

Popular Music Celebrity Endorsements in Food and Nonalcoholic Beverage Marketing

Marie A. Bragg, PhD,^{a,b} Alysa N. Miller, MPH,^{a,b} Juleen Elizee, MPH,^a Shatabdi Dighe, MPH,^a Brian D. Elbel, PhD, MPH^{a,b,c}

abstract

BACKGROUND: Food and beverage marketing has been associated with childhood obesity. We quantified the number and type of food or beverage brands promoted by music celebrities, assessed the nutritional quality of the products, and examined Teen Choice Award data to assess the celebrities' popularity among adolescents.

METHODS: This was a descriptive study. A list of music celebrities associated with the 2013 and 2014 Billboard Hot 100 Chart, which ranks songs according to sales and radio impressions, was compiled. Data on celebrity endorsements were gathered from official company Web sites, YouTube commercials, an advertising database, and media reports. Nutritional quality of foods was assessed according to the Nutrient Profile Index, whereas nonalcoholic beverages were evaluated based on calories from added sugar. Teen Choice Award nominations were used to measure the celebrities' popularity among adolescents.

RESULTS: Of the 590 endorsements made by the 163 celebrities in the sample, consumer goods (eg, fragrances, makeup) represented the largest endorsement category (26%), followed by food and beverage (18%) and retail (11%). Sixty-five celebrities were collectively associated with 57 different food and beverage brands owned by 38 parent companies. Of these 65 celebrities, 53 (81.5%) had ≥ 1 Teen Choice Award nomination. Forty-nine (71%) of the 69 nonalcoholic beverage references promoted sugar-sweetened beverages. Twenty-one (80.8%) of the 26 endorsed foods were energy dense and nutrient poor. Baauer, will.i.am, Justin Timberlake, Maroon 5, and Britney Spears had the most food and beverage endorsements.

CONCLUSIONS: This study demonstrates that music celebrities who are popular among adolescents endorse energy-dense, nutrient-poor products.



^aDepartment of Population Health, New York University School of Medicine, New York, New York; ^bNew York University College of Global Public Health, New York, New York; and ^cNew York University Wagner School of Public Service, New York, New York

Dr Bragg originated the study idea and design, helped with data acquisition and analyses, led the writing of the manuscript, and had full access to all the study data; Ms Miller, Ms Elizee, and Ms Dighe helped with the data acquisition and analysis and provided feedback on the manuscript; Dr Elbel helped interpret the results and provided critical feedback on drafts of the manuscript; and all authors approved the final manuscript as submitted.

DOI: 10.1542/peds.2015-3977

Accepted for publication Apr 15, 2016

Address correspondence to Marie A. Bragg, PhD, 227 East 30th St, Room 622, New York, NY 10016.

E-mail: marie.bragg@nyumc.org

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2016 by the American Academy of Pediatrics

WHAT'S KNOWN ON THIS SUBJECT: Exposure to unhealthy food advertisements is associated with excessive consumption. Studies have shown that celebrities' food endorsements promote higher product preferences. Research has also demonstrated an association between familiarity with songs mentioning alcohol and drinking behaviors in adolescents and young adults.

WHAT THIS STUDY ADDS: The study examines the use of music celebrity endorsements of food and beverage products. Furthermore, it assesses nutritional value of endorsed products and the popularity of the celebrity endorser among adolescents.

To cite: Bragg MA, Miller AN, Elizee J, et al. Popular Music Celebrity Endorsements in Food and Nonalcoholic Beverage Marketing. *Pediatrics*. 2016;138(1):e20153977

The Institute of Medicine and surgeon general have stated that individual-level health-promoting behavior changes are very difficult to achieve because of the current unhealthy environment.¹ Food and beverage marketing has been identified as a significant environmental contributor to childhood obesity.¹⁻⁶ Exposure to food marketing promotes excess consumption, increased purchase requests, and higher preference for the product among children and adults.²⁻⁵ A cued-recall assessment demonstrated that fast food advertising receptivity (ie, exposure and response to ads) is associated with youth obesity.⁷ Food and beverage companies spend \$2 billion annually on youth-targeted advertisements.¹ Public health experts have called for a shift toward marketing messages that encourage consumption of healthy foods and beverages and policies to establish protective thresholds for food marketing exposure targeting youth.⁸⁻¹²

Research has shown that the use of celebrity endorsements in marketing can enhance brand equity and the desirability of a product, leading consumers to more positively associate with, and easily recognize, brands.¹³⁻¹⁵ This effect is particularly relevant in the context of music celebrity endorsements because adolescents ages 12 to 18 years report spending almost 2 hours listening to music each day,¹⁶ and black and Latino youth spend 3 hours listening to music daily.¹⁷ This frequent exposure is notable in the context of previous research that showed that 20% of popular US songs mentioned alcohol brands and associated alcohol with positive consequences (eg, wealth, sex, luxury).¹⁸ This exposure is linked to self-reported alcohol consumption, with 1 study demonstrating that familiarity with songs that mention alcohol brands was associated with drinking behaviors in adolescents

and young adults.¹⁹ These findings are consistent with industry data showing that celebrity endorsement campaigns are more likely than noncelebrity campaigns to lead to substantial increases in immediate profits and long-term increases in profitability.²⁰ Given the high level of brand exposure created by these multi-million-dollar endorsement deals, public health experts have expressed concern over the potential effects of these marketing techniques on adolescents, who represent a vulnerable population well attuned to popular music trends. Indeed, grassroots action and media attention regarding celebrity athletes' endorsement of tobacco have coincided with declining tobacco endorsements^{21,22} and could provide useful lessons for addressing music celebrities' endorsements of unhealthy food and beverage products.

The food industry capitalizes on music celebrities' popularity with youth by engaging in multi-million-dollar endorsement deals. In 2012, Beyoncé Knowles signed an endorsement deal with Pepsi worth an estimated \$50 million, and Justin Timberlake received an estimated \$6 million for his involvement in the McDonald's "I'm lovin' it" tune.^{23,24} In addition, beverage industry publications credit Latino rapper Pitbull's endorsement of Dr Pepper with 4.6 million advertising impressions (ie, any views or exposure to ads) and boosting Dr Pepper sales among Latinos by 1.7%, despite overall declines in carbonated soft drink sales.²⁵ Although this instance is anecdotal, it is important to note the industry perceives it as an example of effective celebrity endorsements.

Recent food marketing research has focused predominantly on children <12 years old, whereas adolescents' exposure and response to advertising have been relatively understudied. More research on

adolescents and food marketing is needed, especially in recognition of adolescents' unique standing as impressionable consumers with more purchasing power and independence than their younger counterparts.^{26,27} In fact, research demonstrates that adolescents can be highly impulsive with purchases, in part because of peer pressure,²⁸ fear of negative evaluation,²⁸ and underdeveloped self-control systems.²⁹ This descriptive study was designed to examine the use of music celebrity endorsements of food and nonalcoholic beverage products. We aimed to determine the number and type of music celebrity endorsements, evaluate the nutritional quality of endorsed products, and assess how popular these music celebrities are among adolescents and the general public.

METHODS

We listed the top 100 songs that appeared on the 2013 and 2014 Billboard Hot 100 Chart, which ranks the year's "most popular songs across all genres, ranked by radio airplay audience impressions as measured by Nielsen Music, sales data as compiled by Nielsen Music and streaming activity data provided by online music sources."³⁰ These songs were used to identify celebrities associated with various endorsements. Some celebrities appeared multiple times on the lists, and some songs had multiple celebrities listed as performers. Thus, we identified 163 unique music celebrities for the study. We then cataloged every endorsement associated with each music celebrity between 2000 to 2014 by searching for celebrity names on AdScope, an advertisement database that contains all forms of ads (eg, television, radio) dating back to 1997. Researchers also searched for official commercials on YouTube or endorsement

announcements in news media sources.

After we listed endorsements associated with each celebrity who appeared on the 2013 and 2014 Billboard Hot 100 Chart, a research assistant blind to the purpose of the study sorted all endorsed brands into the following 11 categories: food and nonalcoholic beverages, automotive, consumer goods (eg, makeup, headphones), communications (eg, cell phone companies), finance (eg, credit cards), sports (eg, Nike), retail, tobacco and alcohol, services (eg, Google), airlines, and other. These categories were developed on the basis of the sponsorship categories created by the marketing firms.³¹

To assess the popularity of these music celebrities among adolescents, we compiled a list of music celebrities who appeared on the Teen Choice Award nomination lists between the years 2000 and 2014. The Teen Choice Awards is an annual awards show that uses adolescent viewers' votes to honor celebrities in music, movies, sports, television, and fashion.³² We then created endorsement profiles that indicated the number and type of endorsements associated with each celebrity in the sample and the number of times each celebrity was nominated for a Teen Choice Award.

To assess the general population's exposure to the celebrities and their food and nonalcoholic beverage endorsements, 2 raters independently searched YouTube for the celebrity and product or company name and cataloged the number of views associated with each of the videos. Inclusion criteria for YouTube videos consisted of official commercials, promotional videos, or music videos in which the celebrity, their song, or the endorsed product was featured that were uploaded between 2000 and 2014. Even though the Billboard Hot 100 list is restricted to 2 years for our study, capturing 14 years of endorsements

enabled us to create a comprehensive profile that portrays a fuller picture of their prominence as an endorser. YouTube videos in languages other than English were excluded. Viewership data for YouTube videos represent the total number of views as of January 2016.

Nutritional Analysis

We reviewed all advertisements featuring endorsements by music celebrities in the sample. A celebrity was considered to endorse a product if an advertisement featured the celebrity, the celebrity's song, or a music group to which the celebrity formerly belonged at the time of the endorsement. The nutrition information for products associated with celebrities' endorsements was collected from official company Web sites or actual nutrition labels.

A nutrition score for each endorsed food product was generated from Nutrient Profile Model (NPM). The NPM was selected because it has been used in food marketing research studies and is used as the standard for child-targeted food marketing in United Kingdom.³³⁻³⁵ The NPM provides a score that represents the healthfulness of each food product based on nutrient content. Foods gain points for nutrients that should be limited (calories, saturated fat, sodium, or sugar) and lose points for nutrients that are encouraged (fruits, vegetables, nuts, fiber, and protein). Higher scores represent less healthful products, whereas lower scores represent products with healthy qualities. To translate the NPM score to an easy-to-understand scale, the final NPM score was converted to a Nutrient Profile Index (NPI), where 1 is the worst nutrition score and 100 is the best score. The NPI has been used in previous food marketing research.³⁶ The NPI uses the following formula: $NPI \text{ score} = -2 \times NPM \text{ score} + 70$. A score ≥ 64 is considered the threshold for products that can be advertised to

children in the United Kingdom. One limitation of the NPM is that it codes some sugar-sweetened beverages (SSBs) as healthy. Therefore, we coded nonalcoholic beverages into 11 drink categories, 3 sugary drink subcategories, and 5 other drink categories as outlined in the Rudd Center's Sugary Drink FACTS Report.³⁷

In some instances, celebrities endorsed a brand that did not mention a specific product or a brand that offered mixed meals (eg, fried chicken, biscuits, cole slaw) that could not easily be entered in the NPM formula. In those cases, we generated the NPM scores based on the Rudd Center's Fast Food FACTS Report,³⁸ a comprehensive analysis of all menu items for a variety of food and nonalcoholic beverage brands. In cases where data were not available through the FACTS report, we assessed the nutrition information for every food product associated with that brand and averaged the NPI scores of the entire line of products listed on the company Web site. Five companies (Chili's, Pizza Hut, Longhorn Steakhouse, Wingstop, and Michael Jackson's Premium Chocolate) were excluded from the nutritional analyses because the serving size information for most items was unavailable or unusable (eg, "serving size equals one slice").

Marketing Analysis

To assess the popularity of the celebrities among adolescents, we compiled a list of music celebrities nominated for a Teen Choice Award between the years 2000 and 2014. We cross-referenced the list of Teen Choice Award nominees with celebrities in our sample who endorsed food and nonalcoholic beverages. To assess broad audience exposure (ie, adults, adolescents, children), we quantified the number of YouTube video views associated with the celebrities' food

and nonalcoholic beverage brand endorsements.

RESULTS

We identified 590 endorsements associated with 163 unique music celebrities in the sample. Consumer goods was the largest endorsement category (26%), followed by food and nonalcoholic beverages (18%) and retail (11%). We cataloged 107 food and beverage brand endorsements, although several brands appeared multiple times because multiple celebrities endorsed the brand. Overall, full-calorie soft drinks were the most commonly endorsed food or nonalcoholic beverage product. In contrast, water-related endorsements appeared 3 times in the form of a Brita filter endorsement, CORE Hydration, and WAT-AAH!'s water brand. The celebrities with the highest number of food and nonalcoholic beverage endorsements were Baauer ($N = 5$), will.i.am ($N = 4$), Britney Spears ($N = 3$), Justin Timberlake ($N = 3$), Maroon 5 ($N = 3$), Pitbull ($N = 3$), and Jessie J ($N = 3$) (Table 1).

Endorsements by Food or Beverage Brand

There were a total of 107 food and beverage endorsements in the sample, associated with 38 parent companies. Fifty-one music celebrities were associated with 69 beverage references in 63 beverage advertisements (ie, ads were defined as television commercials, print ads, or promotional videos [eg, concert sponsored by Pepsi]) (Table 2). The number of references (ie, references were defined as the image of beverage can or bottle, verbal mention of the brand, or image of the parent company logo) exceeds the number of ads because 5 of the ads included a reference to multiple types of beverages (eg, Pepsi ad showing both Pepsi Regular can and Diet Pepsi can). Of the 69 beverage references, 49 were for SSBs, 7 were for non-SSBs

TABLE 1 Music Celebrities Ranked by Number of Food or Beverage Brand Endorsements

| Music Celebrity | Endorsed Food or Beverage Brands | Number of Food or Beverage Endorsements | Mean NPI Score for Food Products ^a | % of Endorsements That Are Food or Beverage Brands |
|-------------------|--|---|---|--|
| Baauer | A&W Restaurants, Dr Pepper, Hot Pockets, Red Bull, Pepsi Regular | 5 | 50.43 | 71 |
| will.i.am | Coca-Cola, Doritos, Dr Pepper, Pepsi Regular | 4 | 42.59 | 15 |
| Britney Spears | GG Tea, McDonald's, Pepsi Regular | 3 | 48 | 27 |
| Justin Timberlake | Chili's, ^b McDonald's, Pepsi Regular | 3 | 46.75 ^b | 25 |
| Jessie J | McDonald's, Pop Tarts, Cadbury's | 3 | 34.18 | 100 |
| Pitbull | Dr Pepper, Pepsi Regular, Sheets Energy Strips | 3 | 70 | 30 |
| Maroon 5 | Coca-Cola, Snapple | 2 | — | 18 |
| Chris Brown | Got Milk, Wrigley's Doublemint | 2 | 46.89 | 100 |
| Snoop Dogg | Hot Pockets, Monster Energy | 2 | 52.67 | 20 |
| Psy | Wonderful Pistachio, Nongshim Shin Ramyun Black Cup | 2 | 48 | 33 |
| Shakira | Pepsi Regular, Activia | 2 | 71.46 | 40 |
| Carrie Underwood | Vitamin Water, Hershey | 2 | 27.88 | 40 |
| Usher | Honey Nut Cheerios, Twix | 2 | 33.9 | 50 |
| Juicy J | CORE Hydration, Red Bull | 2 | — | 100 |
| Katy Perry | Pepsi Regular, PopChips | 2 | 51.86 | 22 |
| Blake Shelton | Pepsi Regular, Pizza Hut ^b | 2 | ^b | 40 |
| Nelly | Honey Nut Cheerios, Mike and Ike | 2 | 44.23 | 50 |
| Macklemore | Cracker Jack, Dr Pepper | 2 | 39 | 20 |
| One Direction | Nabisco, Pepsi Regular | 2 | 43.47 | 29 |
| Ne-Yo | Pepsi Regular | 1 | 65.67 | 40 |

—, indicates that the artist only endorsed beverage products, meaning NPI scores did not apply.

^a Lower scores represent less healthful foods.

^b Complete nutrition information was unavailable for this company, so it was excluded from analyses.

(ie, diet beverage or water), and 13 references were associated with verbal mention of the brand or image of the parent company logo (ie, no product shown). Full-calorie soft drinks were the largest category of endorsements overall ($N = 33$). In terms of company prominence in endorsements, PepsiCo endorsements appeared most frequently ($N = 23$), followed by the Coca-Cola Company ($N = 8$) and Dr Pepper Snapple ($N = 4$) (Table 3). Seven no-calorie nonalcoholic beverage endorsements included diet soft drinks ($N = 5$), water ($N = 1$), and milk ($N = 1$).

Twenty-nine music celebrities were associated with 38 food endorsements in our sample. Thirty-three of those

endorsements were unique because several brands (eg, McDonald's) were endorsed by multiple celebrities. Fast food was the largest category of food endorsements ($N = 6$), with McDonald's accounting for the most food endorsements in the sample. The remaining endorsements involved chips, candy, cereal, non-fast food restaurants, and miscellaneous snacks. There were no endorsements for fruits, vegetables, or whole grains, but one celebrity endorsed Wonderful Pistachio, which was the only food product with a healthy score (66/100).

Nutritional Quality of Celebrities' Endorsements

NPI scores were determined for 26 food brands. Results indicate

TABLE 2 Nutrition Information of Beverages Featured in Commercials, as Ranked by Company

| Company | Brand | Drink Category | Music Celebrity Associated With Each Drink Category |
|-------------------------|------------------------------|---|---|
| PepsiCo | Pepsi | Regular soda, full calorie | will.i.am, ^a Christina Aguilera, Justin Timberlake, ^a Britney Spears, Pitbull, Kelly Clarkson, Nicki Minaj, One Direction, Mariah Carey, Calvin Harris, Blake Shelton, ^a P!nk, Enrique Iglesias, Shakira, Beyoncé, Lee Brice, Wiz Khalifa, Michael Jackson |
| PepsiCo | Pepsi | Parent company logo or brand name mention only ^b | Katy Perry, Bruno Mars, Ne-Yo, Hunter Hayes |
| PepsiCo | Diet Pepsi | Other, diet drink (soda) | Baauer, will.i.am, ^a Justin Timberlake ^a |
| PepsiCo | Mountain Dew | Regular soda, full calorie | Mac Miller, Jason Aldean, Brantley Gilbert |
| PepsiCo | Lipton Iced Tea | Iced tea, full calorie | Lady Antebellum, American Authors |
| PepsiCo | Pepsi-Cola: Real Sugar | Regular soda, full calorie | Blake Shelton ^a |
| PepsiCo | Gatorade Thirst Quenchers | Parent company logo or brand name mention only ^b | Lil Wayne |
| PepsiCo | Brisk (Lipton) | Iced teas, full calorie | Eminem |
| Coca-Cola | Coke | Regular soda, full calorie | Christina Aguilera, Daft Punk, Calvin Harris, Jay Z, Of Monsters and Men |
| Coca-Cola | Glaceau Vitamin Water | Flavored water, full calorie | Alicia Keys, Kelly Clarkson, Carrie Underwood |
| Coca-Cola | Coke | Parent company logo or brand name mention only ^b | will.i.am, Maroon 5 |
| Coca-Cola | Sprite | Regular soda, full calorie | Imagine Dragons, Wale, Drake |
| Coca-Cola | Diet Coke | Other, diet drink (soda) | Taylor Swift |
| Coca-Cola | Fuze | Parent company logo or name only | Rihanna |
| Dr Pepper Snapple Group | Dr Pepper | Regular soda, full calorie | will.i.am, Macklemore, Pitbull, Baauer ^a |
| Dr Pepper Snapple Group | Diet Dr Pepper | Other, diet drink (soda) | Baauer ^a |
| Dr Pepper Snapple Group | Snapple | Iced tea, full calorie | Maroon 5 |
| Red Bull | Red Bull | Energy drink, full calorie | Pharrell, AWOLNATION |
| Red Bull | Red Bull | Parent company logo or brand name mention only ^b | Of Monsters and Men, Baauer |
| Nestle | Nesquick | Children's drinks, full and reduced calorie | Ariana Grande ^a |
| Nestle | Nestea | Iced tea, full calorie | Nico & Vinz |
| Nestle | Nescafe | Parent company logo or brand name mention only ^b | Mariah Carey |
| Nestle | Nespresso | Iced tea or coffee, reduced sugar | Lana Del Rey |
| Monster Energy Company | Monster Energy | Parent company logo or brand name mention only ^b | Snoop Dogg |
| Starbucks | Starbucks | Parent company logo or brand name mention only ^b | Lady Gaga |
| Vita Coco | Vita Coco Pure Coconut Water | Flavored water, full calorie | Rihanna |
| Celsius | Celsius | Energy drink, reduced sugar | Flo Rida |
| Wat-Ahh! | Wat-Ahh! | Other, plain water | Ariana Grande |
| Core Hydration | Core Hydration | Parent company logo or brand name mention only ^b | Juicy J |
| Got Milk? | Got Milk? | Other, low- and no-fat milk | Chris Brown |

^a Indicates that the music celebrity endorsed SSBs and non-SSBs.

^b Indicates that the ad featured only the parent company logo or verbal mention of the brand or did not feature a product with a label indicating diet or SSB.

that Doritos, Cracker Jack, Mike and Ike candy, Nabisco, Eckrich, Kentucky Fried Chicken, McDonald's, Burger King, Hot Pockets, A&W Restaurants, Wrigley's gum, Chipotle, Cadbury, Hershey's, Pop-Tarts, Twix, Nongshim USA, Dairy Queen, Honey Nut Cheerios, and PopChips had NPI scores <64, indicating that they are energy dense and nutrient poor (Table 1). In contrast, Big Red gum, 5 Gum, Taco Bell, Subway, Activia, and Sheets Energy Sheets were the only

brands endorsed by these celebrities that had NPI scores of ≥ 64 .

Endorsement Viewership and Teen Choice Award Ratings

Celebrities in the sample appeared frequently on the nominee lists for the Teen Choice Awards between 2000 and 2014. Of the 163 celebrities in the sample, 102 appeared at least once on the Teen Choice Award nominee lists. Additionally, there

were a total of 312 849 504 views of the YouTube video versions for food and beverage endorsements associated with celebrities in the sample. Rihanna's 2006 song "We Ride," which promotes the Coca-Cola product Fuze, had a total of 61 712 783 views since being first uploaded to her YouTube VEVO channel in 2009³⁹ (Table 4), the most YouTube views in our sample. Pepsi's 2004 "We Will Rock You" commercial featuring Britney Spears, P!nk,

TABLE 3 Food and Beverage Company Endorsements Ranked by Number of Endorsing Artists

| Company | Brand | No. Artists Endorsed | Music Celebrity Name |
|-------------------------|--------------------|----------------------|---|
| PepsiCo | Pepsi | 23 | Bauuer, Beyoncé, Blake Shelton, Britney Spears, Bruno Mars, Calvin Harris, Christina Aguilera, Enrique Iglesias, Hunter Hayes, Justin Timberlake, Katy Perry, Kelly Clarkson, Lee Brice, Mariah Carey, Michael Jackson, Ne-Yo, Nicki Minaj, One Direction, P!nk, Pitbull, Shakira, will.i.am, Wiz Khalifa |
| | Mountain Dew | 4 | Brantley Gilbert, Jason Aldean, Lil Wayne, Mac Miller |
| Coca-Cola | Coca-Cola | 7 | Calvin Harris, Christina Aguilera, Daft Punk, Jay-Z, Maroon 5, Of Monsters and Men, will.i.am |
| | Diet Coke | 1 | Taylor Swift |
| Red Bull GmbH | Sprite | 3 | Drake, Imagine Dragons, Wale |
| | Red Bull | 5 | AWOLNATION, Bauuer, Juicy J, Of Monsters and Men, Pharrell |
| Dr Pepper Snapple Group | Dr Pepper | 4 | Bauuer, Macklemore, Pitbull, will.i.am |
| Energy Brands/ Glacéau | Glacéau | 3 | Alicia Keys, Carrie Underwood, Kelly Clarkson |
| | Vitamin Water | | |
| McDonald's | McDonald's | 3 | Britney Spears, Jessie J, Justin Timberlake |
| General Mills | Honey Nut Cheerios | 2 | Nelly, Usher |
| | Hot Pockets | 2 | Bauuer, Snoop Dogg |
| Nabisco (Mondelez) | Nabisco | 2 | 5 Seconds of Summer, One Direction |

TABLE 4 Music Celebrities' Popularity Among Adolescents

| Music Celebrity Name | Endorsed Food or Beverage Brand | Number of Teen Choice Award Years ^a | Number of YouTube Views ^b |
|----------------------|----------------------------------|--|--------------------------------------|
| Chris Brown | Got Milk, Wrigley's Doublemint | 20 | 29969 |
| Britney Spears | GG Tea, McDonald's, Pepsi | 12 | 56395174 |
| Beyoncé | Pepsi | 11 | 54695715 |
| Usher | Honey Nut Cheerios, Twix | 11 | 31254 |
| Carrie Underwood | Hershey, Vitamin Water | 10 | 138884 |
| Justin Timberlake | Chili's, McDonald's, Pepsi | 9 | 846424 |
| Rihanna | Fuze, Vita Coco | 9 | 61929844 |
| Eminem | Lipton Iced Tea | 8 | 4447961 |
| Christina Aguilera | Coca-Cola Regular, Pepsi | 7 | 579272 |
| Taylor Swift | Diet Coke | 7 | 514091 |
| Pitbull | Dr Pepper, Pepsi | 7 | 247227 |
| Selena Gomez | Borden Milk | 6 | 464925 |
| Kelly Clarkson | Pepsi, Vitamin Water | 6 | 120657 |
| Maroon 5 | Coke, Snapple | 6 | 90851 |
| Katy Perry | Pepsi, PopChips | 5 | 1217070 |
| Nicki Minaj | Pepsi | 5 | 177125 |
| Nelly | Honey Nut Cheerios, Mike and Ike | 5 | 22158 |
| Bruno Mars | Pepsi | 4 | 18873728 |
| Coldplay | Chipotle | 3 | 9126275 |
| One Direction | Nabisco, Pepsi | 3 | 7673116 |
| Shakira | Pepsi, Activia | 3 | 4449956 |
| Mariah Carey | Nescafe, Pepsi | 3 | 1010914 |
| Juicy J | CORE Hydration, Red Bull | 1 | 26367501 |

^a Teen Choice Award Data 2000–2014.^b YouTube as of January 2016.

and Beyoncé was the second most watched video in the sample, with >42 million views since the video was loaded on YouTube in 2009⁴⁰ (Table 4). Pepsi's 23 celebrity endorsement commercials had the most collective YouTube views in the sample ($N = 160\,293\,981$) (Table 5).

DISCUSSION

This descriptive study demonstrates that music celebrities often endorse energy-dense, nutrient-poor products. Food and nonalcoholic beverage brands were the second largest endorsement category behind consumer goods (eg, fragrances, makeup). Full-calorie soft drinks were the largest category of food or nonalcoholic beverage endorsements, and Bauuer, will.i.am, Britney Spears, Justin Timberlake, Maroon 5, Pitbull, and Jessie J had the most food/nonalcoholic beverage endorsements. Celebrity ads appear to be popular, with >312 million viewers watching the 94 videos associated with celebrity food and nonalcoholic beverage endorsements in this sample on YouTube alone. However, it is impossible to conclude that all these viewers are indeed unique because a portion of the views may be repeated exposure. Although YouTube does not provide demographic data on viewers, the frequent appearance of these celebrities on the Teen Choice Award nomination lists suggests high levels of popularity among adolescents.

Obesity has become such a pressing public health issue that society must acknowledge the human suffering and costs associated with diabetes, obesity, and associated comorbidities. Musicians, actors, and other celebrities can be tremendously influential, particularly for the young fan base that may be swayed by their endorsements. Celebrities should leverage their influence to promote more healthful messages, and more effort should be made to reduce the exposure of children and adolescents to marketing,

TABLE 5 Music Celebrities Ranked by Number of YouTube Views

| Endorsed Food or Beverage Brand | Music Celebrity Names | Number of YouTube Views ^a |
|---------------------------------|--|--------------------------------------|
| Pepsi | Baauer, Beyoncé, Blake Shelton, Britney Spears, Bruno Mars, Calvin Harris, Christina Aguilera, Enrique Iglesias, Hunter Hayes, Justin Timberlake, Katy Perry, Kelly Clarkson, Lee Brice, Mariah Carey, Michael Jackson, NeYo, Nicki Minaj, One Direction, Pitbull, P!nk, Shakira, will.i.am, Wiz Khalifa | 160 293 981 |
| Red Bull | AWOLNATION, Baauer, Juicy J, Of Monsters and Men, Pharrell | 31 948 643 |
| CORE Hydration | Juicy J | 26 363 187 |
| Chipotle | Coldplay | 9 126 275 |
| Nestea | Nico & Vinz | 7 855 423 |
| Lipton Brisk | Eminem | 4 447 961 |
| Coca-Cola Regular | Calvin Harris, Christina Aguilera, Daft Punk, Maroon 5, Of Monsters and Men, will.i.am | 1 396 110 |
| Sprite | Drake, Imagine Dragons, Wale | 1 284 256 |
| Popchips | Katy Perry | 1 213 441 |
| McDonald's | Britney Spears, Jessie J, Justin Timberlake | 385 008 |

^a YouTube, January 2016.

particularly for unhealthy food and nonalcoholic beverages. Every year, American children see 4700 advertisements, and adolescents view 5900 advertisements.¹ The scale of this exposure is similar to that of youth-targeted tobacco advertisements, which permeated television, video games, sporting events, and movies.^{41–44} However, voluntary corporate pledges related to food marketing (eg, Children's Food and Beverage Advertising Initiative) focus only on reducing marketing to children <12 years old, whereas tobacco policies restrict advertisements targeted to anyone <18 years old.

Given the heavy targeting of adolescents^{36–38} and the amount of money adolescents spend on food and beverages, voluntary food marketing reduction pledges should expand to include adolescents. Expanding voluntary pledges to include adolescents would also be consistent with the food marketing reduction recommendations published by the American Academy of Pediatrics (2006),⁴⁵ which encourage pediatricians to support local and national efforts to reduce food marketing while also counseling patients to limit screen time. Finally, grassroots action and media

attention can help make celebrity food endorsements a public liability in the same way these methods have been used for other celebrities who endorsed tobacco.²¹ Although a number of professional athletes endorsed tobacco in the early 1900s, policy changes and shifts in public perception of smoking coincided with declining endorsements; when Liu Xiang, an athlete on the Chinese Olympic team, endorsed cigarettes in 2006, public outcry led him to be labeled an "inappropriate" ambassador for tobacco, demonstrating a strong shift in public opinion about endorsements.²²

This study has some limitations. We may not have captured every endorsement that occurred between 2000 and 2014, which would lead to an underestimate of exposure to celebrity endorsements. Furthermore, we do not have direct adolescent viewership data, and 21 commercials were not available on YouTube, thus leading to conservative estimates of exposure. One limitation related to assessing popularity among adolescents includes criticism of the Teen Choice Awards' lack of transparency in whether the winners are ultimately determined by adolescents' votes or by the

show's corporate producers.⁴⁶ This limitation may lead to inaccuracies in determining celebrities' popularity among adolescents.

Future research should examine the effect of music celebrities' food and nonalcoholic beverage endorsements on consumption, particularly for children and adolescents. Additionally, researchers should examine the effect of music celebrity endorsement on youth attitudes toward food brands and purchase intentions. The popularity of music celebrities among adolescents makes them uniquely poised to serve as positive role models, so these celebrities should be aware that their endorsements could exacerbate society's struggle with obesity and endorse healthy products instead.

These results can inform policies designed to address the use of celebrities in food marketing. Many food and beverage companies have agreed not to target children <12 years old, but these pledges should include adolescents as well. To reduce exposure to energy-dense food and beverage endorsements, research is needed on the regulations of food marketing in environments highly populated by both children and adolescents.

ACKNOWLEDGMENTS

We thank the following research assistants from the NYU SeedProgram for their valuable assistance in collecting data and preparing the report: Margaret Eby, Caitlin Crowley, Tami Hardoby, Elizabeth Stephens, Natasha Pandit, Yrvane Pageot, Silvia Beltran, Rachel Kuo, Josh Choe, Alex Bragg, Carolyn Fan, Caroline Mundela, and Carola Zurob.

ABBREVIATIONS

NPI: Nutrient Profile Index
 NPM: Nutrient Profile Model
 SSB: sugar-sweetened beverage

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: This study was supported by the NIH Early Independence Award (DP50D021373-01) from the NIH Office of the Director. Funded by the National Institutes of Health (NIH).

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

REFERENCES

1. McGinnis JM, Gootman JA, Kraak VI, eds. *Food Marketing to Children and Youth: Threat or Opportunity?* Washington, DC: National Academies Press; 2006
2. Halford JCG, Boyland EJ, Hughes G, Oliveira LP, Dovey TM. Beyond-brand effect of television (TV) food advertisements/commercials on caloric intake and food choice of 5–7-year-old children. *Appetite*. 2007;49(1):263–267
3. Halford JCG, Boyland EJ, Hughes GM, Stacey L, McKean S, Dovey TM. Beyond-brand effect of television food advertisements on food choice in children: the effects of weight status. *Public Health Nutr*. 2008;11(9):897–904
4. Halford JCG, Gillespie J, Brown V, Pontin EE, Dovey TM. Effect of television advertisements for foods on food consumption in children. *Appetite*. 2004;42(2):221–225
5. Harris JL, Bargh JA, Brownell KD. Priming effects of television food advertising on eating behavior. *Health Psychol*. 2009;28(4):404–413
6. Hastings G, Stead M, McDermott L, et al. *Review of Research on the Effect of Food Promotion to Children*. Glasgow, United Kingdom: Center for Social Marketing, University of Strathclyde; 2003
7. McClure AC, Tanski SE, Gilbert-Diamond D, et al. Receptivity to television fast-food restaurant marketing and obesity among U.S. youth. *Am J Prev Med*. 2013;45(5):560–568
8. World Health Organization. A Framework for Implementing the Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children. 2012. Available at: www.who.int/dietphysicalactivity/framework_marketing_food_to_children/en/. Accessed June 1, 2012
9. Brownell KD, Horgen KB. *Food Fight: The Inside Story of the Food Industry, America's Obesity Crisis, and What We Can Do About It*. New York, NY: McGraw-Hill; 2004
10. International Association for the Study of Obesity. A Junk-Free Childhood: Responsible Standards for Marketing Foods and Beverages to Children. 2011. Available at: www.iaso.org/site_media/uploads/A_Junk-free_Childhood_2012.pdf. Accessed June 1, 2012
11. Nestle M. Food marketing and childhood obesity—a matter of policy. *N Engl J Med*. 2006;354(24):2527–2529
12. Federal Trade Commission. Perspectives on Marketing, Self-Regulation, and Childhood Obesity. Washington, DC: Federal Trade Commission; July 2008. Available at: www.ftc.gov/os/2008/07/P064504foodmktngreport.pdf. Accessed February 4, 2010
13. Kamins M. Celebrity and non-celebrity advertising in a two-sided context. *J Advert Res*. 1989;29(3):34–42
14. Ohanian R. Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. *J Advert*. 1990;19(3):39–52
15. Till BD, Shimp TA. Endorsers in advertising: the case of negative celebrity information. *J Advert*. 1998;27(1):67–82
16. Rideout V. The Common Sense Census: Media Use by Tweens and Teens. Common Sense Media. 2015. Available at: <https://www.common SenseMedia.org/research/the-common-sense-census-media-use-by-tweens-and-teens>. Accessed April 6, 2016
17. Rideout VJ, Foehr UG, Roberts DF. Generation M2: Media in the Lives of 8- to 18-Year-Olds. The Kaiser Family Foundation. 2010. Available at: <http://kff.org/other/event/generation-m2-media-in-the-lives-of/>. Accessed April 6, 2016
18. Primack BA, Nuzzo E, Rice KR, Sargent JD. Alcohol brand appearances in US popular music. *Addiction*. 2012;107(3):557–566
19. Primack BA, McClure AC, Li Z, Sargent JD. Receptivity to and recall of alcohol brand appearances in U.S. popular music and alcohol-related behaviors. *Alcohol Clin Exp Res*. 2014;38(6):1737–1744
20. Pringle H, Binet L. How marketers can use celebrities to sell more effectively. *J Consum Behav*. 2005;4(3):201–214
21. Brownell KD, Warner KE. The perils of ignoring history: Big Tobacco played dirty and millions died. How similar is Big Food? *Milbank Q*. 2009;87(1):259–294
22. Lee K, Fooks G, Wander N, Fang J. Smoke rings: towards a comprehensive tobacco free policy for the Olympic Games. *PLoS One*. 2015;10(8):e0130091
23. In Beyoncé Deal, Pepsi Focuses on Collaboration. . December 9, 2012. Available at www.nytimes.com/2012/12/10/business/media/in-beyonce-deal-pepsi-focuses-on-collaboration.html?_r=0
24. Big new deal for McDonald's. *The New York Times*. September 3, 2003. Available at: www.nytimes.com/2003/09/03/business/media/03ADCO.html
25. Mosaic Awards: Winning Campaigns. AdAge. September 24, 2012. Available at: www.adweek.com/sa-article/mosaic-awards-winning-campaigns-143849
26. Grier SA, Kumanyika S. Targeted marketing and public health. *Annu Rev Public Health*. 2010;31:349–369
27. Story M, French S. Food advertising and marketing directed at children and adolescents in the US. *Int J Behav Nutr Phys Act*. 2004;1(1):3
28. Cheng YH, Chuang SC, Wang SM, Kuo S. The effect of companion's gender on impulsive purchasing: the

- moderating factor of cohesiveness and susceptibility to interpersonal influence. *J Appl Soc Psychol*. 2013;43(1):227–236
29. Thamotharan S, Lange K, Zale EL, Huffhines L, Fields S. The role of impulsivity in pediatric obesity and weight status: a meta-analytic review. *Clin Psychol Rev*. 2013;33(2):253–262
 30. Hot 100 songs. Billboard. 2013. Available at: www.billboard.com/charts/year-end/2013/hot-100-songs
 31. Meenaghan J. Commercial sponsorship. *Eur J Mark*. 1983;17(7):5–71
 32. Teen Choice Awards. 2000–2013. Available at: www.teenchoiceawards.com/
 33. Rayner M, Scarborough P, Boxer A, Stockley L. Nutrient Profiles: Development of Final Model. December 2005. Available at: www.food.gov.uk/multimedia/pdfs/nutprofr.pdf. Accessed February 4, 2014
 34. Scarborough P, Boxer A, Rayner M, Stockley L. Testing nutrient profile models using data from a survey of nutrition professionals. *Public Health Nutr*. 2007;10(4):337–345
 35. Lobstein T, Davies S. Defining and labelling “healthy” and “unhealthy” food. *Public Health Nutr*. 2009;12(3):331–340
 36. Rudd Center for Food Policy and Obesity. Cereal F.A.C.T.S.: Evaluating the Nutrition Quality and Marketing of Children’s Cereals. 2009. Available at: www.rwjf.org/content/dam/farm/legacy-parents/rwjf47984. Accessed April 1, 2014
 37. Rudd Center for Food Policy and Obesity. Sugary Drink F.A.C.T.S.: Evaluating the Nutrition Quality and Marketing of Children’s Cereals. 2014. Available at: www.sugarydrinkfacts.org/resources/SugaryDrinkFACTS_Report.pdf. Accessed January 3, 2016
 38. Rudd Center for Food Policy and Obesity. Fast Food F.A.C.T.S.: Food Advertising to Children and Teens Score. 2013. Available at: http://fastfoodmarketing.org/media/FastFoodFACTS_Report.pdf. Accessed April 1, 2014
 39. Rihanna. We Ride [Video]. YouTube. November 23, 2009. Available at: <https://www.youtube.com/watch?v=jlvY1o6XKwA>. Accessed January 23, 2016
 40. Spears B, Beyoncé, Pink. We Will Rock You (Pepsi) [Video]. YouTube. February 2, 2011. Available at: <https://www.youtube.com/watch?v=pES8SezkV8w>. Accessed April 21, 2015
 41. Moodie C, MacKintosh AM, Brown A, Hastings GB. Tobacco marketing awareness on youth smoking susceptibility and perceived prevalence before and after an advertising ban. *Eur J Public Health*. 2008;18(5):484–490
 42. Chapman S. Advertising and smoking: A review of the evidence. In British Medical Association (Ed.), *Smoking Out the Barons: The Campaign Against the Tobacco Industry*. New York, NY: John Wiley; 1986
 43. US Department of Health and Human Services. Reducing the Health Consequences of Smoking: 25 Years of Progress. 1989. Available at: <https://profiles.nlm.nih.gov/ps/access/NNBBXS.pdf>. Accessed November 17, 2015
 44. Blum A. The Marlboro Grand Prix. Circumvention of the television ban on tobacco advertising. *N Engl J Med*. 1991;324(13):913–917
 45. Strasburger VC; Committee on Communications, American Academy of Pediatrics. Children, adolescents, and advertising. *Pediatrics*. 2006;118(6):2563–2569
 46. Yahr E. Teen Choice Awards: claims of “rigged” winners cause teen meltdown on Twitter. *The Washington Post*, August 2014. Available at: <https://www.washingtonpost.com/news/arts-and-entertainment/wp/2014/08/11/teen-choice-awards-claims-of-rigged-winners-cause-teen-meltdown-on-twitter/>. Accessed January 14, 2016

Popular Music Celebrity Endorsements in Food and Nonalcoholic Beverage Marketing

Marie A. Bragg, Alysa N. Miller, Juleen Elizee, Shatabdi Dighe and Brian D. Elbel
Pediatrics; originally published online June 6, 2016;
DOI: 10.1542/peds.2015-3977

| | |
|---|--|
| Updated Information & Services | including high resolution figures, can be found at: /content/early/2016/06/02/peds.2015-3977.full.html |
| References | This article cites 24 articles, 2 of which can be accessed free at: /content/early/2016/06/02/peds.2015-3977.full.html#ref-list-1 |
| Subspecialty Collections | This article, along with others on similar topics, appears in the following collection(s): Media /cgi/collection/media_sub Obesity /cgi/collection/obesity_new_sub |
| Permissions & Licensing | Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: /site/misc/Permissions.xhtml |
| Reprints | Information about ordering reprints can be found online: /site/misc/reprints.xhtml |

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2016 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Popular Music Celebrity Endorsements in Food and Nonalcoholic Beverage Marketing

Marie A. Bragg, Alysa N. Miller, Juleen Elizee, Shatabdi Dighe and Brian D. Elbel
Pediatrics; originally published online June 6, 2016;
DOI: 10.1542/peds.2015-3977

The online version of this article, along with updated information and services, is located on the World Wide Web at:
</content/early/2016/06/02/peds.2015-3977.full.html>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2016 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

