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SHORT REPORT

Snack food advertising in stores around public schools in Guatemala

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Obesity in school-age children is emerging as a public health concern. Food marketing influences preferences and increases children's requests for food. This study sought to describe the type of snack foods advertised to children in stores in and around public schools and assess if there is an association between child-oriented snack food advertising and proximity to schools. All food stores located inside and within a 200 square meter radius from two preschools and two primary schools were surveyed. We assessed store type, number, and type of snack food advertisements including those child-oriented inside and outside stores. We surveyed 55 stores and found 321 snack food advertisements. Most were on sweetened beverages (37%) and soft drinks (30%). Ninety-two (29%) were child-oriented. Atoles (100.0%), cereals (94.1%), and ice cream and frozen desserts (71.4%) had the greatest proportion of child-oriented advertising. We found more child-oriented advertisements in stores that were closer (<170 m) to schools compared with those farther away. In conclusion, the food industry is flooding the market, taking advantage of the lack of strict regulation in Guatemala. Child-oriented advertisements are available in almost all stores within a short walking distance from schools, exposing children to an obesogenic environment.

Keywords: children; marketing; food industry

Introduction

Childhood obesity is emerging as a public health concern in Latin America (Rivera et al., 2014). Guatemala is experiencing the double burden of disease that combines a high prevalence of childhood stunting (54.5%) (World Health Organization, 2008) with a rising childhood overweight prevalence (27.1%) (World Health Organization, 2009). Overweight results from a combination of genetics, psychosocial variables, and environmental factors that affect diet and physical activity (Bouchard, 2007; Schwartz & Puhl, 2003). Among the environmental factors, food marketing is key to promote childhood weight gain (Harris, Pomeranz, Lobstein, & Brownell, 2009).

Child-oriented food marketing influences brand preferences and increases children's requests for food (Hastings et al., 2005; Letona, Chacon, Roberto, & Barnoya, 2014). Overweight and obese children have higher recognition of food advertisements and, therefore, food consumption, compared with their non-counterparts (Halford, Gillespie,

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Brown, Pontin, & Dovey, 2004). A direct correlation between television advertising exposure and childhood obesity has also been documented (Gortmaker et al., 1999; Robinson, 1999). Similarly, food displays and advertisements in school kiosks are strongly associated with purchase by primary and secondary school children (Mazur et al., 2008). Furthermore, consumer segmentation, a marketing strategy that involves dividing the market into different groups with similar characteristics (e.g. age) has proven a useful tool for the food industry to increase sales (McGinnis, Appleton, & Kraak, 2006). In addition, trade liberalization policies promoting worldwide expansion of unhealthy food industry may also contribute to obesity (De Vogli, Kouvonen, & Gimeno, 2011).

In 2007, the United Kingdom was the first country to restrict television child-oriented advertising of high fat foods on all children's and non-children's channels before 9:00 PM (Ofcom, 2007). Quebec, Norway, and Sweden have also implemented bans on television food advertising and in-school marketing oriented to children (World Health Organization, 2007). Although not yet conclusive (Adams, Tyrrell, Adamson, & White, 2012), a combination of interventions, in addition to restricting television advertising, holds the most promise to decrease children's advertising exposure (Bogart, 2013; McGinnis et al., 2006). Examples include regulation of all marketing types of unhealthy foods and implementation of nutrition standards for foods and beverages sold in school kiosks (McGinnis et al., 2006).

In Guatemala, packaged foods nutrition labeling is regulated by the Food Control and Regulation Department of the Ministry of Health. According to the Department, nutrition health claims should be consistent with the nutrition information on the label (Consejo de Ministros de Integración Económica, 2012). However, to the best of our knowledge, there is no enforcement and no regulation of child-oriented food advertising (Hawkes & Lobstein, 2011). Furthermore, the types and quantity of snack foods advertised to children at the point of sale have not been documented. Moreover, the association between child-oriented snack food advertising and proximity to schools is yet unknown. Therefore, this study sought to describe the type of snack foods advertised to children in stores in and around public schools and assess if there was an association between child-oriented snack food advertising and proximity to schools.

Methods

Out of 95 public schools, two preschools and two primary schools (students between 4 and 12 years old) located in the Municipality of Mixco were conveniently selected for this study. Mixco is a city with 483,705 inhabitants (Instituto Nacional de Estadística de Guatemala, 2012) in the Department of Guatemala. Since public schools in Mixco have similar characteristics, selected schools were not likely to be atypical (Ministerio de Educación, 2012). Most children enrolled in public schools are from low socioeconomic status (World Bank, 2009) and enrollment in primary education is 95.8% (60% completion) (Guatemala Human Rights Commission Guatemala Human Rights Commission, 2010). We obtained permission from the school district supervisor and each school principal to survey kiosks inside the schools for food advertising.

All food kiosks located inside schools were surveyed. Using Google™ Earth, we identified all stores located in a 200 m radius centered on each school's entrance and surveyed the distance in meters between the school entrance and each store. We arbitrarily categorized the distance between the school entrance and stores as less than

170 m and equal or more than 170 m, as we considered this a reasonable distance for children between 4 and 12 years of age to walk to and from school.

We adapted the tobacco point of sale advertisement checklist by Cohen et al. (2008), and adapted by Barnoya, Mejia, Szeinman, and Kummerfeldt (2010) to assess the store type (i.e. small store, large store, school kiosk, street vendor, pharmacy, service station), total number of snack food advertisements, and those child-oriented inside and outside stores. We also assessed the number of stores with snack foods displayed at the counter or snack foods less than 50 cm from tobacco products, and in-store marketing techniques (display racks, refrigerators, containers, and shelves). The checklist was pilot tested in seven stores located in Mixco and found to be appropriate to assess child-oriented snack food advertisements and in-store marketing techniques. In addition, training was conducted with two research assistants one week prior to data collection.

Advertisements were defined as any posters, stickers, free-standing signs, banners, painting on walls, or flags inside or outside stores. They were considered child-oriented if they had images of promotional characters (i.e. licensed, brand-specific or sports character, cartoon, animal/creature, or celebrity), premium offers (i.e. collectibles, toys, or raffles), children's television or movie tie-ins, sports references (e.g. soccer balls, team logo), or the word "child" or synonym (e.g. junior). To allow for comparisons with previously published data (Bragg et al., 2013) on packaged snack food marketing, we included sweetened beverages (i.e. fruit and energy drinks), soft drinks, pastries and cookies, savory snacks, dairy products, cereals, ice cream and frozen desserts, and bottled water. Considering that atoles (traditional fortified cereal-based drink) are one of the most frequently consumed beverages among Guatemalan children (Montenegro-Bethancourt, Vossenaar, Doak, & Solomons, 2010), we also included packaged atoles as a category.

For data entry, we used REDCap™ web-based application. Descriptive statistics were used to summarize total and child-oriented advertisements. Median (25th–75th percentiles) was used to describe the distribution of advertisements (total, child-oriented, interior, and exterior) per store. Analyses were done with Fisher's exact and Chi-square tests for categorical variables, and Wilcoxon ranksum test for continuous variables, using STATA® software (version 11.1, 2009).

Results

We found 64 stores inside ($n = 2$) and around ($n = 62$) two preschools and two primary schools in Mixco. Nine were closed at the time of the assessment; therefore, 55 stores were surveyed. Among these were 58.2% ($n = 32$) small stores, 32.7% ($n = 18$) large stores, 5.5% ($n = 3$) street vendors, and 3.6% ($n = 2$) school kiosks. Thirteen stores (20.3%) had no advertising (six small, four large, and three street vendors).

There were 321 snack food advertisements and most were on sweetened beverages (37%) and soft drinks (30%). Twenty-eight advertisements (8.7%) were on pastries and cookies, 25 (7.8%) on savory snacks, 24 (7.5%) on dairy products, 17 (5.3%) on cereals, and 7 (2.2%) on ice cream and frozen desserts. Twenty-nine percent ($n = 92$) of all snack food advertisements found in stores were child-oriented. We found three water advertisements (no child-oriented). Atoles (100.0%), cereals (94.1%), and ice cream and frozen desserts (71.4%) had the greatest proportion of child-oriented advertising, while nine (36%) of savory snacks were child-oriented ($p < .0001$).

In stores located closer to schools (<170 m), median interior and exterior child-oriented advertisements were 1 (1–2) and 2 (1–2), respectively (Table 1). More

stores located closer to schools had display racks (57.1%) and shelves (100.0%) promoting child-oriented snack foods (Table 1). In stores located farther from schools (≥ 170 m), we found more snack foods displayed at the counter and close (< 50 cm) to tobacco products (57.1%) compared with stores closer to schools.

Discussion

In this study, we found that most advertisements in stores around schools were on sweetened beverages and soft drinks. Atoles and cereals had the greatest proportion of child-oriented advertising. Our results yield that stores closer to schools had more child-oriented advertisements compared with those farther away.

Our results are consistent with those of food advertisements around primary schools in Australia, where advertisements of unhealthy foods were higher in areas closer to schools (Kelly, Cretikos, Rogers, & King, 2008). The food industry achieves repeated brand exposure by placing advertisements in stores close to schools (Kelly et al., 2008). This has been associated with increased food consumption, and therefore higher risk of obesity (Andreyeva, Kelly, & Harris, 2011).

Age-specific market segmentation strategies are used by the food industry to reach children in schools (aged 4–12 years) and increase sales (McGinnis et al., 2006). According to our findings, one third of advertisements in stores around schools were child-oriented suggesting that the industry is using segmentation strategies to promote snack foods to children in Guatemala.

Product placement at the point-of-sale influences choice and increases sales (Glanz, Bader, & Iyer, 2012). In our sample, stores located closer to schools had more display racks and shelves promoting child-oriented snack foods, compared with those farther away. This in-store marketing technique is likely to influence children's purchase of unhealthy snacks at the point of sale. Regarding tobacco products, most stores had

Table 1. Child-oriented snack food advertising (ads) in 55 stores around four public schools in Guatemala City.

	All stores (<i>n</i> = 55)	< 170 m from school (<i>n</i> = 28)	≥ 170 m from school (<i>n</i> = 27)	<i>p</i> *
Total ads, median (IQR)	5 (1–8)	6.5 (0–9.5)	4 (1–6)	.26
Child-oriented ads, median (IQR)	1 (0–3)	2 (0–3)	1 (0–2)	.16
Exterior child-oriented ads, median (IQR)	1 (0–2)	2 (1–2)	1 (0–2)	.11
Interior child-oriented ads, median (IQR)	1 (0–2)	1 (1–2)	.5 (0–2)	.36
Stores with interior ads that can be seen from the street, % (<i>n</i>)	49.1 (27)	59.3 (16)	40.7 (11)	.10
Stores with child-oriented snack foods displayed at the counter, % (<i>n</i>)	47.3 (26)	42.3 (11)	57.7 (15)	.89
Stores with child-oriented snack foods < 50 cm from tobacco products, % (<i>n</i>)	12.7 (7)	42.9 (3)	57.1 (4)	.65
Stores with child-oriented in-store marketing techniques, % (<i>n</i>)				
Display racks	76.4 (42)	57.1 (24)	42.9 (18)	.09
Refrigerators/freezers	24.5 (14)	35.7 (5)	64.3 (9)	.19
Containers	18.2 (10)	50.0 (5)	50.0 (5)	.95
Shelves	1.8 (1)	100.0 (1)	.0 (0)	.32

*Wilcoxon rank sum test for continuous variables and Chi-square test for categorical variables.

tobacco products displayed near snack foods. Therefore, as tobacco, the food industry is using the point of sale as yet unregulated marketing strategy in Guatemala. Placing both products is associated with increased brand recognition and consumption (or initiation in the case of cigarettes) (Barnoya et al., 2010; Henriksen, Schleicher, Feighery, & Fortmann, 2010; Hosler & Kammer, 2012).

Snack food advertising has been previously documented near schools and in neighborhoods of different socioeconomic status in different countries (Batada, Seitz, Wootan, & Story, 2008; Gebauer & Laska, 2011; Maher, Wilson, & Signal, 2005). Unhealthy snack food and beverage advertising has been found to be higher in stores (including near schools) and in low socioeconomic status neighborhoods (Yancey et al., 2009). However, only one has focused on child-oriented advertising and distance from school, and included all advertising (Kelly et al., 2008). Our findings are in agreement with what has been previously published and add that child-oriented snack food advertising is highly prevalent near schools in Guatemala, a LMIC.

Even though data on the companies responsible for advertising snack foods in Guatemala is lacking, multinational companies (e.g. PepsiCo, The Coca-Cola Company) dominate the beverage market as in the rest of Latin America (Comision Economica para América Latina y el Caribe, 2005). Therefore, globalization is disproportionately benefiting multinational companies, promoting economic inequality, and fueling the obesity epidemic (De Vogli, Kouvonen, Elovainio, & Marmot, 2013).

Our study should be viewed in light of some limitations. We only described child-oriented snack food advertisements and not all food advertisements. Similar to the Bragg, et al. study (Bragg et al., 2013), advertising of confectioneries were not included, and therefore our results cannot be generalized to these snacks also marketed to children. Additionally, even though our sample was not intended to be representative of the entire country, child-oriented advertisements are likely to be the same nationwide considering convenience stores are found in almost every neighborhood nationwide.

In conclusion, child-oriented snack food advertising at the point of sale is a strategy widely used by the food industry to reach children. Just as the tobacco industry takes advantage of the unregulated environment in Guatemala, point of sale advertising is only one of several channels the food industry uses. Any effort to promote healthy eating inside schools would be ruled out by the heavy exposure to this pervasive form of marketing in stores around schools. Therefore, any comprehensive population strategy aiming to decrease exposure to unhealthy snack food advertising should include the point of sale just as other traditional advertising venues. While the food industry would likely oppose, a ban on snack food advertisements in stores around schools is possible, similar to tobacco advertising restrictions.

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Supplemental data

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