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Sweet promises: Candy advertising to children and implications for industry self-regulation

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ABSTRACT

Candy advertising illustrates limitations of the Children's Food and Beverage Advertising Initiative (CFBAI) self-regulatory program to improve food marketing to children. Participating companies pledge to not advertise candy in child-directed media. Yet independent analyses show that children viewed 65% more candy ads on U.S. television in 2011 than in 2007, before CFBAI implementation. The present research corroborates these findings, characterizes the increase, and examines how CFBAI-participating and non-participating companies use child-targeted techniques and media placement to advertise candy on U.S. television. Content analysis identified child-targeted messages and techniques in 2011 television candy ads, and Nielsen data (2008–2011) quantified candy advertising viewed on children's and other types of television programming. Differences between brands according to CFBAI status and use of child-targeted techniques in ads are evaluated. Data were obtained and analyzed in 2013. CFBAI-company non-approved brands represented 65% of candy ads viewed by children in 2011, up from 45% in 2008, and 77% of these ads contained child-targeted techniques. Although CFBAI companies only placed ads for approved brands on children's networks, 31% of ads viewed by children for CFBAI non-approved brands appeared on networks with higher-than-average youth audiences. CFBAI non-participating companies placed child-targeted candy ads primarily on children's networks. Despite CFBAI pledges, companies continue to advertise candy during programming with large youth audiences utilizing techniques that appeal to children. Both increased CFBAI participation *and* a more effective definition of "child-directed advertising" are required to reduce children's exposure to targeted advertising for foods that can harm their health.

1. Introduction

Food marketing to children contributes to poor diet and childhood obesity (IOM, 2006; WHO, 2010). In response to public health concerns, food companies have promised to advertise only "healthier dietary choices" in "child-directed" media through the Children's Food and Beverage Advertising Initiative (CFBAI) (Kolish, Hernandez & Blanchard, 2011). This voluntary program was implemented in 2007, and 17 food and beverage companies in the United States now participate. In their pledges, some companies establish nutrition standards and specify products approved to advertise to children (e.g., General Mills, Kraft Foods), while others pledge to not advertise any products in child-directed media (e.g., Coca-Cola, Hershey) (CFBAI, 2013).

Despite these pledges, independent evaluations of television advertising pre- and post-CFBAI implementation have found little improvement in the amount and types of foods advertised to children (Kraak, Story, Wartella, & Ginter, 2011; Powell, Harris, & Fox, 2013). Children viewed 5% *more* food-related television ads in 2011 versus 2007, the year before full CFBAI implementation (Dembek, Harris & Schwartz, 2012). While advertising for products high in fat, sugar, or sodium declined from 2003 to 2009, these unhealthy products continued to represent 86% of all food ads seen by children (Powell, Schermbeck, Szczypka, Chaloupka, & Braunschweig, 2011). Similarly, in 2008 73% of food ads during children's programming promoted "whoa" foods that children should consume only occasionally (Kunkel, McKinley & Wright, 2009). Therefore, public health experts conclude that CFBAI-company pledges must improve significantly to adequately protect children from exposure to marketing for calorie-dense, nutrient-poor foods (Powell et al., 2013, 2011; Interagency

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Working Group, 2011).

The objective of this research is to present a case study of potential limitations in food industry self-regulation by examining candy advertising to children on television in the United States. This research focuses on television advertising because it represents almost half of food companies' youth-targeted marketing budgets (FTC, 2008). Companies participating in the CFBAI acknowledge that their candy products should not be advertised to children (CFBAI, 2013), yet it appears that children continue to view large numbers of candy ads on television. Therefore, these findings will help identify opportunities to increase the efficacy of food industry self-regulation and may be used by key stakeholders in their efforts to reduce marketing of unhealthy products to children.

2. Background

Candy advertising to children appears to contradict CFBAI-company pledges to promote only healthier dietary choices in child-directed media. Unlike many food categories, industry and public health experts agree that most candy is not a healthier dietary choice for children. Children's exposure to candy advertising on TV is positively associated with purchases of candy by households with children (Huang & Yang, 2013), and children's sugar consumption far exceeds dietary guidelines (Reedy & Krebs-Smith, 2010). Therefore, reduced exposure to candy advertising would benefit children's health. Four large candy manufacturers (Mars, Hershey, Kraft, and Nestle) belong to the CFBAI and have pledged that they will not advertise any candy products in child-directed television (CFBAI, 2012). Yet children's exposure to candy advertising on TV has increased substantially since CFBAI implementation. In 2011, children (ages 2–11) viewed on average 1.2 candy ads-per-day, 65% more than they viewed in 2007 (Dembek et al., 2012). Furthermore, these numbers do not include children's exposure to advertising for fruit snacks. Although nutrition experts consider fruit snacks to be a form of candy (CSPI, 2014) as they typically consist entirely of added sugars and provide no nutritional value (USDA, 2013), food companies have designated some fruit snacks to be "healthier dietary choices" that may be advertised to children (CFBAI, 2013).

This increase in children's exposure to candy advertising clearly illustrates a limitation in industry self-regulation. However, a more thorough understanding of contributors to this increase will help identify improvements in the CFBAI with the greatest potential impact on program efficacy. For example, CFBAI participation is voluntary and several candy manufacturers do not belong, including companies with traditionally child-targeted products such as Airheads (Perfette van Melle) and Topps' Ring Pops and Baby Bottle Pops (Tornante Joe MDP Holdings). If children are seeing more ads from these companies, then increased company participation in the CFBAI would be an important objective.

Alternatively, CFBAI companies could have increased candy advertising during programming with a large child audience that does not qualify as child-directed according to their pledges. Participating companies typically define "child-directed" advertising as advertising placed in media with an audience of 35% or more children under 12 (CFBAI, 2012). However, more than half of all food ads that children see appear during programming not meeting this definition (Harris, Sarda, Schwartz, & Brownell, 2013), and there is substantial overlap between programming watched by 9- to 11-year-olds and 12- to 14-year-olds (Dembek, Harris & Schwartz, 2013). Therefore, food companies may have expanded advertising to children 12 years and older, which also reaches many children under 12 (Harris et al., 2013; FTC, 2008). One study examined candy advertising from 2006 to 2008 by companies that pledged to not advertise in child-directed media (Huang & Yang, 2013). One company (Cadbury Adams) eliminated all advertising for a product that had aired on children's television, resulting in significantly fewer purchases by households with children. However, two companies (Hershey and Mars) had not advertised on children's television before implementing their pledges, although children viewed substantial amounts of their advertising on other television programming. Therefore, these companies were able to continue advertising to children without directly violating their CFBAI pledges, and household purchases of their products did not decline. These findings suggest that an expanded definition of advertising to children also may be required to improve CFBAI efficacy.

2.1. Defining candy advertising targeted to children

The CFBAI does not use the term "targeted" advertising. Rather, companies pledge to not advertise candy in "child-directed" media (CFBAI, 2012), which covers typical children's programming, such as Nickelodeon and Cartoon Network (Dembek et al., 2013). However, advertising in media viewed primarily by children is not the only way to target advertising to children. Consumer behavior researchers define targeted marketing as "activities… designed and executed to be more appealing to the target market than to people in other segments" (Ringold, 1995). Marketers employ numerous strategies to appeal to a specific audience, including product design, retail promotions, and targeted creative techniques and messages in advertising placed in media with a broader reach (Grier & Kumanyika, 2010).

It is more difficult to determine whether candy companies target children beyond advertising in child-directed media. Companies rarely disclose their marketing strategies, so researchers must use publicly available information to identify marketing that is likely targeted to a specific group. Research methods include identifying differences in the concentration of ad placements across different types of media and viewers, content analysis to measure customized advertising content, and laboratory studies to provide evidence-based differential effects of advertising (Ringold, 1995).

In food advertising and other domains, such research has demonstrated that companies target children with advertising for products they publicly state are not intended for their use (Grier & Kumanyika, 2010), including alcohol (Jernigan, Ostroff & Ross, 2005), M-rated video games (FTC, 2007), and sugar-sweetened soda (Harris, Schwartz, Brownell, Javadizadeh & Weinberg, 2011). Research has also identified food advertising messages and techniques with special appeal to children that could indicate child targeting, including third-party licensed characters and child-friendly cross-promotions (Harris, Schwartz, Brownell, Sarda & Ustjanauskus, 2010); "fun" and "cool" messages (Folta, Goldberg, Economos, Bell, & Meltzer, 2006; Elliott, 2008; Schor & Ford, 2007; LoDolce, Harris, & Schwartz, 2013), and animation and depictions of products as more than food (e.g., anthropomorphized cereal pieces) (LoDolce et al., 2013). Further, child-friendly techniques, such as brand characters, are highly effective in making adult products appeal to children, including cigarettes (e.g., "Joe Camel") (DiFranza et al., 1991; Fischer, Schwartz, Richards, Goldstein, & Rojas, 1991) and beer (e.g., "Spuds McKenzie") (Wallack, Cassady & Grube, 1990).

2.2. The present research

This paper aims to corroborate previous research that has demonstrated increased candy advertising to children since CFBAI implementation, further characterize this increase, and identify potential child targeting by candy brands, as indicated by their use of child-targeted advertising techniques and media placement.

Differences between brands according to their CFBAI status and whether child-targeted techniques appeared in their ads are evaluated. We have included advertising for fruit snacks in this analysis. As all CFBAI participating companies exclude candy from their lists of products that may be advertised to children but some allow advertising of fruit snacks (a nutritionally similar product), including this category enables comparisons of advertising for products that companies indicate are advertised to children versus those they claim are not advertised to children. These analyses provide a case study of potential improvements to industry self-regulation to more effectively reduce advertising for calorie-dense, nutrient-poor products such as candy to children.

3. Materials and methods

3.1. Study design

Two secondary data sources were utilized for this analysis. Kantar Media provided video copies of candy ads aired in 2011 to identify child-targeted messages and techniques used. Nielsen provided 2008 to 2011 television audience data to identify the companies and brands contributing to the increase in children's exposure to candy advertising following implementation of the CFBAI. Nielsen data were also used to quantify brands with ads that reached disproportionately more children than adults and/or were placed on children's and other networks with higher-than-average proportions of youth audiences.

3.2. Definition of candy and brand categories

"Candy" is defined as products within Nielsen's candy product categories (candy, candy bars, candy products, website-candy), plus fruit snacks (e.g., Fruit Roll Ups and Gushers). Despite their poor nutritional quality, one CFBAI company has approved fruit snacks to be included in child-directed advertising (CFBAI, 2013). Therefore, inclusion of this category also provides a means to compare advertising for brands from CFBAI-participating companies that are approved versus not approved for child-directed advertising.

Each advertised candy product was assigned to a brand (e.g., M&M) and a company (e.g., Mars). Each brand was also assigned a CFBAI brand category status as of December 2011 (Kolish & Hernandez, 2012): 1) *CFBAI-approved* for brands that participating companies approved for child-directed advertising; 2) *CFBAI non-approved* for brands that participating companies pledged to not advertise in child-directed media; and 3) *Non-participating* for brands from companies that do not belong to CFBAI.

3.3. Content analysis: data collection, measures and analysis

Researchers purchased video copies of all candy and fruit snack ads that appeared on U.S. television in 2011 (January 1 through December 31) from Kantar Media. Ads were obtained and analyzed in 2013. One researcher reviewed all ads and removed duplicates, abbreviated versions of longer ads, ads for gum, sponsorship messages, and ads that featured more than one brand.

A coding manual was adapted from previous content analyses of food advertising for child-targeted products, including cereals (Harris et al., 2010), fruit drinks (Harris et al., 2011), and fast-food kids' meals (Harris et al., 2010). Child-targeted techniques included "fun" and "cool/hip" messages, portraying the product as more-than-food, animation, brand characters, and third-party tie-ins (see Appendix for item definitions). Two coders were randomly assigned to code all advertisements, with 20% overlap for reliability testing. Krippendorf's Alpha assessed inter-rater reliability for each item. Where Alpha could not be computed due to low incidence, percent agreement was used. Inter-rater reliability was in the substantial to almost-perfect range of coder agreement for all items (0.72–1.0) (Viera & Garrett, 2005).

Number and types of child-targeted messages and techniques were tallied for each ad. For each brand, average number of child-targeted techniques per ad and percent of ads with any child-targeted techniques were calculated. In addition to categorizing brands by CFBAI status, they also were categorized into groups according to whether their ads contained any child-targeted techniques. Fisher's exact test was used to measure differences in proportion of specific child-targeted techniques in ads based on CFBAI status. A Kruskal–Wallis test assessed differences by brand category in the number of child-targeted techniques per ad for brands with any child-targeted techniques in their ads. These analyses identified whether CFBAI companies may be using advertising techniques that appeal to children, despite their pledges to not advertise most candy products to this age group. Statistical analyses were conducted using online tools for Krippendorff's Alpha (Freelon, 2010, 2013) to compute inter-rater reliability and SPSS for other significance tests.

3.4. Exposure analysis: data collection, measures and analysis

Nielsen gross rating points (GRP) data provided children's exposure to television candy advertising. GRPs represent a per capita measure of advertisements viewed by individuals in a specific demographic group (e.g., age range) over a period of time. GRPs for candy advertising on English-language network, cable and syndicated television from January 1, 2008 to December 31, 2011 were licensed for children (2–11 years), adolescents (12–17 years), and adults (18–49 years). Data were obtained and analyzed in 2013. Nielsen approved reporting of these data.

Nielsen calculates GRPs as the sum of all advertising exposures for all individuals within a demographic group, divided by population size, and multiplied by 100. Researchers divided GRPs by 100 to obtain the average number of ads viewed by individuals in each age group for each brand.

To assess relative exposure to ads for children versus adults, targeted ratios were calculated for each brand by dividing GRPs for children by GRPs for adults. Targeted ratios for adolescents versus adults also were calculated. A targeted ratio greater than 1.0 indicates that children or adolescents were more likely to have viewed the ads compared with adults.

Audience projection data were licensed from Nielsen to determine child and adolescent audience share by network. Nielsen audience projections provide average estimated numbers of persons, by age group, tuned into a network over a specified time period. Average audience shares were calculated for each network by dividing audience projections for children and adolescents by total audience projections (2–99 years). Youth-oriented networks were defined as those with an average audience share of 26% or more 2- to 17-year–olds (i.e., 50% higher than 17%, the proportion of youth in the entire television-viewing audience). Networks with an average audience share of 35% or more children under 12 were classified as children's networks. Researchers then identified candy ads viewed by children and adolescents on youth-oriented and children's networks.

Total number of candy ads viewed by children from 2008 to 2011 was calculated for each brand category. For the analysis of advertising exposure in 2011, brands were categorized according to CFBAI status and whether ads for the brand contained child-targeted techniques (from the content analysis). Total number and percent of candy ads viewed by children and adolescents and average targeted ratios in 2011 were calculated, as well as the number and percent of candy ads viewed on youth-oriented and children's networks, for each brand category. These analyses measure and characterize the increase in candy advertising following CFBAI implementation and identify potential targeting of children through advertising content and placement of ads on children's and other youth-oriented networks.

4. Results

This analysis identified 36 unique candy brands advertised by 16 companies in 2011. Most companies ($n = 11$) (representing 14 brands) did not participate in the CFBAI. However, the five CFBAI-participating companies (General Mills, Hershey, Kraft Foods, Mars, and Nestle) advertised 61% of brands ($n = 22$). One brand (Betty Crocker Fruit Snacks) was approved for child-directed advertising by a CFBAI company (General Mills).

4.1. Content analysis

After exclusions, 154 advertisements were analyzed. The majority of ads (79%) were for brands from CFBAI-participating companies (Table 1). Just seven CFBAI-company ads promoted brands approved for child-directed advertising, but 77% of ads for CFBAI non-approved brands also contained at least one child-targeted technique or message. In addition, almost two-thirds (59%) of ads for non-participating brands contained child-targeted techniques. Differences between all brand categories in the proportion of ads containing child-targeted techniques were significant, $p = .002$.

Fun messages, more-than-food references, and animation were used most often in advertising for both CFBAI-approved and non-approved brands, but there were some differences by brand category. Fun messages appeared in all ads for CFBAI-approved brands, while they appeared significantly less often in ads for CFBAI non-approved ($p < .01$) and non-participating brands ($p = .02$). Non-participating brands used cool/hip messages in approximately one-third of ads, but ads for CFBAI non-approved brands used this technique significantly less often ($p = .001$). More-than-food portrayals appeared in the majority of CFBAI-approved and non-approved ads. This technique was used significantly more in ads for CFBAI non-approved brands than in ads for non-participating brands ($p < .01$).

Table 2 examines the proportion of ads with child-targeted techniques and the average number of techniques in ads for brands of CFBAI and non-participating companies that fall into three categories: 1) brands that didn't use child-targeting techniques in any ads; 2) brands with child-targeted techniques in some ads; and 3) brands with child-targeted techniques in all ads. Only 3 of 18 CFBAI non-approved brands and 6 of 14 non-participating brands *did not* use child-targeted techniques in their ads. For ads with any child targeting, there was a significant difference in number of child-targeted techniques by brand category (H = 8.30, 2 d.f., $p = .02$). Ads for non-participating brands contained significantly more child-targeted techniques ($M = 3.3$ techniques per ad) compared with ads for CFBAI non-approved brands ($M = 2.2$ techniques) (H = 7.63, 1 d.f., $p = .01$), but the number of techniques in ads for CFBAI-approved and non-approved brands ($M = 2.7$ techniques per ad) did not differ significantly (H = .62, 1 d.f., $p = .43$).

4.2. Exposure analysis

From 2008 to 2011, children's exposure to candy ads on U.S. TV increased 74%, from 279 ads viewed on average in 2008 to 485 ads

Table 1
Percent of ads with child-targeted techniques.

CFBAI status	# of brands	# ads in analysis	Any child-targeted technique	Fun	Animation	Cool/hip	More-than-food	Brand character	Third-party tie-ins
[1]CFBAI-approved brands	1	7	100%[3]	100%[2,3]	29%	14%	57%	0%	0%
[2]CFBAI non-approved brands	21	115	77%[3]	42%[1]	48%	7%[3]	52%[3]	15%	12%
[3]Non-participating brands	14	32	59%[1,2]	50%[1]	38%	31%[2]	22%[2]	16%	16%

[1,2,3]Different superscripts indicate significant differences between the two groups ($p < .05$).

Table 2
Child-targeted techniques in ads for CFBAI and non-participating companies.

CFBAI status	Company (brands)	# ads analyzed	Ads with child-targeted techniques: % with any techniques	Av'g# per ad
Brands with no child-targeted techniques[a]				
CFBAI non-approved	Hershey (York Peppermint Patty)	2	0%	
	Mars (Dove, Starburst)	8	0%	
Non-participating	American Licorice (Sour Punch), Lindt & Sprungli (Lindt, Ghirardelli), Russell Stover Candies (Russell Stover, Whitman's), Yildiz Holdings (Godiva)	12	0%	
Brands with child-targeted techniques in some ads[a]				
CFBAI non-approved	Mars (3 Musketeers, Snickers, Twix)	15	60%	1.6
	Nestle (Kit Kat)	4	25%	1.0
	Hershey (Almond Joy & Mounds, Hershey's, Pay Day, Twizzlers)	32	78%	2.7
Non-participating	Ferrero Spa (Ferrero Rocher)	3	67%	1.5
Brands with child-targeted techniques in all ads				
CFBAI-approved	General Mills (Betty Crocker Fruit Snacks)	7	100%	2.7
CFBAI non-approved	Nestle (Butterfinger, Skinny Cow, Wonka)	6	100%	2.8
	Hershey (Cadbury, Jolly Rancher, Reese's)	17	100%	2.4
	Kraft Foods (Sourpatch Kids)	3	100%	2.0
	Mars (Milky Way, M&M's, Skittles)	28	100%	2.4
Non-participating	Haribo of America (Bears), Jelly Belly Candy (Jelly Belly), Perfetti Van Melle (Airheads, Mentos), Tootsie Roll Industries (Tootsie Roll Pops), Storck Intl. (Werther's Originals), Tornante-MDP Joe Holding (Pops [e.g., Ring Pops, Baby Bottle Pops])	17	100%	3.5

[a] There were no CFBAI-approved brands in this category.

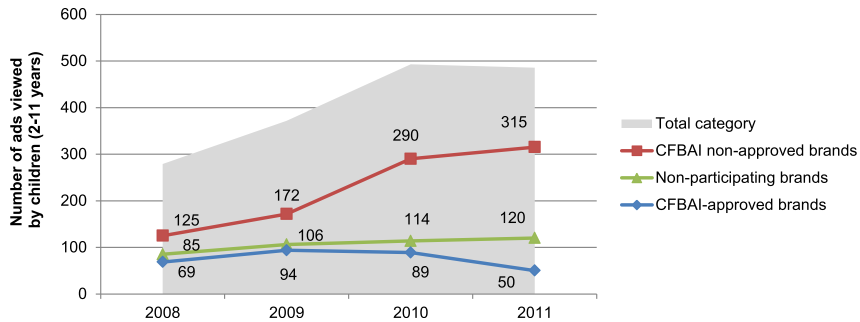

Fig. 1. Number of ads viewed by CFBAI status by children 2–11 years from 2008 to 2011[a]. ([a]The number of ads viewed represent the average number of ads viewed per year by 2- to 11-year olds.)
Source: Analysis of Nielsen data, 2013.

in 2011 (Fig. 1). Advertising for CFBAI non-approved brands increased 152% (125–315 ads viewed). Of note, Hershey accounted for 170 of the 190 additional ads viewed. Advertising by non-participating brands increased 41% (85–120 ads viewed), while advertising for CFBAI-approved brands fell by 28% (69–50 ads viewed). In 2011, 65% of ads viewed by children were for brands that CFBAI companies pledged they would not include in child-directed advertising, up from 45% in 2008. Just 10% promoted CFBAI-approved brands. The remaining 25% of ads viewed by children promoted brands from non-participating companies.

Child/adult targeted ratios of advertising exposure confirm that media buys for CFBAI-approved brands were highly targeted to children (Table 3). Children viewed seven times as many of these ads compared with adults. Children also viewed almost three times as many ads for non-participating brands that used child-targeted techniques than adults viewed. Similarly, all ads for CFBAI-approved brands and 83% of ads for non-participating brands with child-targeted techniques appeared on children's networks (Table 4). In contrast, child/adult targeted ratios were low for CFBAI non-approved brands and non-participating brands that did not

Table 3
Number of ads viewed by CFBAI status by children and adolescents in 2011.[a]

	Children (2–11 years)			Adolescents (12–17 years)		
	Ads viewed	% of total	Child/adult targeted ratio	Ads viewed	% of total	Teen/adult targeted ratio
CFBAI companies	365	75%	.54	615	88%	.91
Approved brands	50	10%	7.14	24	3%	3.43
Non-approved brands; child-targeted techniques	287	59%	.47	543	77%	.89
Non-approved brands; no child-targeted techniques	28	6%	.45	48	7%	.77
Non-participating brands	120	25%	1.67	86	12%	1.19
Child-targeted techniques	107	22%	2.74	67	10%	1.72
No child-targeted techniques	14	3%	.42	20	3%	.61
Total	485	100%	.65	701	100%	.93

[a] Ads viewed represents the average number of ads viewed per year by all individuals in each age group.
Source: Analysis of Nielsen data, 2013.

Table 4
Ads viewed by CFBAI status and network by children and adolescents in 2011.[a]

	Children (2–11 years)				Adolescents (12–17 years)			
	Youth-oriented networks[b]		Children's networks[c]		Youth-oriented networks[b]		Children's networks[c]	
	Ads viewed	Percent of category[d]	Ads viewed	Percent of category[d]	Ads viewed	Percent of category[d]	Ads viewed	Percent of category[d]
CFBAI companies	146	40%	52	14%	234	38%	25	4%
Approved brands	50	100%	50	100%	24	99%	24	98%
Non-approved brands; child-targeted techniques	89	31%	2	1%	196	36%	1	0%
Non-approved brands; no child-targeted techniques	7	25%	0	0%	15	30%	0	0%
Non-participating brands	101	84%	91	75%	59	68%	40	46%
Child-targeted techniques	98	91%	89	83%	55	81%	39	58%
No child-targeted techniques	4	26%	2	14%	4	21%	1	5%
Total	247	51%	142	29%	293	42%	65	9%

[a] Ads viewed represent the average number of ads viewed per year.
[b] Includes children's networks and other networks with a higher-than-average proportion of youth in the audience: ABC Family, Adult Swim, Fuel, FUSE, Hub, MTV, MTV2, Nick-at-Nite, and TeenNick. The average audience for these networks is 35% children (2–11 years) and 17% adolescents (12–17 years).
[c] Children's networks with advertising include Disney XD, Cartoon Network, Hub, Nickelodeon, NickToons, and Sprout. The average audience for these networks is 53% children (2–11 years) and 13% adolescents (12–17 years).
[d] Category refers to brand category (i.e., CFBAI status and presence of child-targeted techniques). Calculated by dividing ads viewed on the network type by total ads viewed for brands in the same category.
Source: Analysis of Nielsen data, 2013

contain child-targeted techniques in their ads: adults saw approximately 55% more ads for these brands than children saw. Children viewed just two ads on average for CFBAI non-approved brands on children's networks in 2011, less than 1% of candy ads viewed.

Examination of adolescent exposure to advertising for CFBAI non-approved brands indicates that children's exposure to these ads may have occurred in media targeted to a broader youth audience. Adolescents viewed just 12% fewer ads for these brands than adults viewed, even though they watch 29% less hours of television on average than adults (Nielsen, 2012), thus indicating higher-than-expected exposure. CFBAI non-approved brands with child-targeted techniques in their ads had higher adolescent/adult targeted ratios. These brands also represented 59% of candy ads viewed by children, and 31% of ads viewed by children for these brands appeared on youth-oriented networks (Table 4).

5. Discussion

This research confirms the rise in children's exposure to candy advertising found in previous studies. Despite industry self-regulation of food marketing to children and CFBAI companies' recognition that most candy products are not healthier dietary choices that should be advertised to children, children's exposure to candy advertising on television grew from .8 ads-per-day in 2008 to 1.3 ads-per-day in 2011. Companies that do not participate in the CFBAI were responsible for one-quarter of children's exposure to candy advertising in 2011 and 17% of the growth in exposure. Therefore, greater participation in the CFBAI would only partially address children's increased exposure to candy advertising. Children's exposure to ads for the one fruit snack brand approved for child-directed advertising by a CFBAI company declined during this time, and thus did not contribute to the growth in advertising.

This research identifies other drivers of growth in candy advertising. The majority of incremental exposure by children from 2008 to 2011 was for CFBAI non-approved brands that were not approved for child-directed advertising (3.7 additional ads viewed per week). However, there is no indication that CFBAI companies did not comply with their pledges. Children viewed less than 1% of these ads on children's networks, and adults saw more of these ads than children saw. Instead, much of children's advertising exposure occurred during programming popular with a broader youth audience. One-third of the ads children viewed for CFBAI non-approved brands appeared on networks with a higher-than-average share of both children and adolescents in the audience, including Nick-at-Nite, ABC Family, and Adult Swim. These networks also rank among the top seven in exposure to all food advertising by 9- to 11-year-olds (Dembek et al., 2013).

Finally, the research describes common child-targeted messages and techniques used by CFBAI-participating and non-participating companies in candy ads. Almost 80% of ads for CFBAI non-approved brands contained messages and techniques that appeal to children. These same techniques also are used in advertising openly targeted to children, including ads for CFBAI-approved fruit snacks, candy ads from non-participating companies on children's television, and ads for child-targeted cereals (Harris et al., 2009), fruit drinks (Harris et al., 2011), and fast-food kids' meals (Harris et al., 2010). In addition, 15% of ads for CFBAI non-approved brands utilized brand characters, a technique proven to increase the appeal of cigarettes (DiFranza et al., 1991) and alcohol (Wallack et al., 1990) to children. Of note, not all candy advertisers employed child-targeted techniques, including three brands from CFBAI-participating companies and six from non-participating companies. However, despite their pledges to refrain from advertising candy in child-directed media, CFBAI participants continue to advertise most candy brands in media with higher-than-average youth audiences using techniques that likely appeal to children.

This research has some limitations. It only examines television advertising and therefore does not reflect all advertising seen or heard by children. Furthermore, researchers did not have access to confidential industry documents and cannot prove that candy companies intended to reach children in their advertising. However, it is unlikely that companies are not aware that children see these ads and that the techniques appeal to them. Research has shown that children's exposure to candy advertising is related to purchases by households with children (Huang & Yang, 2013). In addition, numerous studies show more broadly that food advertising on TV increases consumption of categories of foods, not just the advertised brands (Hastings et al., 2003; Halford, Boyland, Hughes, Oliveira, & Dovey, 2007; Halford, Gillespie, Brown, Pontin, & Dovey, 2004; Andreyeva, Kelly, & Harris, 2011).

6. Conclusions

Proponents of food industry self-regulation have declared that it is working and outside regulation is unnecessary (IOM, 2013), but the present findings indicate that the CFBAI does not adequately protect children. One obvious shortcoming is that the CFBAI is voluntary and companies that do not participate continue to openly target children with candy advertising on children's programming. Of note, under pressure from public health advocates working to increase the number of companies participating in the CFBAI, one of these companies (American Licorice) recently announced that it would join the program (CBBB, 2015).

However, this research also demonstrates that the definitions used to identify “child-directed” advertising are too narrow and may allow companies to increase their efforts to reach a broader youth audience that also includes children. For example, one participating company (Hershey) was able to increase candy advertising to children 2.5-fold and use child-targeted techniques in 86% of its ads, at the same time it pledged to not advertise to children. These findings support recommendations from public health experts to develop a more comprehensive definition of food marketing to children to ensure that children are better protected from the influence of advertising for nutritionally poor foods and beverages (HER, 2015). Improvements that would address the limitations of the CFBAI demonstrated in this research include: 1) Expand the definition of children to include 12- to 14-year-olds, as youth at this age may be especially susceptible to harmful effects of unhealthy food advertising (Harris, Heard & Schwartz, 2014; Harris et al., 2013); Expand the definition of child-directed media to include programming where children (ages 2–14) make up 25% or more of the audience (versus the current definition of 35% children 2–11 years), which would cover the majority of foods ads viewed by children but allow companies to continue to advertise their products on programming primarily intended for adults (Dembek et al., 2013; Harris et al., 2013); and 3) Expand the definition of child-directed advertising to include advertising that utilizes qualitative characteristics that appeal to children (e.g., animated characters and anthropomorphized foods, themes such as fun and fantasy, and celebrities popular with children) leaving the net impression that the advertising is intended to appeal to children.

Both increased CFBAI participation *and* a more effective definition of “child-directed advertising” are required to reduce children's exposure to targeted advertising for foods that can harm their health.

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Appendix

Descriptions of child-targeted coding variables used in the content analysis

Child-targeted techniques	Description
Fun message	Themes of excitement, adventure, magic, fantasy or games that would be appealing to a child.
Cool/hip message	Popular child-culture, standing out in a crowd, popular technology, use of celebrities
More-than-food portrayals	Candy used in a way other than for consumption, such as animated candy pieces or structures made out of candy.
Animation	Generic cartoon animation (not brand characters) and other types of computer animation that would be appealing to a child.
Brand characters	Characters used by the brand regularly and in multiple media. They represent the brand as a mascot and would be identifiable to many children independent of the brand's name (e.g. Tony the Tiger or Toucan Sam).
Third-party tie-ins	Movies, TV shows, or games which would be appealing to a child audience, such as Kung Fu Panda, Spongebob or Angry Birds. Media characters licensed for use by the candy company, such as IronMan or Green Lantern. Fictional characters, such as Santa Claus, the Easter Bunny, pirates, unicorns, dragons, and genies.

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