

Internet Marketing Directed at Children on Food and Restaurant Websites in Two Policy Environments

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Objective: Food and beverage marketing has been associated with childhood obesity yet little research has examined the influence of advertising policy on children's exposure to food/beverage marketing on the Internet. The purpose of this study was to assess the influence of Quebec's Consumer Protection Act and the self-regulatory Canadian Children's Food and Beverage Advertising Initiative (CAI) on food manufacturer and restaurant websites in Canada.

Design and Methods: A content analysis of 147 French and English language food and restaurant websites was undertaken. The presence of child-directed content was assessed and an analysis of marketing features, games and activities, child protection features, and the promotion of healthy lifestyle messages was then examined on those sites with child-directed content.

Results: There were statistically no fewer French language websites ($n = 22$) with child-directed content compared to English language websites ($n = 27$). There were no statistically significant differences in the number of the various marketing features, or in the average number of marketing features between the English and French websites. There were no fewer CAI websites ($n = 14$) with child-directed content compared to non-CAI websites ($n = 13$). The CAI sites had more healthy lifestyle messages and child protection features compared to the non-CAI sites.

Conclusion: Systematic surveillance of the Consumer Protection Act in Quebec is recommended. In the rest of Canada, the CAI needs to be significantly expanded or replaced by regulatory measures to adequately protect children from the marketing of foods/beverages high in fat, sugar, and sodium on the Internet.

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Introduction

Over the past three decades, the developed world has experienced a substantial increase in childhood overweight and obesity (1). In Canada, approximately 26% of children aged 6-17 years are overweight or obese (2) compared to only 15% of children in 1978/1979 (3). Two recent systematic reviews of the literature have demonstrated that food and beverage advertising influences children's food preferences, short-term consumption habits, and purchase requests (4,5). Strong evidence has also linked food advertising to childhood adiposity (5).

The vast majority of research analyzing children's exposure to food and beverage marketing has examined marketing on television (5). While this media represents the dominant means by which food and beverage companies market to children (6), marketing on the Internet has become an increasingly popular outlet for advertisers to promote their food and beverage products to children (7). Research in the United States has shown that 85% of food products advertised on television during children's preferred viewing also had an Inter-

net website that contained child-directed content (8). These sites create "branded environments" for food and beverage products that incorporate various interactive components such as games, coloring pages, and videos that appeal to children (9). Advertising on the Internet is also appealing to companies because it is relatively inexpensive compared to other media channels such as television (10). Furthermore, the Internet enables marketers to track children's behavior to gain an understanding of the effectiveness of various marketing techniques they have featured on their websites (11).

In the United States, children between the ages of 8 and 18 years are spending, on average, 1 h and 29 min per day on the computer (12) and data from Canada shows that 30% of children in grades 6 to 12 are spending more than 2 h per day of their leisure time on computers (13). In the United States (8,9,14-16) and Australia (10,17), it has been recently reported that food and beverage websites target children extensively through the use of advergames, spokes-characters, contests, and tie-ins with other products. Few have been found to promote healthful messages (16).

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Conducting research on Internet marketing in Canada is interesting because it has two different policy environments with regards to the regulation of advertising to children. In all of the provinces and territories where the majority speaks English, food and beverage advertising is mostly self-regulated by industry through the Canadian Food and Beverage Advertising Initiative (CAI), which was initiated in 2007. Ten participants of this initiative (Burger King Restaurants of Canada Inc., Campbell Company of Canada, Danone Inc., General Mills Canada Corporation, Kellogg Canada Inc., Kraft Canada Inc., McDonald's Restaurants of Canada Ltd., Nestle Canada Inc., Parmalat Canada Inc., and Post Foods Canada Corp.) pledged that 100% of their advertised products directed at children under 12 years of age on television, the radio, the Internet, and in print would consist of "better-for-you" products while nine others (Coca-Cola Ltd., Ferrero Canada Ltd., Hershey Canada Inc., Janes Family Foods Ltd., Mars Canada Inc., McCain Foods Canada, PepsiCo Canada, Unilever Canada Inc., and Weston Bakeries Limited) agreed to not advertise food and beverage products to children under the age of 12 (18). Participating companies also pledged to reduce their use of third party licensed characters and to include "healthy lifestyle messages" (including messages that encourage healthy eating, portion control, and physical activity) in their advertising. Only one study, to our knowledge, has examined the content of food and beverage websites in Canada. This study examined 24 English language food and beverage websites from 10 companies participating in the CAI (19). They found that 83% of these sites targeted children under 12, 79% had advergames, 63% had membership opportunities, 76% included downloadable materials, and 75% featured spokes-characters.

In Quebec, a Canadian province where the majority of the population speaks French, advertising to children is regulated under the Consumer Protection Act, which was developed in 1978 and implemented in 1980 in order to reduce the commercialization of childhood (20). This legislation bans all commercial advertising directed at children under the age of 13 years when children consist of at least 15% of the audience. While the legislation was created before the advent of the Internet, it has been applied by the government and provincial courts to marketing directed at children on the Internet (21). No research to date in Canada has examined the influence of this legislation on websites.

The purpose of this study was to assess the influence of Quebec's Consumer Protection Act and the CAI on food manufacturer and restaurant websites in Canada. To examine the impact of Quebec's Consumer Protection Act, the differences between English and French language food manufacturer/restaurant websites were assessed. Next, the differences between websites belonging to CAI participating companies and non-participating companies (non-CAI) were analyzed to examine the effect of the CAI. In both comparisons, child protection and marketing features were evaluated. In the CAI and non-CAI comparison, the promotion of healthy lifestyle messages was also assessed. It was hypothesized that fewer French language Canadian websites compared to English language Canadian websites would contain child-directed content given the advertising ban in Quebec. It was also hypothesized that, as a result of the commitments made by the CAI corporations, CAI websites would use fewer licensed characters and would display a greater number of healthy lifestyle messages compared to non-CAI websites.

Methods and Procedures

In order to compare differences between the French and English websites and the CAI and non-CAI websites, the sites were first selected, taped, and then analyzed.

Website selection

In order to select websites for this study, 104 food and beverage products that were advertised on English and French language television during the preferred viewing of children aged 10-12 years in Ontario and Quebec (Canada), identified in a previous study (22), were examined. A research assistant, trained over a period of two weeks, determined whether each of these food and beverage products had a corresponding Canadian website in English and in French. Forty of these products (38%) specifically mentioned a website in the television advertisement and the remaining websites ($n = 64$) were found using the Canadian version of the Google search engine. Twenty-seven food/beverage products were excluded from this search given that they were very unlikely to include child content on their websites. These exclusions consisted of four expired contests, three adult-restricted products (e.g., alcohol), and five industry associations. Eleven products were also excluded, as they did not have a Canadian website, and eight of the advertised food products on television were combined into four, as they represented different flavors of the same product (e.g., Strawberry and regular Rice Krispie Squares) and lead to the same websites. In total, 77 English language and 70 French language websites were found.

Taping websites

Once the list of 148 websites was generated, websites were taped using Camtasia Studio 7 (TechSmith Corporation, 2010) over a three-week period in the spring of 2010. First, the homepages of the 77 English and 70 French websites were taped. All of the additional pages on each website were taped if they contained content directed at children under 12 years old. Child-directed content included entire child oriented websites and kid's zones on adult-oriented websites but excluded the fine print on the bottom of the web pages (e.g., corporate information, privacy information, etc.), as well as any zones oriented specifically to parents. Content was described as child-directed if the following three criteria were met: it featured products that appealed to children; included child-oriented marketing features such as spokes-characters, cartoons, contests, activities, or games directed at children; and used simple vocabulary easily understood by children.

Twenty-seven (35%) English websites and 22 (31%) French websites had child-directed content. Table 1 provides a list of these websites. In order to conduct the CAI and non-CAI comparison, the 27 English language websites with child-directed content were sorted according to whether or not the websites were owned by companies participating in the CAI. In total, 14 of the websites belonged to eight CAI companies while 13 websites were affiliated with 12 non-CAI companies.

Content analysis

A systematic content analysis was performed on the taped websites that had child content. A coding manual, based on that used by Weber et al. (9), was developed and tested by two research assistants over a period of one month to examine marketing features, games and activities, child protection features, and the promotion of healthy lifestyle messages on the websites. Coding was conducted by a research assistant, trained over a period of one month, who noted the presence of each marketing feature and counted the number of times it occurred. The counting of marketing features was done three times on each web page to ensure accuracy, as it was

TABLE 1 English and French language websites with child directed content and CAI membership

Product name	Manufacturer	CAI member	Non-CAI member	English website	French website
Baby Bottle Pop	The Topps Company, Inc.		X	www.babybottlepop.com	
Bear Paws Minis	Dare Foods Limited		X	www.darefoods.com	www.darefoods.com
Burger King	Burger King Restaurants of Canada, Inc.	X		www.burgerking.ca	www.burgerking.ca
Cheestrings	Parmalat Canada Inc.	X		www.cheestrings.ca	www.cheestrings.ca
Chuck E Cheese	CEC Entertainment		X	www.chuckecheese.com	
Dairy Queen	International Dairy Queen, Inc.		X	www.dairyqueen.com/ca	
Danino	Danone Canada Inc.		X	www.danino.ca/en	www.danino.ca/fr
Eggo Waffle	Kellogg Canada Inc.	X		www.eggo.ca	www.eggo.ca
Exceldor Chicken	Exceldor		X		www.exceldor.ca
Froot Loops	Kellogg Canada Inc.	X		www.frootloops.ca	www.frootloops.ca
Funcheetz	Parmalat Canada	X		www.funcheetz.ca	www.funcheetz.ca/fr
Frosted Flakes	Kellogg Canada Inc.	X		www.frostedflakes.ca	www.frostedflakes.ca/fr
Honeycomb	Post Foods Canada Corp.	X		www.beeboy.org	www.beeboy.ca
Honey Nut Cheerios	General Mills Canada Corporation	X		www.cheerios.ca	www.cheerios.ca
IGA	Sobey's Inc.		X	www.iga.net/?lang = en	www.iga.net
Kraft Dinner	Kraft Canada Inc.	X		www.kraftdinner.com/en	www.kraftdinner.com/fr
Kraft Singles	Kraft Canada Inc.	X			www.kraftcanada.com/fr
Mini Babybel	Bel Cheese Canada Inc.		X	www.minibabybel.ca	www.minibabybel.ca
Mini Eggs	Cadbury Adams Canada Inc.	X		http://cadburyeaster.com	http://cadburyeaster.com/fr
Montana's	Cara Operations Limited		X	www.montanas.ca	
Natrel Milk	Agropur		X	www.natrel.ca	www.natrel.ca
Oreo Cookies	Kraft Canada Inc.	X		www.kraftcanada.com/en	www.kraftcanada.com/fr
Rice Krispies	Kellogg Canada Inc.	X		http://ricekrispies.ca/en	http://ricekrispies.ca/fr
Ring Pop	The Topps Company, Inc.		X	www.topps.com	
St. Hubert	Groups St-Hubert Inc.		X	www.st-hubert.com/EN/Home	www.st-hubert.com/FR/Accueil
Trident Gum	Cadbury Adams Canada Inc.	X		www.tridentgum.ca/en	www.tridentgum.ca/fr
Wendy's	Wendy's International, Inc.		X	www.wendys.ca	
Wonder Bread	Weston Foods Canada	X		www.wonderbread.ca	
Yoplait Yop	Ultima Foods, Inc.		X	www.yoplait.ca	www.yoplait.ca

very difficult to obtain an accurate count by only counting marketing features once during the pre-testing phase of the content analysis given the volume of some marketing features. The accuracy of counts improved significantly when the research assistant counted the websites three times. Page totals for each marketing feature were added to give website totals. A second research assistant, trained similarly to the first, coded a random selection of 25% of the websites, and inter-rater reliability was 97.5%.

Marketing features included the presence of product logos, company logos, product slogans (e.g., Frosted Flakes' "They're great!"), packaged products, packaged products other than the main product, the presence of the product as you would eat it (e.g., a bowl of poured cereal), the presence of products as you would eat it other than the main product, television-like commercials, promotional photos, videos, and recipes. The presence of spokes-characters (company created characters such as the Rice Krispies' Snap, Crackle and Pop) and licensed characters was also coded. Cross-promotions with children's television shows or stations, movies, books, music companies or musicians, sports companies or sports figures, toys or toy companies, and other food products were also assessed. Mem-

bership opportunities, the presence of viral marketing (i.e., a technique used by marketers to get children to encourage their friends to visit the website by sending web-links to their friends), and promotional features such as contests, premiums (merchandise items offered by a manufacturer as a gift to consumer), and point collection programs were also examined. In addition, links to the food manufacturer's main website, links to another food product, and links to non-food websites were noted.

Games and activities included the presence of (1) branded virtual activities (including branded virtual coloring books where the child colors on the computer, branded product creation, branded video creation, and branded polls and surveys); (2) unbranded virtual activities (including unbranded virtual coloring books, unbranded product creation, unbranded video creation, and unbranded polls and surveys); (3) advergaming (interactive video games with embedded advertising); (4) unbranded interactive video games (interactive video games without embedded advertising); (5) activities that encourage the purchase of a product (for instance an Oreo lick contest where children race to lick the icing off the cookie); and (6) downloads of branded content (including branded downloadable coloring

TABLE 2 Total number and percentage of marketing features on English and French websites and the average number of these features per website

	English	French	English	French
	No. (%)	No. (%)	\bar{x} (sd)	\bar{x} (sd)
Product logo	26 (96.3)	21 (95.5)	19.0 (22.9)	15.1 (24.5)
Manufacturer logo	10 (37.0)	9 (40.9)	9.8 (7.8)	7.3 (7.9)
Slogan	11 (40.7)	9 (40.9)	16.4 (18.3)	15.9 (19.3)
Featured packaged product	18 (66.7)	17 (77.3)	12.9 (18.4)	12.7 (19.6)
Other packaged products	9 (33.3)	8 (36.4)	33.8 (57.7)	7.0 (13.0)
Product as you eat/drink it	18 (66.7)	15 (68.2)	39.5 (58.0)	33.9 (54.5)
Other branded product as you eat/drink it	5 (18.5)	4 (18.2)	28.4 (32.2)	13.0 (23.3)
Television like commercials	5 (18.5)	4 (18.2)	1.8 (0.8)	1.8 (1.0)
Promotional photos	4 (14.8)	4 (18.2)	48.5 (48.0)	48.0 (48.4)
Videos	9 (33.3)	5 (22.7)	1,021.7 (3,016.0)	1,830.4 (4,043.8)
Recipes	3 (11.1)	4 (18.2)	2.7 (1.5)	5.0 (4.8)
Spokes characters	14 (51.9)	11 (50.0)	64.9 (83.6)	47.7 (72.7)
Branded virtual activities	11(40.7)	7 (31.8)	2.5 (2.6)	2.7 (3.3)
Unbranded virtual activities	1 (3.7)	1 (4.5)	4.0 (n/a) ¹	4.0 (n/a) ^a
Advergames	19 (70.4)	12 (54.5)	5.5 (5.0)	5.7 (6.0)
Unbranded interactive games	2 (7.4)	2 (9.1)	3.5 (2.1)	5.5 (0.7)
Activities that encourage purchase of product	5 (18.5)	3 (13.6)	1.8 (1.3)	1.7 (1.3)
Downloads	11 (40.7)	7 (31.8)	11.5 (17.0)	13.1 (21.6)

^asd could not be calculated.

pages, wallpaper, music, posters, images, and games and activities such as crossword puzzles).

Child protection features consisted of (1) viewership restrictions to the website for children under 13 years of age in Quebec and under six years of age in the rest of Canada, (2) parental permission required statements, and (3) ad alerts and ad breaks. Viewership restrictions typically took the form of questions on the home page that asked the child their age and province or territory of residence. Viewership restrictions for Quebec were deemed to exist if children under the age of 13 from the province were not allowed to access the website whereas viewership restrictions for the rest of Canada were said to exist if children under age six years from Ontario were not allowed to access the site. Ad alerts or ad breaks consisted of statements on the website indicating that advertisements were present on the webpage (e.g., “Kids: this page may contain a product or promotion advertisement”).

Healthy lifestyle messages included the promotion of limited screen time (e.g., “It’s time for a break! Turn off your computer. Jump out of your chair. Go outside and play!) Other healthy lifestyle messages included the promotion of physically active lifestyles and the presence of nutritionally balanced meals and/or snacks.

Analysis

Data were analyzed using PASW Statistics 17.0 (SPSS, 2009). Frequency counts, as well as means and standard deviations were computed for the English ($n = 27$) and French ($n = 22$) language websites with child-directed content, and for the 14 CAI and 13

non-CAI websites. The calculation of means and standard deviations for the various marketing features, which are presented in the results and tables, only include those websites with the feature in question (i.e., those websites without the feature were not included in the mean calculation given that the 0's skewed the distribution). Chi-square was computed to assess group differences between the English and French, and CAI and non-CAI websites only when the expected/actual cell counts were greater than five. To assess differences in the average number of marketing features appearing on English and French websites, t -tests for independent samples were conducted when sample sizes were 15 or greater. Such an analysis was not possible with the CAI and non-CAI groups given the small sample sizes.

Results

Description of the 27 English and 22 French websites

Statistically, there were no fewer French sites ($n = 22$; 31%) with child-directed content compared to English sites ($n = 27$; 35%) with such content ($\chi^2 = 0.218$, $P < 0.640$). As described in Table 2, the majority of English (96%) and French (96%) websites featured product logos, the featured packaged product (English 67%; French 77%), and the product as you would eat it (English 67%; French 68%). Spokes-characters and advergames were also present on the majority of English (52% and 70%) and French (50% and 55%) websites. For those sites that had advergames, on average, each site featured six of these regardless of language. Sites with spokes-characters featured 65 characters per site on English sites and 48

TABLE 3 Total number and percentage of child protection features and healthy lifestyle messages on English and French websites

	English	French
	No. (%)	No. (%)
Child protection features		
Viewership restrictions for children under 13 in Quebec	4 (14.8)	4 (18.2)
Viewership restrictions for children under 6 in Ontario	3 (11.1)	3 (13.6)
Parental permission required statement	2 (7.4)	3 (13.6)
Ad alert/ad breaks	2 (7.4)	3 (13.6)
Healthy lifestyle messages		
Limited screen time	3 (11.1)	3 (13.6)
Promotion of physically active lifestyle	11 (40.7)	10 (45.5)
Nutritionally balanced meal or snack	2 (7.4)	2 (9.1)

characters per site on French sites. Where statistical analyses were possible, there were no statistically significant differences in the frequencies or the average number of the various marketing features between the English and French websites.

Seven (26%) English websites and four (18%) French websites offered membership opportunities while 11% of the English sites and 18% of the French sites encouraged viral marketing by either

telling, e-mailing, or referring a friend to the website. Contests were featured on 22% of English sites and 18% of French sites, while premiums and point collection programs were found on 19% and 15% of English sites and 18% and 9% of French sites. Links to other food and beverage manufacturer sites occurred on 52% of the English sites and 46% of the French sites. Cross-promotion of various types occurred on 30% ($n = 8$) of the English websites and 18% ($n = 4$) of the French sites, a statistically non-significant difference. The most common cross-promotions on the English websites were for children's television shows/stations ($n = 3$), children's movies ($n = 2$), children's books ($n = 2$), and other food products ($n = 2$).

Table 3 demonstrates that child protection features were present on fewer than 15% of the English websites and on 18% of the French websites. In terms of healthy lifestyle messages, 41% of the English websites and 46% of the French websites encouraged a physically active lifestyle. This difference was not statistically significant.

Comparison of the 14 CAI and 13 non-CAI websites

Statistically, there were no fewer English CAI sites ($n = 14$; 38%) with child-directed content compared to non-CAI sites ($n = 13$; 34%) ($\chi^2 = 0.24$, $P = 0.877$) with such content. In terms of marketing features, both the majority of CAI and non-CAI websites featured product logos, the product as you eat/drink it, and advergames (as per Table 4). Advergames were featured on 79% of the CAI websites and 62% of the non-CAI websites. CAI websites with advergames had five advergames per site on average compared to

TABLE 4 Total number and percentage of marketing features on CAI and non-CAI websites and the average number of these features per website

	CAI	Non-CAI	CAI	Non-CAI
	No. (%)	No. (%)	\bar{x} (sd)	\bar{x} (sd)
Product logo	13 (92.9)	13 (100.0)	17.5 (21.5)	20.5 (24.9)
Manufacturer logo	4 (28.6)	6 (46.2)	12.0 (8.1)	8.3 (8.0)
Slogan	6 (42.9)	5 (38.5)	23.2 (22.1)	8.2 (8.6)
Featured packaged product	12 (85.7)	6 (46.2)	13.3 (21.9)	12.2 (9.9)
Other packaged products	6 (42.9)	3 (23.1)	8.8 (14.8)	83.7 (84.6)
Product as you eat/drink it	11 (78.6)	7 (53.8)	43.7 (61.5)	32.9 (56.1)
Other branded product as you eat/drink it	1 (7.1)	4 (30.8)	48.0 (0.0)	23.5 (35.0)
Television like commercials	4 (28.6)	1 (7.7)	1.8 (1.0)	2.0 (0.0)
Promotional photos	3 (21.4)	1 (7.7)	42.7 (57.0)	66.0 (0.0)
Videos	4 (28.6)	5 (38.5)	28.3 (31.9)	1,816.4 (4,051.5)
Recipes	3 (21.4)	0 (0.0)	2.7 (1.5)	0.0 (0.0)
Spokes characters	8 (57.1)	6 (46.2)	54.9 (56.3)	88.0 (108.0)
Branded virtual activities	5 (35.7)	6 (46.2)	3.0 (3.9)	2.0 (0.9)
Unbranded virtual activities	1 (7.1)	0 (0)	4.0 (n/a) ^a	n/a ^a
Advergames	11 (78.6)	8 (61.5)	4.8 (5.0)	6.5 (5.3)
Unbranded interactive games	0 (0)	2 (15.4)	n/a ^a	3.5 (2.1)
Activities that encourage purchase of product	2 (14.3)	3 (23.1)	2.5 (2.1)	1.3 (0.6)
Downloads	4 (28.6)	7 (53.8)	6.3 (3.4)	14.6 (21.1)

^aMean and/or sd could not be calculated.

TABLE 5 Frequency of child protection features and healthy lifestyle messages on CAI and non-CAI websites

	CAI	Non-CAI
	No. (%)	No. (%)
Child protection features		
Viewership restrictions for children under 13 in Quebec	4 (28.6)	0 (0.0)
Viewership restrictions for children under 6 in Ontario	3 (21.4)	0 (0.0)
Parental permission required statement	2 (14.3)	0 (0.0)
Ad alert/ad breaks	2 (14.3)	0 (0.0)
Healthy lifestyle messages		
Limited screen time	3 (21.4)	0 (0.0)
Promotion of physically active lifestyle	7 (50.0)	4 (28.6)
Nutritionally balanced meal or snack	2 (14.3)	0 (0.0)

the non-CAI sites that featured seven advergames on average. While the difference between the number of CAI and non-CAI websites with spokes-characters was non-significant ($X^2 = 0.326$, $P = 0.568$), the non-CAI sites with spokes-characters had 88 spokes-characters on average per site compared to 55 on the CAI sites. Licensed characters were seen on three (21%) CAI and one (8%) non-CAI website.

While membership opportunities were similar across the CAI and non-CAI sites, occurring on three and four of the sites, respectively, viral marketing was only present on CAI sites (29%) (data not shown). Contests were also more frequent on the CAI sites occurring on 36% of the sites compared to eight percent of the non-CAI sites. Three CAI sites (21%) had premiums compared to two non-CAI sites (15%). Various forms of cross-promotion were evident on five CAI websites (36%) compared to three non-CAI websites (23%). The most frequently occurring cross promotions for the CAI websites were promotions of children's television shows/stations ($n = 2$) and children's movies ($n = 2$). The most frequent non-CAI cross promotion was for music ($n = 2$). Links to other food and manufacturer websites (57%) and to non-food websites (14%) were more frequent on CAI websites compared to non-CAI websites where they appeared on 46% and zero percent of websites, respectively.

As shown in Table 5, all types of healthy lifestyle messages were promoted more frequently by the CAI compared to the non-CAI companies and the promotion of physically active lifestyles was this most common type of healthy lifestyle message occurring on 50% of CAI sites. No child protection features were used on the non-CAI websites (as shown in Table 5) while these were used to a small degree by CAI companies.

Discussion

Contrary to what we hypothesized, there was statistically no fewer French language websites with child-directed content (31%) compared to English language websites (35%). Less than 20% of the

English and French websites had viewership restrictions and there were no statistically significant differences in the frequencies or the average number of various marketing features between the English and French websites. These results, combined with the extensive use of marketing features on French websites, indicate that some food and beverage companies are not respecting Quebec's Consumer Protection Act on the Internet. The key to strengthening this Act is systematic surveillance, as currently the Quebec government relies on consumer complaints. The Quebec Coalition on Weight Related Problems, a health advocacy group, has initiated many such complaints including one regarding the Lucky Charms website that featured child-directed marketing. In 2009, General Mills entered a guilty plea for inviting children on their Lucky Charms cereal packaging to this website (21). While this case was the first to extend the Consumer Protection Act to websites, the fine levied on General Mills was insignificant: \$2,000 (21). Increased fines may also encourage food and beverage corporations to subscribe to the law.

The viewership restrictions for Quebec residents under 13 years that were found on the three examined Kellogg's websites and the one Post Foods website in both English and French have likely been developed to comply with Quebec's Consumer Protection Act and they, at least theoretically, bar Quebec children from being exposed to child-directed marketing on these websites. Such restrictions also confer benefits to both French and English speaking Quebec children. This is an improvement over the application of the Consumer Protection Act on television where only the French speaking Quebecers receive protection from this Act given that English speaking Quebecers are watching television broadcast from outside of Quebec where the Act does not apply (22,23). Such viewership restrictions on websites can, however, only be considered a soft means of restricting child viewership given that children can easily circumvent such restrictions by misrepresenting their age and/or province or territory of residence. Nevertheless, such restrictions do represent an attempt by the food industry to limit access to their websites. Here, more stringent viewership restriction methods need to be developed that actually prevent access.

Contrary to what was hypothesized, our results showed that the CAI companies used licensed characters more frequently on their websites than the non-CAI companies. In particular, licensed characters were used on three CAI websites including Eggo, Burger King, and Funcheez. Although the CAI pledged to simply reduce their use of licensed characters in the CAI, efforts to completely eliminate their use are recommended given that it has been shown that licensed characters influence children's food selections and preferences for unhealthy snacks (24).

As predicted, CAI companies promoted healthy lifestyle messages more frequently than the non-CAI companies. Half of the CAI sites promoted a physically active lifestyle but very few CAI companies promoted nutritionally balanced meals or snacks. Some have argued that food and beverage companies are focusing on physical activity instead of nutrition as a tactic to "...redirect the responsibility for health outcomes from corporations on to its consumers, and externalize the negative effects of increased obesity to the public." (25; p.3) Some of the healthy lifestyle messaging on company websites was also weak. For instance, all three of the Kellogg's websites in English and French encouraged limited screen time by having a screen pop up, after 15 min of website surfing, that encouraged children to leave the computer and play outside. The following button

allowed children to access ideas for physical activity. This button was immediately followed by a button on the screen that said "Return to site" making it very easy for children to continue surfing the site. Here, ways that prevent children from returning to the site could be developed that would actually lessen their screen time.

A policy gap in Internet marketing to children

It is positive that out of 104 food/beverage products advertised on television during children's preferred viewing, less than 30% of these products (27 English language websites and 22 French language websites) had websites with content directed at children less than 12 years. However, on these sites, a plethora of marketing features bombard children in Canada and keep them engaged on these sites. Advergaming, in particular, were used extensively in English and in French and on CAI and non-CAI food and beverage websites. One study conducted in the United States showed that 64% of children aged 5-14 years using the Internet were doing so in order to play games (8). This may explain why advergaming is a popular marketing feature on many of the Canadian websites. These advergaming are supplemented with virtual activities such as online coloring books, branded games, and activities to download among others. All of these games and activities personalize the online experience of the website viewer and, in many cases, help to ensure that the viewer remains immersed with the brand for an extended period of time (14). What is worrisome about the use of advergaming is that this type of marketing blurs the line between advertising and entertainment and, as such, it is very likely that children have little understanding that they are being marketed to while playing such games (9). In fact, research has shown that less than 25% of children in grades four and five were able to recognize that the purpose of branded games was advertising (26). Even after media literacy training, only 33% of these same children recognized advergaming as advertising. Spokes-characters, a technique used to increase the power of the marketing message, were also used on the majority of sites, and generally they appear more than 50 times on sites that use them. Research has shown that the use of spokes-characters increases children's attention to advertisements, enhances product recognition, and leads to greater "likability" of the product (27,28). Currently, the online use of spokes-characters and advergaming directed at children is unregulated in Canada. Given the power of these techniques, regulations need to be developed in this country to protect children.

In Canada, television and radio broadcasters must adhere to The Broadcast Code for Advertising to Children for licensing by the Canadian Radio-television Telecommunications Commission (29). This Code, like that of the CAI, is administered by Advertising Standards Canada, and specifies that a commercial message for the same product cannot be aired more than once in a 30 min children's program, and that no more than 4 min of commercials can be shown during a 30 min children's show. This Code also stipulates that advertising during the school day morning should target parents and not preschoolers and that all children's advertising must be pre-cleared by the Children's Clearance Committee before it is broadcast. The Interpretation Guidelines of this Code (30) also states that healthy foods and lifestyles cannot be disparaged, that excessive consumption of foods cannot be encouraged, and that foods must be shown in the context of a healthy diet. While the Interpretation Guidelines of The Broadcast Code for Advertising to Children apply to children's advertising on the Internet, the actual Code does not apply.

Preschoolers therefore are not afforded any special protection on the Internet.

In our research, only three websites in English and French (all owned by Kellogg's) blocked access to children under six years. Clearly, more protection for children less than six years is needed in Canada. The amount of Internet marketing directed at children under 12 years is also not restricted in any way, as it is in broadcast media in Canada, and there is no mandatory pre-clearance of Internet marketing directed at children. There are obviously clear gaps here in Canadian policy that are not being addressed by the CAI nor by any other policy. In December 2011, the Privacy Commissioner of Canada released its Guidelines on Privacy and Online Behavioural Advertising that recommend that companies should refrain from tracking the online behavior of children on websites and from tracking all websites directed at children given that children cannot give "...meaningful consent for the collection, use and disclosure of personal information" (31; p. 3). While this is a positive step in protecting children online, more policies need to be elaborated that will reduce the amount of food and beverage marketing seen by children on the Internet. Ideally, to challenge the current obesogenic environment, Canada should consider adopting a Quebec-like advertising ban that restricts commercial advertising directed at children on the Internet as well as in other media and in all places where children gather.

Strengths and limitations

This study was the first of its kind in Canada to compare English and French manufacturer websites and CAI and non-CAI websites. Also, it is the first to quantify many of the marketing features on food websites, as past content analyses of websites have simply indicated whether or not a marketing feature is present. This research is not an evaluation of the Consumer Protection Act or the CAI; however, our results do point to the influence of these regulatory and self-regulatory regimes within Canada. The websites were not randomly selected and our results are therefore not generalizable to all Canadian food and beverage websites. Website selection was based on previous research examining television advertisements during children's preferred viewing. Given that only 35% of the English sites and 31% of the French sites had child-directed content, some statistical comparisons between English and French websites and CAI and non-CAI websites were not possible. Future research needs to conduct similar comparisons with a greater number of websites so that statistical comparisons can be made. Finally, data were collected in the spring of 2010 and, as such, represent a snapshot of what these food and beverage websites looked like at this period. The Internet is a rapidly changing environment and changes may have been brought about since data collection.

Conclusion

While this study has examined marketing directed at children on food websites in Canada, it is important to remember that national barriers do not exist on the Internet and that children from one country are exposed to the web marketing of other countries. The only barrier on the Internet is language. Given that the border of Internet regulations is permeable, international agreements between countries will be necessary (32). Currently, food, beverage, and restaurant companies are making pledges with regards to marketing

directed at children that differ between countries (32). International standards or regulations that cross national boundaries are clearly needed to reduce the marketing of foods high in fat, sugar, and salt to children. While such policies are not a childhood obesity panacea, they will positively change the environment in which children live, support parents trying to raise healthy children, and may likely influence the population rates of childhood obesity over the long-term. **O**

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