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Short Communication

Trends in food and beverage television brand appearances viewed by children and adolescents from 2009 to 2014 in the USA

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Abstract
Objective: Public health experts raise concerns about marketing unhealthy products to young people through television (TV) product placements. Coca-Cola brand appearances (product placements) reached a substantial child and adolescent audience in 2008, but additional brands now sponsor popular programming. We aimed to quantify child and adolescent exposure to food and beverage appearances since 2008.
Design: In 2015, we purchased Nielsen data on occurrences and child/adolescent exposure to food, beverage and restaurant brand appearances on US prime-time TV from 2009 to 2014, and analysed appearances by product category, company, brand and year. We compared exposure to appearances with exposure to traditional commercials for top brands.
Setting: Nationally representative panel of approximately 20 000 TV-viewing households.
Subjects: Children (2–11 years) and adolescents (12–17 years).
Results: Exposure to food and beverage brand appearances peaked in 2012 and declined through 2014. Whereas full-calorie soda brands dominated before 2012, other sugary drink and quick-serve restaurant brands contributed over one-third of appearances viewed by children in 2013 and 2014. Nine hundred and fifty-four companies had brand appearances from 2009 to 2014, but just four were responsible for over half of exposures: The Coca-Cola Company, Dr Pepper Snapple Group, PepsiCo and Starbucks. Approximately half were viewed on reality TV programmes and one sitcom. Each year from 2009 to 2013, brand appearance exposure exceeded traditional advertising exposure for at least one brand.
Conclusions: Despite recent reductions in brand appearances viewed by young people, some unhealthy branded products continue to be marketed via this method. We suggest policy options to reduce child and adolescent exposure to such appearances.

Keyword
Product placement
Childhood obesity
Marketing
Obesity

The marketing of energy-dense and nutrient-poor food and beverage products contributes to poor diet and childhood obesity[1]. One common marketing practice is product placement (or 'brand appearances'), in which a message, brand/brand logo or product is inserted into the entertainment content of mass media, including television (TV) programmes, films, music, books and video games[2]. Branding is defined as 'a marketing feature that provides a name or symbol that legally identifies a company, a single product, or a product line to differentiate it from other companies and products in the marketplace'[1]. Companies use brands to convey product attributes, generate loyalty and credibility, and connect with buyers on an emotional level[3]. Such branding may affect children as young as 3 years of age[4].

Food and beverage companies use product placements to market directly to young people (i.e. children and adolescents)[5]. This technique raises additional concerns when aimed at children and adolescents, as the persuasive intent of the message is disguised[6,7]. However, product placements will likely remain a significant marketing tool for reaching young people as time-shifted viewing, mobile devices and the Internet enable young viewers to increasingly avoid traditional advertising[8] and as tools for

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retrospectively inserting branded content into programming arise[9].

The Children's Food and Beverage Advertising Initiative (CFBAI) provides self-regulatory standards for the use of product placement in 'child-directed media', defined by the CFBAI as content in which 35 % or more of viewers are aged 2–11 years[10]. Product placement of any kind – even for foods meeting CFBAI nutrition criteria – is not permitted in child-directed media under CFBAI guidelines, but adolescents aged 12 years and older do not receive any protection under CFBAI guidelines. Previous research demonstrated that brand appearances represented a significant source of child and adolescent exposure to marketing for full-calorie soda in 2008, almost exclusively for Coca-Cola (a CFBAI participant)[11]. More recent research shows substantial exposure to appearances for other beverage brands from 2010 to 2013[12]. However, trends in brand appearances for all food, beverage and restaurant brands have not been assessed. The present research utilized syndicated market research data to quantify brand appearances for foods, beverages and restaurants from 2009 to 2014 on prime-time TV in the USA.

Methods

US data on prime-time TV brand appearances and traditional TV commercials for all foods, beverages and restaurants from 1 January 2009 to 31 December 2014 were purchased from Nielsen and analysed in February–March 2015. Because Nielsen modified its method of quantifying brand appearances in 2009, data from 2009–2014 cannot be directly compared with data from before this period.

Nielsen defines brand appearances as any occasion in which a brand/product is presented or used visually and/or audibly within a programme. At least 50 % of a brand logo or product name must be visible to count as a visual appearance. If a brand is conveyed multiple times within a programme segment in the same way (e.g. on a soda can only), it is counted as a single occurrence. Nielsen analysts count separate brand occurrences each time a brand is conveyed in a different way (e.g. a soda can and branded T-shirt would count as two appearances). Measures of duration reflect the length of time from when the brand is first identifiable to when it is no longer visible. Duration timing pauses if the brand moves off screen. The term 'brand appearance' is used because Nielsen does not determine whether appearances are paid placements by companies.

Nielsen coders quantified the number of such brand appearances within US prime-time TV programming using standardized identification procedures and assigned appearances to specific categories, companies and brands. The first author (J.W.B.E) assigned these categories to our overarching food, beverage and restaurant categories (see Table 1) following previous product placement research and the guidelines of the Interagency Working Group on Food Marketing to Children[11,13,14], and the second author (J.L.H.) confirmed category assignments. Nielsen also provides descriptions of each brand appearance (e.g. 'Jake has a Dr Pepper in front of him while he watches golf on TV'). These descriptions were used to identify specific categories when Nielsen assigned generic labels (e.g. Food Products, a company-level category) where possible.

Nielsen obtains viewing metrics through its nationally representative panel of approximately 20 000 TV-viewing households (approximately 50 000 individuals in total)[15]. Data are collected on individuals (including adults and children aged 2+ years) within panel households to provide information about individual programme viewing. These data are then extrapolated to the total US population to generate TV ratings. To calculate exposure to

Table 1 Categories and exemplar items from Nielsen data

Category	Examples
All other	Sauces, condiments, gums/mints, miscellaneous ingredients, meat/poultry, seafood, coffee beans/tea bags/cocoa powder, bread, generic food products
Bottled water	Bottled water, mineral water
Candy	Candy products, including chocolate
Cereal	Hot and cold cereals
Dairy	Butter, cheese, cream, dairy products, milk, yoghurt
Diet carbonated beverages	Diet soft drinks
Fruit and vegetables	Beans, citrus and non-citrus fruits, produce, fresh, frozen and canned vegetables
Other sugary drinks	Fruit drinks, ready-to-drink iced coffee/tea, flavoured waters, sugary drink brands
Other sweets and desserts	Cakes, cookies, desserts, frozen desserts/novelties, frozen yoghurt, ice cream, pastries, prepared puddings/gelatine, sorbet
Prepared and convenience food	Chilli, frozen and prepared entrées, pasta/rice mixes, pizza, ready-made soups, frozen waffles
QS restaurant food	Quick-serve restaurants, bagel shops, coffee/doughnut shops
Regular carbonated beverages	Regular soft drinks, regular soft drink brands
Other restaurants	Restaurants (not quick-serve)
Savoury snacks	Chips, crackers, nuts, popcorn, pretzels
Sports and energy drinks	Sports drinks, energy drinks, isotonic drinks
100 % juice	100 % juice and juice brands

brand appearances and commercials, Nielsen combines household member viewing data with the number of brand appearances and commercials on each programme. For child and adolescent exposure, we used Nielsen age breaks of 2–11 years (children) and 12–17 years (adolescents). The Supplementary Materials and Table S1 provide further information on Nielsen TV coverage and exposure measures.

Results

From 2009 to 2014, brands from 954 different companies appeared on US prime-time TV programming. Beverages constituted 28 % of appearances during 2009–2011 and 43 % during 2012–2014 (Table S2). The remaining appearances were divided approximately equally between food products and restaurants. The most common foods featured in brand appearances included savoury snacks, candy and other sweets. The number of food and beverage TV brand appearances peaked at 17 558 in 2011 and declined to 10 486 in 2014.

Exposure to brand appearances peaked in 2012 when children viewed 62·2 appearances and adolescents viewed 109·9 (Table 2). Exposure then declined through 2014. During this period, beverages continued to represent the majority of appearances viewed. However, the types of beverages viewed changed substantially. In 2011, regular carbonated beverages comprised 44 % of all appearances viewed by children and 37 % viewed by adolescents *v.* just 12–14 % in 2014. In contrast, exposure to appearances for other sugary drinks (e.g. iced tea, fruit drinks) tripled for children and more than doubled for adolescents from 2011 to 2012. In 2014, this category comprised approximately

Table 2 Brand appearances on US prime-time television viewed by children (aged 2–11 years) and adolescents (aged 12–17 years), by category, 2009–2014 (data purchased from Nielsen, 2015)

Category	2009	2010	2011	2009–11 (% of total)	2012	2013	2014	2012–14 (% of total)
Children (2–11 years)								
Food products	**10·6**	**11·5**	**14·0**	**23**	**11·4**	**8·9**	**6·6**	**19**
Savoury snacks	2·2	2·9	3·4	5	3·1	3·0	1·7	5
Candy	2·8	2·9	3·6	6	3·0	2·2	1·5	5
Other sweets	2·3	2·1	2·5	4	2·4	1·6	1·5	4
Cereal	1·9	2·1	2·5	4	1·8	1·4	1·0	3
Prepared and convenience food	0·7	0·6	1·0	1	0·7	0·5	0·6	1
Dairy	0·5	0·5	0·6	1	0·4	0·2	0·1	<0·5
Fruits and vegetables	0·2	0·3	0·3	0	0·1	0·1	0·1	<0·5
Beverage products	**25·0**	**23·7**	**32·3**	**51**	**37·4**	**25·8**	**17·1**	**56**
Regular carbonated beverages	19·9	18·4	26·2	41	24·5	12·5	4·2	29
Other sugary drinks	0·9	2·9	2·3	4	7·7	7·3	7·5	16
Bottled water	1·8	0·7	1·5	3	2·5	1·9	3·4	5
Sports and energy drinks	1·0	0·9	1·5	2	1·9	1·4	0·9	3
Diet soft drinks	0·9	0·7	0·6	1	0·6	2·6	1·0	3
100 % juice	0·5	0·2	0·3	1	0·1	0·1	0·1	<0·5
Restaurants	**9·0**	**10·6**	**7·6**	**17**	**9·2**	**8·2**	**9·3**	**19**
Quick-serve restaurants	4·5	5·0	4·2	9	6·5	5·6	7·1	13
Other restaurants	4·5	5·6	3·4	9	2·7	2·6	2·2	5
All other/unidentified	**4·2**	**3·5**	**5·7**	**8**	**4·2**	**3·0**	**2·6**	**7**
Total	**48·8**	**49·3**	**59·6**		**62·2**	**46·0**	**35·6**	
Adolescents (12–17 years)								
Food products	**19·0**	**19·4**	**24·9**	**25**	**23·5**	**17·7**	**12·2**	**21**
Savoury snacks	4·3	5·0	6·3	6	6·8	5·8	3·2	6
Candy	4·8	5·0	6·3	6	5·8	4·0	2·7	5
Other sweets	4·2	3·9	4·5	5	5·0	3·6	2·7	5
Cereal	3·2	3·4	4·4	4	3·5	2·8	2·1	3
Prepared and convenience food	1·3	1·1	1·7	2	1·2	0·9	1·0	1
Dairy	0·8	0·7	1·2	1	0·8	0·4	0·3	1
Fruits and vegetables	0·3	0·3	0·4	0	0·4	0·3	0·2	<0·5
Beverage products	**35·3**	**32·9**	**45·9**	**46**	**60·8**	**43·2**	**27·8**	**53**
Regular carbonated beverages	26·5	24·4	34·9	35	38·3	20·1	7·9	27
Other sugary drinks	1·6	4·2	3·4	4	9·2	10·4	10·5	12
Bottled water	3·3	1·3	3·2	3	6·9	5·5	5·8	7
Sports and energy drinks	1·6	1·4	2·8	2	4·5	3·3	1·9	4
Diet soft drinks	1·4	1·3	1·1	2	1·4	3·5	1·5	3
100 % juice	0·9	0·3	0·5	1	0·3	0·3	0·2	<0·5
Restaurants	**16·0**	**17·3**	**13·8**	**19**	**16·7**	**14·3**	**14·2**	**18**
Quick-serve restaurants	7·6	8·4	7·4	9	10·6	9·0	9·9	12
Other restaurants	8·4	8·8	6·4	9	6·1	5·4	4·3	6
All other/unidentified	**6·9**	**6·3**	**11·1**	**10**	**8·9**	**6·0**	**4·5**	**8**
Total	**77·3**	**75·9**	**95·6**		**109·9**	**81·2**	**58·6**	

Bold font indicates numbers for overarching food, beverage and restaurant categories.

Table 3 Brand appearances on US prime-time television viewed by children (aged 2–11 years) and adolescents (aged 12–17 years) for the top five brands and ratio of appearances *v.* traditional commercials (TV ads) viewed, 2009–2014 (data purchased from Nielsen, 2015)

	Appearances viewed						Ratio of appearances *v.* TV ads viewed					
	2009	2010	2011	2012	2013	2014	2009	2010	2011	2012	2013	2014
Children (2–11 years)												
Coca-Cola	15·5	16·5	16·2	13·0	8·6	1·5	**2·11**	**1·55**	**2·28**	**2·06**	**1·41**	0·12
Pepsi	1·6	0·8	8·0	7·6	1·0	0·4	0·23	0·19	**1·99**	0·66	0·11	0·04
Snapple	0·1	0·4	0·4	7·0	6·6	7·1	0·02	0·15	0·08	**2·29**	0·89	**1·01**
Sprite	0·6	0·2	0·5	1·6	1·5	1·1	0·71	0·03	0·20	**1·15**	**1·40**	0·47
Starbucks	0·5	0·5	0·5	2·6	2·2	5·1	0·69	0·11	0·10	0·62	0·46	0·83
Adolescents (12–17 years)												
Coca-Cola	19·3	21·2	20·0	16·7	10·6	2·4	**1·23**	**1·08**	**1·95**	**1·90**	**1·10**	0·11
Pepsi	2·4	1·2	10·3	11·4	1·4	0·7	0·16	0·11	**1·63**	0·44	0·08	0·04
Snapple	0·2	0·7	0·6	7·6	9·0	9·6	0·02	0·15	0·07	**1·25**	0·64	0·73
Sprite	0·8	0·3	1·3	4·8	4·1	2·4	0·43	0·02	0·24	**1·38**	**1·49**	0·37
Starbucks	0·9	1·0	1·0	3·7	3·4	6·6	0·63	0·09	0·08	0·38	0·33	0·69

Bold font indicates more appearances than traditional TV ads viewed.

20 % of appearances viewed by children and adolescents. Exposure to quick-serve restaurants also increased by approximately 50 % for children and adolescents from 2011 to 2012, representing approximately one-in-five appearances viewed. Exposure to bottled water appearances showed a similar trend, but in 2014 this healthier category represented just 10 % of appearances viewed. Individual food product categories consistently represented 7 % or less of child and adolescent brand appearances viewed.

Despite hundreds of companies with food, beverage and restaurant brand appearances on prime-time TV, child and adolescent exposure to these appearances was highly concentrated in just a few. In 2009 and 2010, The Coca-Cola Company was responsible for approximately one-third of brand appearances viewed by children and adolescents, but exposure to Coca-Cola appearances declined after 2010, representing just 12–13 % of appearances viewed by children and adolescents in 2014. At the same time, exposure to appearances for Dr Pepper Snapple Group, PepsiCo and Starbucks increased dramatically, starting in 2011. At their peak in 2011–2012, PepsiCo brands represented 17–18 % of appearances viewed by children and adolescents. In 2014, Dr Pepper Snapple Group and Starbucks respectively constituted 20–23 % and 15–20 % of appearances viewed by children and adolescents. From 2009 to 2014, these four companies contributed 56 % of all food, beverage and restaurant brand appearances viewed by children and 51 % for adolescents.

Exposure to brand appearances was also concentrated in just five TV programmes, primarily reality shows. In 2009–2010, one-third of children's and one-quarter of adolescents' exposure occurred on *American Idol* (Coca-Cola). In 2014, appearances on *America's Got Talent* (Snapple) constituted 21 % and 17 % of children's and adolescents' exposure, respectively, and *The Voice* (Starbucks) was responsible for 19 % and 15 %. *The Big Bang Theory* sitcom also featured appearances for sixty-one food, beverage or restaurant companies in 2014, accounting for 24 % of appearances viewed by children and 34 % of those viewed by adolescents.

Child and adolescent exposure to appearances for the five brands featured most often from 2009 to 2014 was compared with exposure to traditional TV commercials (Table 3). From 2009 to 2013, children saw almost twice as many Coca-Cola brand appearances than traditional ads. Children also saw approximately twice as many appearances for Pepsi in 2011 and Snapple in 2012 relative to TV ads. Similarly, adolescents saw almost twice as many Coca-Cola brand appearances as traditional ads in 2011 and 2012, more brand appearances than traditional ads for Pepsi and Snapple in 2011 and 2012 respectively, and more Sprite appearances than traditional ads from 2012–2013. Appearances on reality TV averaged 27·0 s in length, compared with 12·1 s for all appearances. Notably, Coca-Cola appearances on *American Idol* and Snapple appearances on *America's Got Talent* averaged 46–50 s and 38–42 s in 2012 and 2013.

Discussion

From 2009 to 2014, on average children viewed almost one food, beverage or restaurant brand appearance per week, and adolescents viewed 1·6 weekly. This is substantially lower than youths' exposure to TV ads (ninety and 107 ads per week for children and adolescents, respectively, in 2014)[16]. However, this examination of brand appearances identified numerous concerns for young people. Although exposure to appearances peaked in 2012, new brands now invest heavily in this medium. Whereas Coca-Cola dominated appearances viewed by youths through 2010, Pepsi, Snapple, Sprite and Starbucks together were responsible for the majority of appearances viewed from 2012 to 2014. Further, appearances viewed often approached or exceeded TV ads for these brands.

These findings are consistent with the US Federal Trade Commission report on food marketing expenditures aimed at children and adolescents, which showed that only carbonated beverage companies spent significantly on product placements from 2006 to 2009[5]. Given the harmful effects of sugary drink consumption on children's health[17,18], this exposure raises substantial public health concerns.

Reality shows served as the primary vehicle for delivering beverage brand appearances to young people. While they do not meet CFBAI standards for 'child-directed' media[19], reality-show appearances may be considerably more effective than traditional TV ads. Placements such as cups on judges' desks are designed to imply endorsement by admired celebrities, a form of marketing appealing disproportionately to youths[20,21]. They also deactivate sceptical responses to advertising by disguising its persuasive intent, making it more difficult for young people to defend against influence[7,20]. Moreover, marketers achieve synergies by tying product placements with commercials, multimedia content and competitions to enhance their impact[22,23]. Finally, viewers cannot avoid brand appearances during time-shifted viewing, unlike traditional commercials.

Several factors may have contributed to the decline in youth exposure to brand appearances from 2012 to 2014. Changes in sponsorship of reality shows and popularity of these shows (e.g. Coca-Cola ceased partnership with *American Idol* in 2014 due to lagging popularity)[24] are likely principal determinants. Companies may also be moving away from placements on TV to integrations in non-traditional media such as YouTube and Vine[25,26], which are likely cheaper and may resonate even more with young people. Placements in movies also continue and have been highlighted in previous research[5,27]. Despite recent reductions in brand appearances viewed on TV programming, a new sponsorship of a successful new programme could again increase child and adolescent exposure in the future.

In the USA, government regulation of marketing in the media is severely limited by commercial speech protections and restricted regulatory authority[28]. Therefore, industry self-regulation is generally considered to be the most feasible policy option to reduce young people's exposure to advertising for unhealthy products. Public health experts have recommended improvements in the CFBAI to address current limitations of industry self-regulation, including expanding the definition of children to protect those who are 14 years and younger, rather than 11 years and younger[3]. Additionally, recommendations to broaden definitions of child-directed media to encompass programming that is popular with children, not just programming viewed primarily by children[3,19], would reduce child and adolescent exposure to brand appearances as well as traditional commercials. Finally, shows that are popular with young people should encourage sponsorships for healthy brands. For example, bottled water would be more congruent and appropriate than sugary drinks for singers in reality shows.

Conclusion

Food, beverage and restaurant brand appearances on US prime-time TV continue to present a risk to young people's health and raise ethical concerns. Expanding protection for children and adolescents in industry self-regulatory pledges could help reduce the negative impact of brand appearances, which largely promote nutritionally poor products during programming viewed by significant numbers of young people.

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Supplementary material

To view supplementary material for this article, please visit http://dx.doi.org/10.1017/S1368980015003274

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