

ORIGINAL ARTICLE

Food marketing on children's television in two different policy environments

MONIQUE POTVIN KENT, LISE DUBOIS & ALISSA WANLESS

Institute of Population Health, University of Ottawa, Ottawa, Ontario, Canada

Abstract

Objective. To examine the differences in exposure to food marketing on television between English children in Ontario, and French and English children in Quebec as each group is influenced by different advertising policies. **Methods.** In total, 428 children aged 10–12 completed television viewing diaries for 7 days. During the same week, 32 television stations were recorded between 6 am and 12 am. A content analysis of advertisements, contests and sponsorship announcements that aired during children's 90 hours of preferred programming was then undertaken. **Results.** Twenty-six percent of advertisements, 18% of contests and 22% of sponsorships were food/beverage related. Similar rates of food marketing were seen across all three population groups. French Quebec subjects were exposed to significantly more beverage promotions and fewer grain products, candy and snack food promotions. French Quebec children were targeted less frequently, and media characters/celebrities were used less often than in the English groups. **Conclusion.** The Quebec advertising ban does not appear to be limiting the amount of food/beverage advertising seen by children aged 10–12. However, food categories and marketing techniques used differ in the preferred viewing of French Quebec children.

Key Words: *Child, obesity, public policy, television, prevention, marketing, food*

Introduction

Childhood obesity rates have increased significantly in the developed world over the past 25 years (1). This trend is worrisome given that cardiovascular, respiratory, endocrine, gynecological, metabolic, orthopedic and psychosocial difficulties can accompany childhood obesity (2–4). While the etiology of childhood obesity is multi-faceted, three recent systematic reviews of the literature have concluded that commercial food advertising aimed at children directly affects children's food preferences, short-term consumption patterns and food purchase requests (5–7). In addition, television food advertising most probably contributes to an environment that promotes the development of childhood obesity (7). It is this association with obesity that has particularly troubled governments and advocates concerned with child health.

In 2006, US \$1.6 billion was spent on marketing food, drinks and restaurants to children and teens in the United States by 44 corporations (8). Research

on children's television has shown that in the provinces of Alberta and Ontario in Canada (9), in the US (10,11), the UK (12), New Zealand (13), and Australia (14,15), the food product categories most frequently advertised to children on children's specialty channels include candy and snacks, fast food, cereal, and dine-in and delivery restaurants. Little research has compared children's exposure to food and beverage advertising in different advertising policy environments. Canada is a unique country in which to conduct such research, as advertising policies differ between provinces. Since 1980, in the province of Quebec, where the majority speak French, there has been a ban on commercial advertising directed at children under the age of 13 under the *Consumer Protection Act* (16). This *Act* bans the advertisement of products in Quebec that are exclusively designed for children or particularly appeal to children (such as toys, certain candies etc.) when children consist of 15% of the total audience. Products intended

correspondence: Monique Potvin Kent, Institute of Population Health, University of Ottawa, 1 Stewart St., Ottawa, ON, K1N 6N5, Canada. Fax: + 613 562 5423. Email: mpk@rogers.com

(Received 2 February; final version received 17 August 2010)

for those aged 13 years or over, which may appeal to children, are only authorized when child viewership reaches 15%, if the advertisement is designed not to elicit the interest of children under 13 years. A child's interest is said to be elicited when advertisements use certain themes, such as magic, fantasy, and adventure, use characters that children identify with including other children, or use animation, music, colours or sounds that appeal to children. When child viewership falls below the 15% threshold, advertising of all products is permitted; however, the advertisement must always be designed to not interest the child. In the rest of Canada, advertising is predominantly regulated by industry under Advertising Standards Canada who administers *The Broadcast Code for Advertising to Children* and its accompanying *Code Interpretation Guideline*. In addition to this *Code*, by December 2008, eight large food, beverage and restaurant corporations had pledged to advertise only "better for you" products to children under 12 years, and another eight had committed to eliminate advertising to children under *The Canadian Children's Food and Beverage Advertising Initiative (CAI)* (17).

Recent research in Canada has shown that during children's television programs, 15% of advertisements in Quebec (18), 18% in Ontario and 19% in Alberta feature food and/or beverages (9). No research to our knowledge has compared different populations of children in Canada in terms of their exposure to television food and beverage marketing depending on their advertising policy environment. The current study examined the differences in exposure to food marketing on television between different populations of children in Canada, namely English speaking children in Ontario, and French and English speaking children in Quebec during their preferred television programming. It was important to look at both English and French speaking Quebec children given that French speaking Quebec children likely watch French television broadcast from Quebec where the advertisement ban applies, whereas the English speaking Quebec children likely watch English language television broadcast from outside of Quebec where the advertisement ban does not apply. It was therefore hypothesized that the Quebec advertisement ban would have less influence on the English speaking children of Quebec as they would be exposed to significantly more food promotions than French speaking Quebec children on television. It was also hypothesized that food products that are frequently aimed at children including candy, breakfast cereals and snack foods would predominate in the English Ontario and English Quebec preferred viewing given that the *Consumer Protection Act* bans the advertisement of child-directed products.

Methods

Subjects

A total of 645 subjects aged 10 to 12 (and one 13 year old) were recruited from a pool of 1 939 students drawn from 18 schools in two large metropolitan areas in Ontario and Quebec. Subjects were self-selected in order to maximize study participation and compliance. However, schools were chosen in order to ensure a diverse socio-economic mix of subjects. School boards with participating schools and each school principal approved the study, subjects' parents gave written informed consent, and each child gave verbal assent for their participation. Each participating school was given \$350 for their participation. In total, 428 subjects (or 66% of those recruited) including 225 English speaking children from Ontario, 156 French speaking children from Quebec and 47 English speaking children from Quebec from grades 5 and 6 completed the study. Subjects' language was defined as French if they attended a French language school. The language of all other children (attending English or French immersion schools that cater for an English speaking student body) was defined as English. In sum, 36% of the sample consisted of males while 64% consisted of females and 74% of subjects had at least one parent with a university degree.

Data collection

In order to determine children's preferred television programs, subjects completed a television viewing diary for a one week period from March 26, 2009 to April 1, 2009. The viewing diary was based on that developed by the Bureau of Broadcasting Measurement (BBM), an organization that collects weekly television viewing survey data on Canadians aged 2 and over. For each of the 7 days, subjects were required to indicate their daily television use at 30 minute intervals, and the program and station they were watching.

During the same 7 day period that subjects were completing their viewing diary, 32 television stations of potential interest to English and French speaking children were recorded between 6:00 am and 12:00 am. The television recording was conducted by a third party contractor using a multi-media recording server. The recordings were then downloaded on to a hard drive. Data from the television viewing diaries was analyzed in order to determine the preferred 30 hours of programming for English speaking Ontario subjects, French speaking Quebec subjects, and English speaking Quebec subjects based on the percentage of children within each group watching each 30-minute time slot on each station. The preferred 30 hours of television programming for each group was therefore the sixty 30-minute television spots with the highest

percentage of viewership. Five preferred viewing half hour segments (for a total of 2.5 hours) for the English Quebec subjects were not taped because of technical difficulties and were replaced with the next most popular programs.

Once the 30 preferred hours for each group were determined, a content analysis of the promotions aired was conducted. While there was no overlap in the preferred programming of children within the French Quebec group with either English group, 30% of the Ontario English preferred programming was repeated in the Quebec English programming for a total of 9 hours. Therefore, a content analysis of 81 hours was completed. The content analysis included documenting: (1) the day and time of the non-programming content; (2) the type of program and station on which it aired; (3) the type of promotion; (4) the length of promotion; (5) the type of food product being promoted; (6) the techniques used to promote the brand; and (7) the target audience. The entire 81 hour content analysis was conducted by one reviewer who had undergone two days of training. All food/beverage related promotions were then reviewed a second time in order to ensure reliability. A random 15% of this sample was recoded by the main researcher and intercoder reliability was 97%.

Definitions

Promotion was defined as non-programming content including advertisements, contests and sponsorship announcements. All promotions were included regardless of their length in order to measure each group's total exposure to various forms of marketing. Advertisements were defined as non-programming content that promoted a commercial product while contests exclusively described a contest related to a product, brand, corporation or television station. Sponsorship announcements were non-programming content that announced the corporate sponsor of the program and/or their product and included closed captioning announcements. Food categorization was based on the food categories developed by Gantz et al. (10) and included specific food categories (as shown in Table III) that were then grouped into larger food categories, including candy and snacks, beverages, restaurants, grain products, fruits and vegetables, dairy products, meat, poultry, fish and alternatives, prepared foods, and other foods, to allow for statistical analysis. The techniques used to promote the brand or product included the use of fun, and the appearance of media characters or celebrities. Advertisements were coded as using fun as a marketing tool if the product had a shape, colour, taste or other property that rendered it playful or if the individual or individuals interacting with the product in the advertisement were portrayed as enjoying the

product beyond the normal experience. The appearance of media characters or celebrities included the portrayal of company owned and licensed characters and sports, television, movie, and music celebrities. When coding the target audience for advertisements, multiple targets could be selected including preschoolers, children, teens, and/or adults. Determining the perceived target audience was based on: (1) the product featured, its characteristics and its uses; (2) the age of the intended user of the featured product; (3) the age of the main actors in the advertisement; (4) the setting of the advertisement (i.e., in a playground, an office); (5) the intended audience of the sound and visual features of the advertisement; (6) the intended audience for any media characters, celebrities or other product related incentives featured in the advertisement; and (7) the primary persuasive appeal used (i.e., health benefits, fun).

Analysis

All data was inputted and analyzed using PASW Statistics 17.0 (SPSS, 2009). Descriptive statistics were first tabulated followed by non-parametric chi square analyses to examine group differences.

Results

Children's preferred television viewing

All 90 hours of preferred television viewing were drawn from Canadian television stations. The 30 preferred hours for the English Ontario group included programs aired on two children's specialty stations (50% and 37%), and one broadcast station (13%). The preferred hours for the Quebec French group were exclusively drawn from French stations including one children's specialty station (62%), one public broadcast station (17%), one broadcast station (15%), and one sports specialty station (6.6%), while the English Quebec preferred viewing included a large number of English language stations, namely three children's specialty channels (40%, 33%, and 20%), one broadcast station (5%), and one public broadcast station (1.7%). The majority of the preferred viewing hours for each group occurred between 3:30 pm and 8:00 pm (Ontario English 58%, Quebec French 68%, Quebec English 65%). Prime time hours between 8:00 pm and 10:00 pm accounted for 20% of the Ontario English, 13% of the Quebec French, and 18% of the Quebec English preferred viewing.

Advertisements

Overall, in the 90 hours of programming analyzed, 1 511 advertisements that varied in length from 1 second

to 60 seconds with a mean of 23 seconds (standard deviation [SD] = 10) were coded. As summarized in Table I, for the most frequently viewed 30 hours of programming by English speaking Ontario children, 24% of 497 advertisements were food/beverage related including 73 food advertisements, 24 beverage advertisements and 20 restaurant advertisements for a combined rate of 3.9 food/beverage related advertisements per hour. The most frequently advertised food/beverage sub-categories were cold cereal (14%), milk (11%), fast food restaurants (10%), pasta products (9.4%) and dine-in restaurants (6.8%). For the French Quebec sample, 27% of 447 advertisements were for foods (n = 80), beverages (n = 25) or restaurants (n = 14) for a combined rate of 4.0 food/beverage related advertisements per hour. Yogurt and yogurt drinks were the most frequently advertised (both at 15%), followed by fast food restaurants (9.2%), candy (8.4%), cheese (7.6%), and cookies/cookie dough (6.7%). For the most frequently viewed 30 hours of programming by English speaking Quebec children, 27% of 567 advertisements were for foods (n = 98), beverages (n = 30) and restaurants (n = 23) for a combined rate of 5.0 food/beverage related advertisements per hour. The most frequently advertised foods/beverages included milk (15%), candy and fast food restaurants (both at 9.3%), cereal bars and pasta (both at 7.9%), cookies/cookie dough and cold cereal (both at 6.6%) and gum (5.3%). No significant differences were found between the number of food/beverage related advertisements among the Ontario English, Quebec French or Quebec English.

A significantly greater number of food advertisements were targeted to preschoolers, children, and teens in the English groups' viewing compared with the French Quebec's viewing. The use of fun as a persuasive appeal and the appearance of media characters/celebrities was also significantly more frequent

in both English groups compared with the French Quebec group.

Contests

In the 90 hours of preferred programming, a total of 152 contests were coded and these ranged in length from 7 seconds to 57 seconds with a mean of 30.7 seconds (SD = 14.2). As shown in Table II, overall 18% of these contests featured food/beverages and the Quebec French preferred viewing featured significantly fewer food/beverage contests than the other two groups ($\chi^2 = 6.2$ p < 0.045). The 11 Ontario English food/beverage contests featured gum (36%), regular soft drinks (27%), cookies/cookie dough, and cheese (both 18%). The three Quebec French food/beverage contests featured regular soft drinks exclusively and the 13 Quebec English food/beverage contests featured gum (54%), cookies/cookie dough (23%), cheese (15%) and regular soft drinks (7.7%). In the Ontario English food/beverage contests, six were associated with either a toy or DVD/Blue Ray/movie, while in the Quebec French food/beverage contests, none were associated with an accompanying toy or movie product. In the English Quebec food/beverage contests, nine were linked to a toy or movie.

Sponsorship announcements

A total of 143 sponsorships were coded in the 90 hours of programming. These varied in length between 5 and 60 seconds with a mean of 9.8 seconds (SD = 4.6). A total of 22% of these sponsorships were by food and beverage manufacturers (20%) or fast food restaurants (2.8%), and the food/beverage products most frequently featured included fruit flavoured snacks (60%), cheese (16%), and fast food restaurants

Table I. Number, rates, target audience and persuasive appeals of food and beverage advertisements by Province/language.

	Ontario English No. (%)	Quebec French No. (%)	Quebec English No. (%)	Total Sample, No. (%)	χ^2 (df = 2)	P*
Number	497 (100)	447 (100)	567 (100)	1 511 (100)	14.4	p < 0.001
Rate per hour	16.6	14.9	18.9	16.8		
Number of food/beverage advertisements	117 (23.5)	119 (26.6)	151 (26.7)	387 (25.6)	5.6	p < 0.06
Rate of food/beverage advertisements per hour	3.9	4.0	5.0	4.3		
Target audience for food/beverage advertisements						
Preschool	52 (44.4)	21 (17.6)	87 (57.6)	160 (41.3)	44.5	p < 0.001
Children	76 (65)	36 (30.3)	115 (76.2)	227 (58.7)	60.6	p < 0.001
Teens	38 (32.5)	22 (18.5)	47 (31.1)	107 (27.6)	7.3	p < 0.03
Adults	66 (56.4)	105 (88.2)	65 (43)	236 (61)	58.6	p < 0.001
Fun	44 (37.6)	18 (15.1)	62 (41.1)	124 (32)	22.9	p < 0.001
Appearance of media character or celebrity	28 (23.9)	14 (11.7)	32 (21.2)	74 (19.2)	6.3	p < 0.04

*P = a comparison between Ontario English, Quebec French and Quebec English.

Table II. Number and rates of food and beverage contests and sponsorships by Province/language.

	Ontario English No. (%)	Quebec French No. (%)	Quebec English No. (%)	Total Sample No. (%)	χ^2 (df = 2)	P*
Contests						
Number	57 (100)	42 (100)	53 (100)	152 (100)	2.4	p < 0.3
Rate per hour	1.9	1.4	1.8	1.7		
Number of food/beverage contests	11 (19.3)	3 (7.1)	13 (24.5)	27 (17.8)	6.2	p < 0.05
Rate of food/beverage contests per hour	0.4	0.1	0.4	0.3		
Sponsorship Announcements						
Number	66 (100)	28 (100)	49 (100)	143 (100)	15.2	p < 0.001
Rate per hour	2.2	0.9	1.6	1.6		
Number of food/beverage sponsorships	18 (27.2)	0	14 (28.6)	32 (22.4)	0.5	p < 0.48
Rate of food/beverage sponsorships per hour	0.6	0	0.5	0.4		

*P = a comparison between Ontario English, Quebec French and Quebec English.

(13%). As per Table II, there were no food/beverage related sponsorships in the French Quebec sample.

Total promotions

The cumulative frequency and percentages of all food and beverage promotions, including advertisements, contests and sponsorship announcements aired on television during children's preferred viewing, are presented in Table III by province and language. Candy and snacks, and grain products promotions were significantly lower in the French Quebec sample compared with the English samples probably due to the low frequency of candy, gum, fruit rolls and cold cereal promotions aired during children's preferred viewing in French Quebec.

Given the variability in the length of promotions that were viewed during children's preferred television and the high number of 5 second milk advertisements, we also determined the cumulative total food promotions in seconds by food category. As shown in Table IV, the 30 preferred hours in French Quebec consisted of more seconds of beverage and dairy promotions and fewer grain products and prepared food promotions compared with both English samples. The English Quebec preferred viewing had a disproportionately high number of seconds devoted to candy and snack promotions compared with the other two groups.

Discussion

Advertisements, contests and sponsorships

The Quebec English viewing sample had the highest number of advertisements, followed by the Ontario English; however, the number of food/beverage related advertisements was similar across all three groups. Whereas the Quebec advertising ban does not appear to be influencing the frequency of food/beverage

advertisements seen by children in our study, it appears to be having an influence on the target audience of advertisements and the techniques used to emphasize the product or brand within advertisements. In terms of target audience, preschoolers, children or teens were significantly less likely to be targeted in French Quebec subjects' preferred viewing compared with both English groups' viewing. It is important to note; however, that up to 30% of advertisements aired during French Quebec preferred viewing were judged to be targeted at children, which may be in contravention of the advertising ban, which specifies that no advertising can be directed at children on shows where child viewership reaches 15%. These potential violations may be occurring because the monitoring of the *Consumer Protection Act* is based on public complaints rather than a systematic monitoring system. The advertising ban in Quebec is, however, having an impact on the content of advertisements during French Quebec's children's preferred television viewing. Fun and the appearance of media characters or celebrities were used significantly less frequently as persuasive appeals and there were significantly fewer food/beverage contests, and sponsorship announcements in the French Quebec viewing (and none related to food/beverages), which is a significant difference from the viewing of the two English groups.

Total promotions

When total advertisements, contests and sponsorship announcements were examined together, it was clear that, across all three groups, the food category with the highest frequency of promotions and the greatest exposure in terms of length of time during children's preferred viewing was candy and snacks. In terms of frequency, the Quebec French preferred viewing had significantly fewer candy and snack promotions compared with the two other groups as we had hypothesized. However, when length of time was considered,

Table III. Cumulative total frequency of promoted food and beverage categories (%) by Province/language.

Food category (sub-categories)	Ontario English No. (%)	Quebec French No. (%)	Quebec English No. (%)	Total Sample No. (%)	χ^2 (df =2)	P*
Candy and snacks	49 (33.7)	31 (25.4)	71 (39.8)	151 (33.9)	15.9	p < 0.001
Candy, gum and fruit rolls	34 (23.3)	15 (12.3)	44 (24.7)	93 (20.9)		
Cookies and cookie dough	8 (5.5)	8 (6.6)	13 (7.3)	29 (6.5)		
Granola bars and cereal bars	5 (3.5)	2 (1.6)	14 (7.8)	21 (4.7)		
Chips, popcorn and pretzels	2 (1.4)	2 (1.6)	0	4 (0.9)		
Crackers	0	4 (3.3)	0	4 (0.9)		
Beverages	15 (10.4)	26 (21.4)	9 (5.1)	50 (11.2)	8.9	p < 0.01
Yogurt drinks	4 (2.7)	18 (14.8)	4 (2.2)	26 (5.8)		
Regular soft drinks and energy drinks	3 (2.1)	3 (2.5)	3 (1.7)	9 (2)		
Other	3 (2.1)	4 (3.3)	1 (0.6)	8 (1.8)		
Fruit juices (100% fruit)	2 (1.4)	1 (0.8)	1 (0.6)	4 (0.9)		
Chocolate milk (low fat)	3 (2.1)	0	0	3 (0.7)		
Restaurants	22 (15.1)	14 (11.5)	25 (14.1)	61 (13.7)	3.2	p < 0.2
Fast food restaurants	14 (9.6)	11 (9)	16 (9)	41 (9.2)		
Dine-in restaurants	8 (5.5)	3 (2.5)	9 (5.1)	20 (4.5)		
Grain products	20 (13.8)	4 (3.2)	19 (10.6)	43 (9.6)	11.2	p < 0.004
Cold cereal	16 (11)	2 (1.6)	10 (5.6)	28 (6.3)		
Other grain products	4 (2.8)	2 (1.6)	9 (5)	15 (3.3)		
Fruits and vegetables	4 (2.7)	3 (2.4)	4 (2.2)	11 (2.4)	0.2	p < 0.91
Fruits	4 (2.7)	2 (1.6)	4 (2.2)	10 (2.2)		
French fries and breakfast potatoes	0	1 (0.8)	0	1 (0.2)		
Dairy products	22 (15.1)	30 (24.6)	31 (17.5)	83 (18.6)	1.8	p < 0.42
Milk (2%)	13 (8.9)	2 (1.6)	22 (12.4)	37 (8.3)		
Cheese and cheese sticks	8 (5.5)	9 (7.4)	8 (4.5)	25 (5.6)		
Yogurt	1 (0.7)	18 (14.8)	1 (0.6)	20 (4.5)		
Butter	0	1 (0.8)	0	1 (0.2)		
Meat, poultry, fish and alternatives	2 (1.4)	8 (6.5)	4 (2.3)	14 (3)	b	
Prepared foods	12 (8.2)	3 (2.4)	15 (8.4)	30 (6.8)	b	
Other	0	3 (2.4)	0	3 (0.6)	b	
Total no. of food/beverage promotions	146 (100) ^a	122 (100) ^a	178 (100)	446 (100) ^a		

*P = a comparison between Ontario English, Quebec French and Quebec English.

^aBecause of rounding, percentages may not total 100.

^bChi square was not calculated because of low expected frequencies in some cells.

there were few differences in candy and snack promotions between the Ontario English and Quebec French groups. The Quebec English viewing consisted of the most candy and snack promotions in

terms of frequency and time. Results for frequency and time were also consistent in demonstrating that the Quebec French preferred viewing was made up of significantly fewer grain product promotions and

Table IV. Cumulative total promoted food and beverage categories in seconds by Province/language.

Food category (sub-categories)	Ontario English (seconds)	Quebec French (seconds)	Quebec English (seconds)	Total Sample (seconds)
Candy and snacks	935	825	1 470	3 230
Beverages	370	750	225	1 345
Restaurants	405	390	405	1 200
Grain products	585	75	525	1 185
Fruits and vegetables	70	60	90	220
Dairy products	270	735	335	1 340
Meat, poultry, fish and alternatives	60	165	100	325
Prepared foods	285	75	390	750
Ingredients, mixes, and seasonings	0	30	0	30
Supermarkets and convenience marts	0	60	0	60
Total seconds of food/beverage promotions	2 980	3 165	3 540	9 685

significantly more beverage promotions than both English groups. The low grain promotion in the French Quebec group likely reflects the few breakfast cereal commercials on children's preferred television while the high beverage promotion reflects the high percentage of yogurt drinks promoted on French Quebec television. There were no significant differences in dairy product promotion across the three groups in terms of frequency; however, when time was considered, many more seconds were attributed to dairy products in the Quebec French viewing sample. The promotion of fast food and dine-in restaurants was similar across all groups. As per recent content analyses that have been conducted in Canada (18–20), the United States (10,11), and Australia (14,15), across all three groups, there were few vegetable and fruit promotions in the top 90 hours.

Policy implications

The Quebec advertising ban does not appear to be limiting French or English Quebec children in our study from seeing food promotions during their preferred viewing on television. The Quebec advertising ban does appear to be having an influence on the types of food categories advertised, the techniques used to emphasize the brand, and the types of promotions viewed by French children in our sample. At this point; however, it is unclear as to what impact, if any, these changes have on the health of French children in Quebec and whether it influences their food intake or obesity rates. The *Consumer Protection Act* focuses on banning "child directed" commercial advertising. Our results clearly demonstrate that French speaking children in Quebec are seeing a significant amount of food and beverage advertising that is not "child directed" (for instance a chocolate bar advertisement directed at adults). What is the impact on children's health related behaviours and on their long-term health of seeing such advertisements? Research remains to be done in this area; however, research on branding has shown that preschools have high brand recognition particularly for fast foods (21). Early exposure (i.e., in childhood) to brands has also been shown to lead to greater and faster recognition of those brands in later life (22). In other words, branded food and beverage advertisements directed at adults and seen by children today may create the loyal customers of tomorrow.

The Quebec English group in our study does not appear to be protected by the *Consumer Protection Act* in Quebec given that their preferred viewing consists of programs that are broadcast from outside of Quebec and are therefore outside of the jurisdiction of the advertising ban. This a good example of cross border marketing sometimes referred to as the "leaky

border" in marketing regulations. In May 2010, the World Health Assembly addressed this issue by endorsing the draft WHO recommendations on the marketing of foods and non-alcoholic beverages to children. One of these recommendations included the need for intergovernmental cooperation in order to reduce the cross border marketing of foods high in saturated fats, sugars and salt to children (23).

The Quebec government has recently called for improved enforcement and monitoring of the *Consumer Protection Act* and a public awareness campaign was launched in the winter of 2009 (24). It is important to remember that the Quebec advertising ban was designed to reduce the commercialization of childhood. It was not designed to specifically target the marketing of foods and beverages as per the recent legislation in the UK aimed at children 16 years and under (25).

Our research also shows that despite *The Broadcast Code for Advertising to Children*, its *Code Interpretation Guideline* and *The Canadian Children's Food and Beverage Advertising Initiative (CAI)*, which govern advertising in all provinces except Quebec, children in Canada are seeing a significant number of food and beverage promotions during their preferred viewing on television. This is likely because the *CAI* is a voluntary initiative and many large food and beverage corporations have chosen not to participate. In addition, each corporate participant has made different commitments with regard to the types and healthfulness of foods that can be advertised to children. Each has also set independent child viewership threshold requirements which range from 25–50% (17). These commitments need to be strengthened and broadened to include all food and beverage corporations if such policies are going to succeed in protecting children.

Our study lends support to the importance of regulating food and beverage marketing during prime time viewing during programming that is designed for general audiences. During the week that we collected our data, up to 20% of the most viewed hours occurred between 8 pm and 10 pm, during programming for general audiences. US data has also shown children's exposure to food and beverage marketing on television is not concentrated during certain time periods or certain days. Rather, it is dispersed (26). While younger children are likely to be watching television in the morning, after school and on weekends, it is important to be aware that older children are watching prime time hours and to include these hours when doing research or developing policy intended to affect this age group of children. Corporations that have made pledges in *The Canadian Children's Food and Beverage Advertising Initiative* have committed to reduce or eliminate food advertising when audience thresholds reach between 25 and 50%, while the *Consumer Protection Act* requires an audience threshold of 15%. Although the Quebec ban

has a much stronger audience threshold than the CAI, both fail to capture general audience programming that older school-aged children favour.

Strengths and weaknesses

The strengths of our study included our direct measure of what English and French speaking children watched on television, the simultaneous television taping for a 7 day period, and a broad definition of television promotion, which included advertisements, contests and sponsorship announcements. Most importantly, our content analysis focused on what children actually watched on television rather than on pre-determined stations and time slots as is typically the case in similar research. In terms of weaknesses, the sample of children who completed viewing diaries was not randomly selected and may not have been representative. A different group of children may have been watching different television programs; however, the 81 hour content analysis sampled television from nine different Canadian stations, at a variety of times, on various days, providing us with sufficient variability and a good snapshot of television broadcasting that appeals to school children.

Our results dealing with French Quebec are likely generalizable to younger French speaking children in Quebec given that children in Quebec up to the age of 13 are living in the same advertising policy environment. Our results; however, may not be generalizable to English speaking children under 6 years in Ontario and Quebec given that two public broadcast channels very popular with this age group forbid advertising to children. Our television sample also may not have been representative although we selected this week of programming based on its distance from major holidays and school holidays. Lastly, our assessment of target audience and marketing techniques used to emphasize the brand, though based on definitions, were more subjective and thus have less reliability. However, our results that related to food categorization are more reliable and important.

Conclusion

More research on the influence of broadly based marketing bans is clearly needed. However, to stem the flow of food and beverage marketing aimed at children, alternatives to the status quo in marketing practices must be considered by government and industry. Regulatory approaches to the marketing of foods and beverages to children, such as that in Quebec, remain a viable option. A focus on marketing on television is necessary though not sufficient given the plethora of creative marketing tactics that are currently being deployed on children today in various media venues.

Acknowledgements

This research was funded by the Canadian Institutes of Health Research (CIHR). The authors have no industrial links or affiliations.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

References

1. Dehghan M, Akhtar-Danesh N, Merchant AT. Childhood obesity, prevalence and prevention. *Nutr J.* 2005;4:24.
2. Kiess W, Galler A, Reich A et al. Clinical aspects of obesity in childhood and adolescence. *Obes Rev.* 2001;2:29–36.
3. Gunturu SD, Ten S. Complications of obesity in childhood. *Pediatr Ann.* 2007;36:96–101.
4. Daniels SR. Complications of obesity in children and adolescents. *Int J Obes (Lond).* 2009;33:S60–5.
5. Carins G, Angus K, Hastings G. The Extent, Nature and Effects of Food Promotion to Children: A Review of the Evidence to December 2008. World Health Organization: United Kingdom; 2009.
6. Livingstone S. New Research on Advertising Foods to Children. An Updated Review of the Literature. Ofcom: London; 2006.
7. Committee on Food Marketing and the Diets of Children and Youth, McGinnis JM, Appleton Gootman J, Kraak VI, editors. *Food Marketing to Children and Youth: Threat or Opportunity?* Washington, DC: The National Academies Press; 2006.
8. Kovacic WE, Jones Harbour P, Leibowitz J et al. *Marketing Food to Children and Adolescents. A Review of Industry Expenditures, Activities, and Self-Regulation.* United States: Federal Trade Commission; 2008.
9. Kelly B, Halford JC, Boyland EJ et al. Television food advertising to children: A global perspective. *Am J Public Health.* 2010;100(9):1730–6.
10. Gantz W, Schwartz N, Angelini JR et al. *Food for Thought: Television Food Advertising to Children in the United States.* Menlo Park, CA: The Henry J. Kaiser Family Foundation; 2007.
11. Stitt C, Kunkel D. Food advertising during children's television programming on broadcast and cable channels. *Health Commun.* 2008;23:573–84.
12. Lewis MK, Hill AJ. Food advertising on British children's television: a content analysis and experimental study with nine-year olds. *Int J Obes Relat Metab Disord.* 1998;22:206–14.
13. Wilson N, Signal L, Nicholls S et al. Marketing fat and sugar to children to New Zealand television. *Prev Med.* 2006;42:96–101.
14. Kelly B, Smith B, King L et al. Television food advertising to children: the extent and nature of exposure. *Public Health Nutr.* 2007;10:1234–40.
15. Neville L, Thomas M, Bauman A. Food advertising on Australian television: the extent of children's exposure. *Health Promot Int.* 2005;20:105–12.
16. Office de la protection du consommateur. *Loi sur la protection du consommateur.* Québec: Gouvernement du Québec; 1978.
17. Advertising Standards Canada. *Canadian Children's Food and Beverage Advertising Initiative [Internet].* 2010 [cited 2010 Jan 10]. Available from <http://www.adstandards.com/en/childrensinitiative/default.htm>
18. Laperrière J-P. *Analyse comparative de la forme des messages publicitaires pouvant s'adresser aux enfants [Masters thesis].* Montréal, Québec: Université du Québec à Montréal; 2009.

19. Lebel E, Hamelin A-M, Lavallée M et al. Publicité télévisée sur les aliments visant les enfants québécois. *Communication-Université Laval*. 2005;24:65–85.
20. Adams J, Hennessy-Priest K, Ingimarsdottir S et al. Food advertising during children's television in Canada and the UK. *Arch Dis Child*. 2009;94:658–62.
21. McAlister AR, Cornwell TB. Children's brand symbolism understanding: Links to theory of mind and executive functioning. *P&M*. 2010;27:203–28.
22. Ellis AW, Holmes SJ, Wright RL. Age of acquisition and the recognition of brand names: On the importance of being early. *J Consum Psychol*. 2010;20:43–52.
23. WHO. Prevention and Control of Noncommunicable Diseases: Implementation of the Global Strategy. Report by the Secretariat. Geneva: World Health Organization; 2010 April. Report No.: A63/12. Available from: http://apps.who.int/gb/ebwha/pdf_files/WHA63/A63_12-en.pdf.
24. Lachance B, Pageau M, Roy S. Investir pour l'avenir. Plan d'action gouvernemental de promotion des saines habitudes de vie et de prévention des problèmes reliés au poids 2006-2012. Québec: Santé et Services sociaux; 2006.
25. The Broadcast Committee of Advertising Practice. Television Advertising Standards Code. Section 7.2 [Internet]. 2010 [cited 2010 Jan 10]. Available from: <http://bcap.org.uk/The-Codes/BCAP-Code/BCAP-TV-Code.aspx>.
26. Holt DJ, Ippolito PM, Desrochers DM, Kelley CR. Children's exposure to TV advertising in 1997 and 2004: Information for the obesity debate. Washington, D.C.: Federal Trade Commission; 2007.