

Child and Adolescent Exposure to Food and Beverage Brand Appearances During Prime-Time Television Programming

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Background: The food industry disproportionately markets to young people through product placements. Children and adolescents may be more susceptible to these disguised persuasive attempts.

Purpose: Quantify incidence and youth exposure to food and beverage brand appearances within shows on prime-time TV.

Methods: Data on the number of food, beverage, and restaurant brand appearances within shows during prime-time programming in 2008 were purchased from Nielsen and analyzed by product category and company in 2010. Exposure to these brand appearances by children, adolescents, and adults were examined and compared with exposure to prime-time TV advertisements for the same categories and companies using additional Nielsen data.

Results: Food, beverage, and restaurant brands appeared a total of 35,000 times within prime-time TV programming examined by Nielsen in 2008. Regular soft drinks, traditional restaurants (i.e., not quickserve), and energy/sports drinks made up 60% of all brand appearances. Young people viewed relatively few of these appearances with one notable exception. Coca-Cola products were seen 198 times by the average child and 269 times by the average adolescent during prime-time shows over the year, accounting for 70% of child exposure and 61% of adolescent exposure to brand appearances. One show, *American Idol*, accounted for more than 95% of these exposures. Exposure of children to Coca-Cola products through traditional advertisements was much less common.

Conclusions: Brand appearances for most food industry companies, except for Coca-Cola, are relatively rare during prime-time programming with large youth audiences. Coca-Cola has pledged to refrain from advertising to children, yet the average child views almost four Coke appearances on prime-time TV every week. This analysis reveals a substantial, potential loophole in current food industry self-regulatory pledges to advertise only better-for-you foods to children.

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Introduction

Food and beverage marketing is a primary contributor to childhood obesity.^{1–3} One way the food industry markets disproportionately to young people is through product placements.⁴ Product placements are advertiser-sponsored “inclusion of branded products or identifiers through audio or visual means within mass-media programming.”⁵ Placements enable advertisers to reach large TV audiences in a way that

many may not recognize as advertising, thereby circumventing consumer skepticism.^{6,7} Children and adolescents may be more susceptible to these disguised persuasive attempts,^{8,9} thus raising concerns about the potential use of product placements to target young people with messages about nutritionally poor foods.¹⁰

In 2006, the food industry spent \$5.2 million on product placements specifically targeted to those aged 2–17 years, 58% of their total spending on placements.⁴ Carbonated beverage companies accounted for 87% of youth-targeted product placement spending (\$4.5 million). Previous research has documented the prevalence of food and beverage product placements in movies. More than two thirds of the 200 top-20 U.S. box office movie hits from 1996 through 2005 contained at least one food, beverage, or restaurant brand.¹¹ Sugar-sweetened

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beverages accounted for 76% of beverage products shown, and fast food accounted for 75% of food retail establishments shown. On TV, 184 food and beverage placements occurred on prime time and 145 on sports programming during 1 week.¹² As with exposure to TV advertising, exposure to product placements increases preferences for the products promoted.^{1,3,8} In one study,⁸ children who viewed a movie scene in which a bottle of Pepsi was placed on the table were more likely to choose Pepsi over Coke compared to those who watched the same scene without the Pepsi bottle, even when the children did not remember seeing the Pepsi bottle.

In 2006, the Council of Better Business Bureaus launched the voluntary Children's Food and Beverage Advertising Initiative (CFBAI), which required participating companies to "cease paying for or actively seeking to place their food and beverage products in editorial/programming content that is primarily directed to children aged <12 years for the purpose of promoting the sale of those products."¹³ However, the CFBAI has been criticized for shortcomings that allow companies to continue to advertise nutrient-poor foods to youth.^{6,14} Notably, limitations on product placements do not apply to TV programs with broad general audiences that include many children. Approximately 50% of children's exposure to traditional food advertisements occurs on these types of general-audience programs.¹⁵

As part of its TV monitoring services, the Nielsen Company (Nielsen) collects data on the appearance of brand name products within prime-time programming in addition to traditional commercials. The present study uses data purchased from Nielsen to assess the number and types of food, beverage, and restaurant brand appearances on prime-time TV in 2008 and documents child and adolescent exposure to these appearances. The term *brand appearance* is used because the Nielsen data cannot confirm that brand mentions during programming are paid product placements by advertisers. Youth and adult exposure to brand appearances versus TV advertisements was compared by category and company. These results provide further insight into marketing strategies used by the food industry to reach large youth audiences.

Methods

Data were purchased from Nielsen to quantify food, beverage, and restaurant brand appearances during prime-time TV programming from January through December 2008. Data were combined into specific product categories corresponding to previous research on young people's exposure to food and beverage TV commercials.^{16,17} Nielsen also maintains a nationally representative panel of TV-viewing households. Individual members of households in this panel provide Nielsen with daily information about the TV programs they view, and these data are extrapolated to the total

U.S. population to provide ratings of TV programs. Nielsen uses these TV ratings data to quantify the number of individuals who viewed each brand appearance and commercial as well as their demographic information.

These data were used to quantify the number of brand appearances and TV advertisements viewed by the average child (aged 2–11 years); average adolescent (aged 12–17 years); and average adult (aged 18–49 years) in 2008 by product category and company. Nielsen monitors brand appearances only on prime-time TV programming; therefore, these numbers likely understate total exposure to brand appearances. Appendixes A and B (available online at www.ajpmonline.org) provide more detail about the methods, product category groupings, and Nielsen data used in this analysis. Chi-square tests identified significant differences between the use of prime-time brand appearances and TV advertisements. The analysis was conducted in 2010.

Results

Approximately 35,000 brand appearances for foods, beverages, and restaurants occurred on prime-time TV in 2008 (Appendixes A and B, available online at www.ajpmonline.org). Appearances promoted beverages (44% of the total) and restaurants (32%) most often. The "other restaurant," regular soft drink, and energy/sports drink categories accounted for almost two thirds of appearances. Bottled water, candy, quickserve restaurants, and savory snacks had more than 1000 brand appearances each, comprising 20% of appearances.

The average child viewed 281 of these prime-time brand appearances in 2008; adolescents and adults viewed 444 and 666, respectively (Table 1). Despite frequent brand appearances for products in several categories, the majority of exposure was to appearances for regular soft drinks. This category accounted for just 18% of all brand appearances, yet represented 71% of appearances viewed by children and approximately 60% of adult and adolescent exposure. Although adults viewed twice as many appearances for regular soft drinks compared to children, this category represented a higher proportion of all appearances viewed by children as compared to adults. In contrast, adults viewed more than three times as many appearances for food products and restaurants than children viewed.

Table 1 also compares exposure to prime-time brand appearances versus all TV advertisements by age group and category. Most food marketing exposure on TV occurred in the form of traditional advertisements; individuals viewed 9 to 16 times as many TV commercials compared to prime-time brand appearances for all categories combined. However, the opposite results were found for regular soft drinks: all age groups viewed four to seven times more brand appearances than TV commercials for this one category.

Table 1. Average exposure of children, adolescents, and adults to food and beverage brand appearances and TV ads in 2008

Category	Children (aged 2-11 years)		Adolescents (aged 12-17 years)		Adults (aged 18-49 years)	
	Appearances viewed	TV ads viewed	Appearances viewed	TV ads viewed	Appearances viewed	TV ads viewed
Food products	25	2299 ^a	44	2256 ^a	82	2464 ^a
Candy	4	209 ^a	9	296 ^a	15	297 ^a
Savory snacks	5	182	10	196	17	220
Cereal	4	728 ^a	7	485 ^a	13	426 ^a
Other sweets and desserts	4	309 ^a	6	260 ^a	11	245 ^a
Prepared and convenience food	2	400 ^a	3	409	6	526 ^a
Meats, poultry, and fish	2	27	3	40	6	74
Fruits and vegetables	2	85 ^a	3	109 ^a	5	192 ^a
Dairy products	1	245 ^a	2	219	3	284 ^a
Gum and other candy	2	114	3	243	5	201 ^a
Beverage products	218	286 ^b	333	434 ^b	458	453 ^b
Regular soft drinks	200	29 ^b	265	62 ^b	391	69 ^b
Energy and sports drinks	8	57 ^b	36	147 ^b	28	135 ^b
Bottled water	5	37	11	56 ^b	20	60 ^b
Coffees, teas, and cocoa	3	18	5	30	10	52
Diet soft drinks	2	18	3	40	5	42
Other sugared beverages	1	128 ^a	3	99	4	96
Restaurants	32	1604 ^a	58	2288 ^a	108	2682 ^a
Other restaurants	26	498 ^a	48	605 ^a	91	777 ^a
Quickserve	6	1106	10	1684	17	1905
All other/unidentified	6	305	10	375	18	558
Total	281	4494	444	5353	666	6157

^aSignificantly higher TV advertising exposure versus brand appearance exposure compared to other product categories ($p < 0.05$)

^bSignificantly higher brand appearance exposure versus TV advertising exposure compared to other product categories ($p < 0.05$)

Table 2 reveals that the 13 CFBAI companies represented just 38% of food and beverage brand appearances, but 80% of child exposure to brand appearances and 70%–72% of adult and adolescent exposure. Overall, CFBAI companies were significantly more likely to use brand appearances versus TV advertising as compared to nonparticipating companies. However, these results were due to just one company. Coca-Cola had 5315 appearances in 2008, accounting for 15% of all brand appearances that occurred on TV, yet Coke brand appearances represented 70% of all appearances actually viewed by children (the average child viewed 198 Coke appearances in 2008) and 61% and 58% of appearances viewed by adolescents and adults (269 and 385, respectively). PepsiCo followed Coca-Cola with the second-highest

number of brand appearances (8% of the total); however, exposure to these appearances totaled less than 30 per year among all age groups. For all other CFBAI participants, children and adolescents viewed fewer than 10 brand appearances in 2008.

In addition, Coca-Cola was the only company for which exposure to brand appearances exceeded exposure to TV advertisements; children saw almost 10 times as many Coke brand appearances as traditional Coke commercials. Nearly all Coke brand appearances viewed occurred on just one program, *American Idol*. Of the 198 Coke brand appearances viewed by children, 192 appeared on *American Idol*. Similarly, 94%–95% of Coke brand appearances viewed by adolescents and adults appeared on this program. The second most common pro-

Table 2. Number of brand appearances during prime-time programming for CFBAI participants in 2008 and average exposure by age group

Category	Number of brand appearances during prime-time programming	Children (aged 2-11 years)		Adolescents (aged 12-17 years)		Adults (aged 18-49 years)	
		Appearances viewed	TV ads viewed	Appearances viewed	TV ads viewed	Appearances viewed	TV ads viewed
CFBAI participants	13,184	224	2444 ^a	320	2300 ^a	469	2168 ^a
The Coca-Cola Company ^b	5,315	198	20 ^a	269	37 ^a	385	52 ^a
PepsiCo, Inc.	2,731	8	116	18	206	28	247
Hershey Company ^b	1,118	2	40 ^c	6	76	9	93
Kraft Foods, Inc.	739	3	284 ^c	5	237 ^c	10	233 ^c
Kellogg Company	596	2	395 ^c	4	281 ^c	7	263 ^c
Mars, Inc. ^b	557	2	140 ^c	3	282 ^c	6	253 ^c
McDonald's USA	496	2	280 ^c	3	208 ^c	5	159 ^c
General Mills, Inc.	470	2	680 ^c	3	469 ^c	6	361 ^c
Campbell Soup Company	389	1	147 ^c	2	114 ^c	4	137 ^c
Unilever	304	1	40	2	47	3	73
ConAgra Foods, Inc.	285	1	104 ^c	2	82	3	93 ^c
Cadbury Adams USA ^b	148	1	27	1	78	2	57
Burger King Corp.	36	0	156 ^c	0	174 ^c	1	142 ^c
All other companies	21,795	57	2050	124	3052	197	3989

^aSignificantly higher brand appearance exposure versus TV advertising exposure compared to non-CFBAI companies ($p < 0.05$)

^bCFBAI-participating companies with pledges that they will not advertise to children aged < 12 years

^cSignificantly higher TV advertising exposure versus brand appearance exposure compared to non-CFBAI companies ($p < 0.05$)

CFBAI, Children's Food and Beverage Advertising Initiative

gram to include Coke brand appearances was "The Big Bang Theory"; but this program accounted for just five brand appearances viewed by adults and fewer than two viewed by children and adolescents.

Discussion

Nearly 35,000 food, beverage, and restaurant brands appeared on prime-time TV programming in 2008. Three categories (other restaurants, regular soft drinks, and energy/sports drinks) made up the majority of appearances. Children and adolescents viewed approximately 0.8 and 1.2 of these brand appearances *every day*; and regular soft drinks represented three quarters of this exposure. Children's high level of exposure to regular soft drink appearances within prime-time programming raises important public health concerns. Youth consume more than 200 kcal from sugar-sweetened carbonated beverages daily¹⁸ and consumption of these beverages is a substantial contributor to childhood obesity and other health-related issues.^{19,20} As discussed, exposure to brand appearances has been found to increase preferences for the advertised brand.^{1,3,8} Broader effects of brand appearances on diet and other health-related behav-

iors have not been tested; however, exposure to TV advertising for nutritionally poor products has been associated with increased total consumption of product categories, including sugar-sweetened beverages.^{1,3,21} Brand appearances for sugar-sweetened beverages are also likely to increase consumption of these products.

Coca-Cola alone represented 70% of brand appearances viewed by children. As a participant in the CFBAI, Coca-Cola has pledged it will not "engage in child-directed food and beverage advertising."¹³ However, children viewed prime-time brand appearances for Coca-Cola products nearly four times per week in 2008. PepsiCo was the company with the second-highest exposure to brand appearances; but children viewed just eight PepsiCo product appearances in total in 2008. Overall, CFBAI participating companies' products made up 80% of brand appearances viewed by children. Thus this analysis reveals a substantial loophole in the CFBAI pledges that Coca-Cola alone appears to have taken advantage of; companies can claim they will not advertise to children while still exposing children to substantial numbers of product placements on prime-time TV.

The current study is the first to report the prevalence of food, beverage, and restaurant brand appearances on prime-time TV by category and the only analysis to quantify actual exposure to appearances. The study does have some limitations. First, it includes data for prime-time appearances only and not those on other types of TV programming that are also likely to have large numbers of brand appearances, including sports.¹² Second, it cannot be determined from the Nielsen data whether brand appearances were paid product placements due to companies' intentional marketing efforts.

However, Coca-Cola's investment of millions of dollars in media and product placements on *American Idol*, one of the most-watched shows on TV with an average of 24.1 million viewers per episode, has been reported widely.^{22,23} In contrast, in 2008 children viewed just two brand appearances for McDonald's. Both brands rank among the top ten most respected brands worldwide²⁴ and thus would be similarly likely to receive mentions in programming without payment by advertisers. These results suggest that the majority of Coke appearances viewed were indeed paid placements. Lastly, the analysis does not examine the nutritional quality of the products shown; however, most categories with the largest numbers of placements (e.g., soft drinks, energy/sports drinks, candy) are clearly less nutritious products that should not be promoted extensively to young people.

When the United Kingdom considered legalizing product placements on TV in 2010, the British Medical Association warned that such marketing of unhealthy foods will contribute to obesity and negatively affect public health.²⁵ Currently, the Federal Communications Commission (FCC) requires paid placement disclosures at the end of programming, but public health advocates have urged the FCC to enact more-stringent rules for the use of product placements such as placing indicators on the screen any time a paid product is shown.^{10,26–28} Given children's substantial exposure to appearances for soft drinks, CFBAI pledges regarding product placements should include more restrictive definitions of child-targeted programming, and future research must continue to track young people's exposure to food and beverage product placements. These findings also indicate the need for stricter government regulation regarding the use of this form of advertising. Measures such as more prominent disclosure of placements during programming and restrictions on placements for nutritionally poor products in programming viewed by large numbers of young people are needed to protect young people's health.

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Appendix

Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.amepre.2011.04.018](https://doi.org/10.1016/j.amepre.2011.04.018).

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