdot}01$). Results of the pair-wise comparisons between companies indicated that the saturated fat content of food items offered at KFC restaurants was significantly lower than at Burger King restaurants ($P = 0{\cdot}013$). Results of the Kruskal–Wallis rank-sum tests confirmed these results.

Variation in Na content

Across countries, there was significant variability in the Na content of food items overall ($F = 2{\cdot}89$; $P = 0{\cdot}02$).

As shown in Fig. 2, results of comparisons between countries showed that fast-food outlets in the UK offered food items with significantly lower Na than fast-food outlets in Canada ($P = 0{\cdot}03$) and New Zealand ($P = 0{\cdot}049$).

Across companies, the results of the one-way ANOVA also indicated statistically significant differences in the Na content of food items overall ($F = 2{\cdot}97$, $P = 0{\cdot}03$); and marginally significant differences in the Na content of food items between McDonald's and Burger King ($P = 0{\cdot}07$), and Subway and Burger King restaurants ($P = 0{\cdot}08$). The marginal significance of the pair-wise comparisons between companies was again likely due to the Tukey–Kramer adjustments being relatively conservative.

Discussion

To our knowledge, the present study is the first one to compare the nutritional quality of kids' menu food items across countries and companies. The findings indicate that there is some variation in the reported energy and Na levels of kids' menu foods offered by major multinational fast-food establishments by country and across companies. Although the reasons for the variation in the nutritional quality of foods on kids' menus in restaurants operating across countries are not clear, the marked differences of similar food products suggest that technical feasibility is unlikely a primary explanation. Historically, the main reason for the addition of salt to food was for preservation; however, because of the emergence of refrigeration and other methods of food preservation, the need for salt as a preservative has decreased[36]. These findings are consistent with previous research demonstrating the significant variability in the average Na content of food items offered on 'regular menus' in the same fast-food restaurants operating in different countries[37].

The results of our study point to a trend for relatively lower-energy foods being offered on kids' menus in the USA compared with the same fast-food restaurants in Australia, Canada, New Zealand and the UK. The trend for participating restaurants in the USA to offer lower-energy foods on kids' menus may reflect the impending federal menu labelling legislation passed in March 2010[31]. Under this law, restaurants with twenty or more locations in the USA are required to list energy (calorie) content information for standard menu items on restaurant menus and menu boards[31]. All other participating countries in this research do not have legislation requiring restaurants to post energy content information on menus and menu boards. Previous research has shown that one consequence of requiring restaurants to post energy content information on menus can include reformulation of existing food items and the introduction of nutritionally improved items[38]. Indeed, results of a study investigating fast-food entrées on kids' menus in the USA one year following implementation of the menu labelling legislation demonstrated that added items were on average 57 kcal (238 kJ) lower in energy than removed items[39]. Results of our study indicate fast-food restaurants operating in the USA may limit their kids' menus to fewer items with smaller portions and do not include the larger portions offered in restaurants in the other countries. For example, Burger King restaurants in the USA only offer four entrées on their kids' menu, with the item highest in energy being a cheeseburger (serving size = 116 g) worth 260 kcal (1088 kJ) per serving compared with Burger King restaurants in Canada that offer seven entrées on their kids' menu including a double cheeseburger (serving size = 148 g) worth 450 kcal (1883 kJ) per serving. Given that millions of children order from kids' menus every day, simply eliminating the higher-energy options could reduce children's consumption by billions of calories (kilojoules) per year.

Our results demonstrate that fast-food restaurants operating in the UK have significantly lower Na levels in their kids' menu foods overall, as well as compared with the same fast-food chains operating in Canada and New Zealand. The trend for food items on kids' menus in fast-food restaurants in the UK to contain relatively lower Na levels may be explained by the UK Government's Sodium Reduction Strategy recommending voluntary reductions of Na in processed foods[32]. For instance, since the strategy was implemented in 2003, the average McDonald's Happy Meal in the UK contains 46 % less salt than it did in 2000, and burger buns, chicken nuggets, French fries and ketchup have all had their Na content reduced[40]. Our results support claims made by the fast-food restaurants in the UK and suggest that popular fast-food items can be reformulated to decrease Na levels.

Food items offered on kids' menus at Subway restaurants were lower in total fat than food items offered at Burger King and KFC. As previously discussed, posting nutrition information on menus and menu boards in restaurants often encourages restaurants to introduce more nutritious food items in an effort to compete for more health-conscious customers. Given that Subway restaurants voluntarily display information on the total fat per serving of low-fat food options on their menu boards, this may in part help to explain why Subway offers significantly lower-fat foods compared with other restaurants.

Strengths and limitations

The present study was based on the data provided on the companies' websites or the nutritional information provided in restaurants; thus, the accuracy of the findings presented is dependent on the accuracy of the data provided by the establishments. Previous research examining the accuracy of stated nutritional content of restaurant foods provides some justification for this approach[30]. However, important nutrition information on food qualities, such as *trans*-fat, was not included in our analyses because this information was not provided on companies' websites for restaurants in Australia, New Zealand or the UK.

Another limitation is that we analysed the nutritional content of the restaurant food items individually and not bundled as part of a 'kids' meal' that typically includes an entrée, a side dish and a beverage. Food items were analysed individually because all participating restaurants in the study provide several options of entrées and sides; therefore, if parents and/or children are informed of the nutritional quality of individual food items, they can potentially select 'healthier' items.

Although a large proportion of children under the age of 13 years purchase food items from kids' menus at fast-food restaurants, recent research indicates that a growing number of children are purchasing food items from the regular menu at fast-food restaurants. A study published by the Rudd Center for Food Policy examining the marketing practices and nutritional quality of fast-food items targeting children reported that approximately 36 % of children under 6 years, 21 % of children between the ages of 6 and 12 years, and 2 % of children aged 13 to 17 years order food items from kids' menus during an average visit to a fast-food restaurant in the USA[29]. Therefore, extending examinations to include regular menu items of fast-food restaurants across countries and companies may be important to fully capture the food products purchased for children. Including beverages offered on both the kids' and regular menus of fast-food restaurants in future examinations would also be valuable for better understanding the variation in the nutritional composition of product offerings across companies and countries.

Conclusions

Given that food items offered at fast-food restaurants are generally of poor nutritional quality and children are eating foods prepared outside the home more frequently than ever, improving the nutritional quality of food items offered in fast-food restaurants can contribute to important gains in population health. Results of the current study suggest that fast-food restaurants in the USA offer food items on kids' menus containing the lowest energy and second lowest Na levels compared with the same restaurants operating in Australia, Canada, New Zealand and the UK. Posting energy (calorie) content information on menus and menu boards in restaurants may encourage restaurants to offer relatively lower-energy and lower-fat food items on kids' menus. Therefore, regulations that require nutrient disclosure on menus may provide an important incentive for fast-food companies to improve the nutritional quality of foods marketed to children.

Na levels of food items offered on kids' menus in fast-food restaurants in the UK were lower compared with the same restaurants operating in other countries. Consistent with previous research, these results suggest that strategies to systematically reduce the Na content in processed foods may be effective by setting substantive, achievable, gradual and measurable targets for the food industry[41]. Indeed, in the UK, the collaborative actions between government and industry to reduce Na levels in processed foods have contributed to a significant decrease in the daily Na intake of adults over the past 10 years, which from a population perspective could result in health gains on par with the benefits of population-wide reductions in tobacco use, obesity and cholesterol levels and would be more cost-effective than using medication to lower blood pressure in all people with hypertension[42,43].

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