



HHS Public Access

Author manuscript

Int J Clin Pract. Author manuscript; available in PMC 2018 November 01.

Published in final edited form as:

Int J Clin Pract. 2017 November ; 71(11): . doi:10.1111/ijcp.13026.

“I only watch for the commercials”: Messages about weight, eating, and race in Super Bowl advertisements

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Abstract

Objective—Health experts and communication experts assert that the media influence individuals' health. Yet, incongruously, the public, policy-makers, and the media themselves appear reticent to accept that the media could have extensive negative influence on health.

Methods—The current study examined all ads that aired from Super Bowl XLVI through Super Bowl XLIX ($N=241$) using a detailed, multistep coding process.

Results—Ads had similar racial/ethnic diversity in the full sample and food/beverage ads. A minority (14.5%) of advertisements contained actors with overweight/obesity, who were more likely to be White and less likely to be Hispanic compared with race/ethnicity in all ads. Humor and tone were similarly present whether or not the ads included actors with overweight/obesity.

Conclusions—Findings are striking given the high prevalence of overweight/obesity in the United States, particularly among Black and Hispanic populations, and the comparatively low representation of actors with overweight/obesity in Super Bowl advertisements. Surprising weight findings may signal a change in how the media portray body-size norms (away from exclusively thin), although representations remain disproportionate from actual body-size distributions in the United States.

Keywords

Super Bowl; advertisements; weight; race; content analysis

The Super Bowl is the biggest advertising day of the year, with each game attracting more than 100 million viewers[1] and marketers investing more than \$4 million per 30-second commercial[2]. Wide viewership means that advertisements provide messages to diverse audiences[3] that reflect the racial/ethnic diversity of the US population¹. In addition to overt messages about products, advertisement content can influence viewers' perceptions of

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Author contributions: AI, GS developed the coding manual and coded the material, and wrote the first draft of the manuscript. JL supervised the coding manual development and coding process, analyzed, and interpreted data, and wrote the final draft of the manuscript. CG critically revised the manuscript, and mentored and supervised the research process.

Conflict of Interest: The authors declare no conflict of interest.

¹Nielsen[3]: 81.4 million White, 12.4 million Black, 10.2 million Hispanic, and 4.8 million Asian viewers.

desirable and normal traits[4]. The popularity of Super Bowl commercials and their potential influence[5] make them an important area for research[6]. Despite their popular appeal, very limited work has evaluated Super Bowl advertisement content, and no research has described content related to weight during this influential viewing event.

Health experts[7] and communication experts[8] recommend limiting exposure to advertising. Despite growing concerns and supporting evidence that negative health attitudes and behaviors are communicated and influenced by the media[9, 10], it is perhaps remarkable that the media, the public, and policy-makers remain—at best—skeptical about the effect of media on health[11]. Strasburger and colleagues[11] cogently list potential factors that could account for this apparent denial, and points out a striking paradox: why would marketers spend \$4 million for 30-seconds of ad time unless they believed these ads would influence consumers? Scholarly research has consistently found profound media influences on both attitudes and behaviors[9, 10], including attitudes about overweight/obesity [12, 13]. Evidence suggests that advertising is related to obesity beyond the potential effects of sedentary behavior or mindless eating associated with television viewing[14]. Potential mechanisms include biasing food preferences towards unhealthy foods or encouraging unrealistic perceptions of invulnerability to health consequences[4]. Within the obesity and eating disorders literatures, social comparisons (judging whether another person is similar to the perceiver, thinner, or heavier) influence the perceiver's body dissatisfaction[15], the development of eating disorders[16], and when weight-related discrimination is perceived, weight gain[17].

Weight bias (prejudice against people because of excess weight) has received increasing scholarly, clinical, and public attention in recent decades[6]. Despite increased overweight/obesity prevalence and severity[18], bias against individuals with overweight/obesity² has also *increased* rather than decreased[19, 20]. One compelling study, conducted in 1961 and 2001, found that among varied traits that could influence the degree to which children dislike other children (e.g., wheelchair, facial disfigurement), children's least-preferred child trait was overweight/obesity at both times, and was drastically less preferred in 2001 than 1961, despite the increase in pediatric overweight/obesity over those decades[20]. One instrument that could positively or negatively influence public perceptions of overweight/obesity and people with overweight/obesity is the media. News media coverage of the public-health obesity problem has increased with its increasing prevalence, and has represented views about where to lay the blame for overweight/obesity[13], including the environment (e.g., increased portion sizes) and personal responsibility (e.g., lack of self-control)[21]. An attribution of personal responsibility as the cause of overweight/obesity is closely linked with weight stigmatization; for example, people may be blamed for their overweight/obesity by others who believe they are lazy or gluttonous[21, 22]. Moreover, an experimental study found that weight-loss commercials that use “before” (i.e., actor with excess weight) and “after” (i.e., actor without excess weight) images as an advertising strategy for weight-loss products increased perceptions that weight was under an individual's

²Consistent with the style guidelines of the American Psychological Association and American Medical Association, several clinical-research organizations specializing in obesity have adopted the policy of using person-first language (“individuals with overweight/obesity”) rather than disease/disability-first language (“overweight/obese individuals”).

control and thus their responsibility[23]. Yet, paradoxically, weight discrimination is associated with weight *gain* rather than weight loss[17].

Popular media cast fewer actors with overweight/obesity than healthy-weight³, which has long-since been criticized by researchers and clinicians for increasing disordered eating by promoting a thin body type as ideal[16]. Classic studies have shown decreased model body size over time in popular media outlets such as *Cosmopolitan*[24] and *Playboy*[25], although more recently, the trend appears to have reversed in some magazines[26, 27]. The influence of a larger body-size norm on disordered eating or weight loss motivation is not known. Unfortunately, some research on the media's portrayal of overweight/obesity suggests that increased visibility of actors with overweight/obesity does not necessarily translate to increased *ideal* body size because of concurrent weight bias. For example, when actors with overweight/obesity play major roles on television, their characters are generally portrayed as less attractive with fewer romantic involvements than thin characters[12]. Furthermore, humor focusing on weight in the popular media is often directed at a *person* (both men and women) with overweight/obesity, modeling weight stigmatization[28].

Previous research on weight and advertising has primarily focused on the influence food ads can have on children in particular. Food advertisements have been identified as an environmental contributor to the rise in obesity among youth[4, 7, 12, 29]. Yet despite the concern of parents, policy-makers, and pediatricians, a policy paper from the American Academy of Pediatrics estimated that children still view 50,000 television advertisements annually, of which nearly all market products high in sugar, salt and fat, and low in nutrients[7]. Moreover, concern about advertising continues to expand, as policy-makers have become interested in the effects of strategically targeting food marketing at specific socio-demographic groups, including Hispanic and Black individuals[7, 30]. Targeted marketing strategies include more advertising on Spanish-language and Black-targeted television channels than general markets, which has been shown for unhealthy foods such as cereal and sugar-sweetened beverages [30]. Exterior advertising, such as signs and billboards, have also been shown to market fast food to low-income communities more often than high-income communities, and Black- and Hispanic-majority communities more often than White-majority communities[31]. Targeted marketing and greater consumption of sugar-sweetened beverages and fast-food among Black and Hispanic youth[32, 33], as well as higher rates of obesity among Black and Hispanic youth and adults[18], all suggest that race and ethnicity continue to be vital characteristics to examine.

Aim of the current study

The current study sought to describe and examine representations of overweight/obesity in Super Bowl advertisements. Based on weight stigma research, we hypothesized that ads casting actors with overweight/obesity would use humor and a light-hearted tone rather than a serious tone. Based on food marketing research, we also hypothesized that food/beverage

³Traditionally, people with a body mass index 18.5-24.9 kg/m² are classified as having a “normal” weight. However, given the current *majority* of the US population with a body mass index in the “overweight/obese” range (>25 kg/m²), “normal” seems to be a misnomer. We use “healthy-weight” as a more accurate alternative when referring to people who do not appear to have excess weight.

advertisements would be more likely to include Black and Hispanic actors than other advertisements.

Method

Materials

Advertisements from the most recent Super Bowls are available to the public on the official Super Bowl website maintained by the National Football League[34], along with information about when they aired during the game. All advertisements ($N=241$) from Super Bowl XLVI through Super Bowl XLIX were viewed and coded for the current study. This research was determined exempt from institutional review by our university's research ethics board.

Coding of Advertisements

A detailed, multistep coding process quantified content of Super Bowl advertisements. Four undergraduate research assistants, supervised by the first author, served as coders. The first stage involved generating variables of interest and possible codes (i.e., the “coding manual”) and training coders. Research assistants were trained in the coding system by viewing and rating 10 advertisements, then discussing findings and problematic variables as a group. From these discussions, additional variables were added, descriptions of constructs were refined (e.g., “overweight/obesity” as “observable excess weight in the abdomen or face”), and coding parameters were elaborated (e.g., splitting “mood” into “tone” and “emotion”). The training process was repeated three times over three consecutive weeks to maximize agreement and minimize systematic differences in coding.

During the second stage, coders viewed advertisements and rated them according to the coding manual (Table 1 has descriptions of key variables and coding system). Advertisements were divided by the year they aired and coders were randomly assigned to be a primary coder on *two* Super Bowl years (with no two years coded by the same two coders). Coder agreement at this stage was 85.7%. During the third stage, each researcher was assigned to be a secondary coder on a *third* Super Bowl year for which they were not a primary coder. Secondary coders resolved all differences between the primary coders. During the formal coding process after manual development, coders did not discuss any advertisements, variables, or coding, and submitted their data to the first author to avoid contaminating others' ratings.

Statistical Analyses

Frequencies and proportions described the full sample of Super Bowl advertisements according to characteristics of the actors (e.g., race/ethnicity, gender, body size), products, and characteristics of commercials (e.g., actions, tone). See Table 1 for descriptions of coded variables. Z -tests for proportions compared racial/ethnic diversity in the US population (using data from the most recent census[35] and report on overweight/obesity prevalence[18]) with representations of race/ethnicity and weight in Super Bowl advertisements overall, and Super Bowl food/beverage ads specifically (Additional information on statistical analyses can be found in Supplemental Information).

Results

Super Bowl Advertisements from XLVI through XLIX

Advertisements ($N=241$) marketed a variety of products (See Figure 1): 26.6% cars ($n=64$), 14.5% beverages ($n=35$), 11.6% food ($n=28$), 9.5% movies ($n=23$), 9.5% technology ($n=23$), and 7.5% financial services ($n=18$). Nearly all advertisements contained people ($n=225$; 93.4%) and many featured celebrities ($n=76$; 31.5%). Ads were also coded by gender: 89.6% of ads ($n=216$) had at least one male actor, and 79.3% of ads ($n=191$) had at least one female actor.

The number and percentage of ads with actors of varied racial/ethnic groups are shown in Table 2. Advertisements contained actors who represented varied racial/ethnic groups: 86.7% White ($n=209$), 49.4% Black ($n=119$), 14.9% Hispanic ($n=36$), and 14.5% Asian ($n=35$). Adjusted percentages, accounting for multiple racial/ethnic groups represented in single ads, indicate that overall, actors featured in Super Bowl commercials were White (52.4%), Black (29.8%), Hispanic (9.0%) and Asian (8.8%). This is greater representation of Black and Asian individuals and lower representation of other racial/ethnic groups than that which occurs in the US population[35]: White ($Z=8.95$, $p<.001$), Black ($Z=-10.36$, $p<.001$), Hispanic ($Z=3.96$, $p<.001$), and Asian ($Z=-3.77$, $p<.001$).

Food and Beverage Advertisements

Food and beverage advertisements ($n=63$ or 26.1% of all ads; see Figure 1) represented different categories of products. Food ads ($n=28$ total food ads) advertised savory snacks ($n=8$; 28.6%), fast food ($n=7$; 25.0%), sweets ($n=7$; 25.0%) and healthy food ($n=6$; 21.4%). Beverage ads ($n=35$ total beverage ads) advertised sugar-sweetened beverages ($n=19$; 54.3%), alcohol ($n=15$; 42.9%) and dairy ($n=1$; 2.9%) but not water (0.0%). Combined, food/beverage ads contained men ($n=56$; 88.9%) and women ($n=48$; 76.2%). Actors were shown consuming the product approximately half the time ($n=28$; 44.4%); however, after excluding 15 alcohol commercials (by convention, alcohol is not consumed during advertisements[8]), 58.3% of ads ($n=28$) showed consumption of food or beverage. Of non-alcohol food and beverage commercials, men consumed the product in 31.3% of ads ($n=15$) and women consumed the product in 52.1% of ads ($n=25$).

The number and percentage of food/beverage ads with actors of varied racial/ethnic groups are shown in Table 2. Of the 63 food/beverage ads, 85.7% had a White actor ($n=54$), 50.8% had a Black actor ($n=32$), 20.6% had a Hispanic actor ($n=13$), and 19.0% had an Asian actor ($n=12$). Adjusted percentages, accounting for multiple racial/ethnic groups represented in single ads, indicate that overall, actors featured in food/beverage commercials were not significantly different from the adjusted percentages of advertisements with actors from each racial/ethnic group in all advertisements: White ($Z=0.70$, $p=.48$), Black ($Z=0.20$, $p=.84$), Hispanic ($Z=-0.85$, $p=.40$), and Asian ($Z=-0.66$, $p=.51$).

Among the 28 food commercials, Black actors were in 57.1% of fast-food ads ($n=4$ of 7), 33.3% of healthy-food ads ($n=2$ of 6), 28.6% of sweets ads ($n=2$ of 7), and 25.0% of savory-snack ads ($n=2$ of 8). Hispanic actors were in 42.9% of fast-food ads ($n=3$ of 7), and 28.6% of sweets ads ($n=2$ of 7) but not in savory-snacks ads (0.0%) or healthy-food ads (0.0%).

Among the 35 beverage commercials, Black and Hispanic actors were in 36.8% ($n=7$ of 19) and 21.1% ($n=4$ of 19) of sugar-sweetened beverages ads, and 66.7% ($n=10$ of 15) and 26.7% ($n=4$ of 15) of alcohol ads.

Weight and Weight Stigma

In the full sample of ads ($N=241$), a lower proportion of all advertisements had actors with overweight/obesity, 14.5% ($n=35$), than healthy-weight, 90.5% ($n=218$; 184 ads contained only actors with healthy-weight). Of the 35 advertisements that had actors with overweight/obesity, 88.6% had at least one male actor with obesity ($n=31$), and 20.0% had at least one female actor with obesity ($n=7$). Only one advertisement had a child actor with obesity, and no advertisements had a teen actor with obesity. Notably, no Super Bowl ads contained *only* actors with overweight/obesity; they either had some actors with and without overweight/obesity, or only actors with healthy-weight. Compared with all ads, food/beverage advertisements similarly had a lower proportion of actors with overweight/obesity, 14.3% ($n=9$; $Z=0.05$, $p=.96$) than actors with healthy-weight, 88.9% ($n=56$; $Z=0.37$, $p=.71$).

The number and percentage of ads with actors with overweight/obesity representing varied racial/ethnic groups are shown in Table 2. In all ads with actors with overweight/obesity ($n=35$), actors with overweight/obesity were White ($n=32$; 91.4%), Black ($n=8$; 22.9%), and Asian ($n=1$; 2.9%); there were no Hispanic actors with overweight/obesity (0.0%) over four years of Super Bowl commercials. Adjusted percentages, accounting for multiple racial/ethnic groups represented in single ads, indicate that among ads casting a person with overweight/obesity, White actors with overweight/obesity were significantly more common than overall White actor representation in Super Bowl advertisements ($Z=-3.14$, $p=.002$). Hispanic actors with overweight/obesity were significantly less common than overall Hispanic actor representation in Super Bowl advertisements ($Z=2.01$, $p=.04$). Black ($Z=1.39$, $p=.16$) and Asian ($Z=1.41$, $p=.16$) actors with overweight/obesity were represented similarly as in overall Super Bowl advertisements.

Notably, all racial/ethnic groups were significantly less likely to be portrayed with overweight/obesity in Super Bowl ads than the corresponding proportion of the US population within each racial/group with overweight/obesity (see Figure 2): White ($Z=24.11$, $p<.001$), Black ($Z=31.59$, $p<.001$), Hispanic ($Z=35.42$, $p<.001$), and Asian ($Z=19.53$, $p<.001$).

Contrary to our expectations, the pattern of tone and humor in advertisements with at least one actor with overweight/obesity ($n=35$) compared with advertisements that only cast actors with healthy weight ($n=183$) were similar. Ads with actors with overweight/obesity were more likely to be light-hearted ($n=25$; 71.4%) than serious ($n=1$; 2.9%, $Z=5.94$, $p<.001$) or neutral ($n=8$; 22.9%, $Z=4.07$, $p<.001$). Yet, differences were also significant among advertisements that only cast actors with healthy-weight ($n=183$): light-hearted ($n=87$; 47.5%), more than serious ($n=32$; 17.5%, $Z=6.14$, $p<.001$) or neutral ($n=59$; 32.2%, $Z=2.99$, $p=.003$). Humor occurred in 60.0% of ads that had an actor with overweight/obesity ($n=21$ of 35) and 47.0% of ads that had only actors with healthy-weight ($n=86$ of 183), which was not significantly different, $Z=1.41$, $p=.16$.

Discussion

This study is the first to examine associations among weight, race/ethnicity, and characteristics of Super Bowl advertisements. Our findings were that Super Bowl actors had both racial/ethnic and body-size diversity. Yet, notably, the proportions of Super Bowl actors by race/ethnicity, body size, and race/ethnicity within body-size categories *starkly* misrepresented corresponding proportions of the US population.

One of the potential mechanisms suggested by other researchers for the association between obesity and television viewing[4, 7, 14] is food advertising, with emphasis on food advertising targeting racial/ethnic minorities[30, 32, 33]. We examined the racial/ethnic diversity and body-size diversity among actors in food/beverage advertisements and compared their characteristics to those of actors in all advertisements from Super Bowl XLVI through Super Bowl XLIX. Actor diversity was similar between the subset of food/beverage advertisements and all advertisements. This is important because it suggests food/beverage marketers are not *uniquely* targeting Black and Hispanic individuals during the Super Bowl. That is, because the Super Bowl has a diverse audience (with racial/ethnic diversity similar to the US population[3]), marketers cast diverse actors presumably with the hope of appealing to the general public. Had marketers wanted to appeal to racial/ethnic minorities, as evidence suggests they do in other contexts[30], food/beverage advertisements could have had higher proportions of racial/ethnic minorities to promote an in-group mindset, but they did not. The motivations behind marketers' casting choices, however, are unknown and undoubtedly complex given the cost and importance of Super Bowl advertising.

Findings related to actors with overweight/obesity in Super Bowl commercials are surprising because they contradict two opposite expectations. First, actors with overweight/obesity were cast in Super Bowl advertisements, whereas television media has long since been criticized for casting exclusively thin actors[16]. Second, proportions of actors with excess weight were dramatically discrepant from proportions of the US population with excess weight overall *and* within racial/ethnic groups. No Hispanic Super Bowl actors had overweight/obesity, yet Hispanic individuals have the highest rates of overweight/obesity in the US population[18]. This suggests that although the media may be—intentionally or unintentionally—responding to changing body size norms in the US population[26, 27] by including some actors with overweight/obesity, the overarching message is still that overweight/obesity affects a minority of the population. Moreover, the racial/ethnic diversity of actors with overweight/obesity suggest that this changing norm may be more acceptable within majority culture (e.g., White actors).

Earlier research has identified weight bias in media through character traits attributed to actors with overweight/obesity and the use of humor[12, 28]. Contrary to our expectations stemming from these findings, neither light-hearted tone nor humor were more common in Super Bowl advertisements with actor(s) with overweight/obesity than ads without any actors with overweight/obesity. This is important because it suggests that the uniqueness and acknowledged universality of viewing Super Bowl ads might inhibit stereotypes about overweight/obesity. However, this potential implication must be treated with great caution

because, although comparisons were not significant, the proportions were trending in our hypothesized direction (i.e., lighter tone and more humor when actors with overweight/obesity were in the ads), and non-significance may have been due to the overall low frequency of advertisements with actors with overweight/obesity. Moreover, it is also possible that the observed patterns (i.e., statistical non-significance) may have been partly due to a higher base rate of ads with humor during the Super Bowl compared with advertising to other audiences. A future update to the current research, as more Super Bowls occur, could evaluate whether there is a trend over time, and also characterize with more detail the interactions between Super Bowl actors with overweight/obesity and others. Coding whether humor is weight-based or targeting an actor with overweight/obesity—beyond the current study's broad measurement of tone—would help assess for weight stigma and describe messages about overweight/obesity with more detail. This could directly relate to adults, and directly or indirectly relate to children, as has been indicated with racial bias[36], which also warrants further investigation. Research on viewers' reactions to and interpretations of Super Bowl commercials could help elucidate the influence of light-hearted tone and humor related to weight. The influence advertising has on individuals, particularly through emphasis on a thin ideal, has been shown to be associated with weight dissatisfaction and unhealthy weight-control behaviors[16, 29].

The current study is novel and represents the first exploration of weight, race, and food/beverage advertisement during the Super Bowl. Additional strengths of this study include the comprehensive review of *all* commercials from Super Bowl XLVI through Super Bowl XLIX, and the detailed coding and training process to quantify content in advertisements, with a similar approach to the approach of other content analyses [e.g., 28, 37]. Yet, there are also important limitations to consider. First, the coding process was qualitative, and thus, limited by subjective interpretation of content. For example, although coders rated the race that actors appeared to be with substantial inter-rater reliability, this may differ from how other viewers perceive the actors or how the actors themselves self-identify. The coding process also had limited information on individual actors in Super Bowl ads. Many, but not all, ads had crowds of people in them. Coders attempted to count and record characteristics of all people, but this was found to be impractical. Rather, we captured whether at least one person with each characteristic was included in each ad. Future studies might consider coding only the central figures in each commercial (when a major actor is apparent), as has been done in content analyses of television programming[12]. Another limitation, as previously noted, is that our study served as a description of the content of ads, but did not experimentally examine the influence of ads on individuals or market behavior. Knowing what content viewers notice may have implications for prevention work and policy. Finally, although we analyzed four years of Super Bowl advertisements, food/beverage ads and ads containing actors with overweight/obesity were too infrequent to assess for trends over time. Future research could consider additional years of data, and different viewing events, to examine whether the Super Bowl is unique in its advertisements as well as related issues including whether or how fluctuations in population norms might be reflected in ad content.

Our findings have important implications for obesity prevention and public policy, and further strategic science can help reduce the gap between academic work and policy legislation and decisions made by key agents of change such as the media[38]. Given

discrepancies between actors with overweight/obesity in Super Bowl commercials and the US population, discussing perceived norms about body size may be an important extension of work with patients with overweight/obesity who have internalized weight-stigmatizing attitudes or have been the targets of weight discrimination. Similarly, it is important to work at a policy level to create an intolerance towards weight stigmatization[39]. Awareness of Super Bowl advertisement weight and food/beverage content can provide information for media literacy work when discussing the pervasive influence of advertising. Calls have been made for a shift addressing the public-health problem of obesity in the US as one tied to the environment rather than individuals[29, 38, 39]. Prevention work can use our findings to discuss the continued “toxic environment” of food/beverage advertising with the mismatched underrepresentation of overweight/obesity. Policy research can also help clarify whether tighter advertising regulations could help prevent obesity. The Super Bowl presents a unique opportunity when many viewers watch commercials for entertainment instead of seeing them as an interruption of their viewing activity; if we have the public's attention, we have an opportunity to promote public health.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This research was supported, in part, by National Institutes of Health grants K24 DK070052 (PI Grilo).

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What's Known

- The Super Bowl is a unique advertising event that has a large and diverse audience, which has great potential influence, including over health and body image.
- Weight stigma—negative attitudes about people with overweight/obesity because of their weight—is pervasive, including in media.
- How the media portray actors (e.g., body size) influences how viewers interpret and respond to the ad content.

What's New

- The racial/ethnic diversity of actors was similar in food/beverage ads and in the full sample of ads.
- There were some actors with overweight/obesity in ads, who were more likely to be White than other races/ethnicities.
- The proportion of actors with overweight/obesity was markedly lower than the proportion of individuals in the US with overweight/obesity.

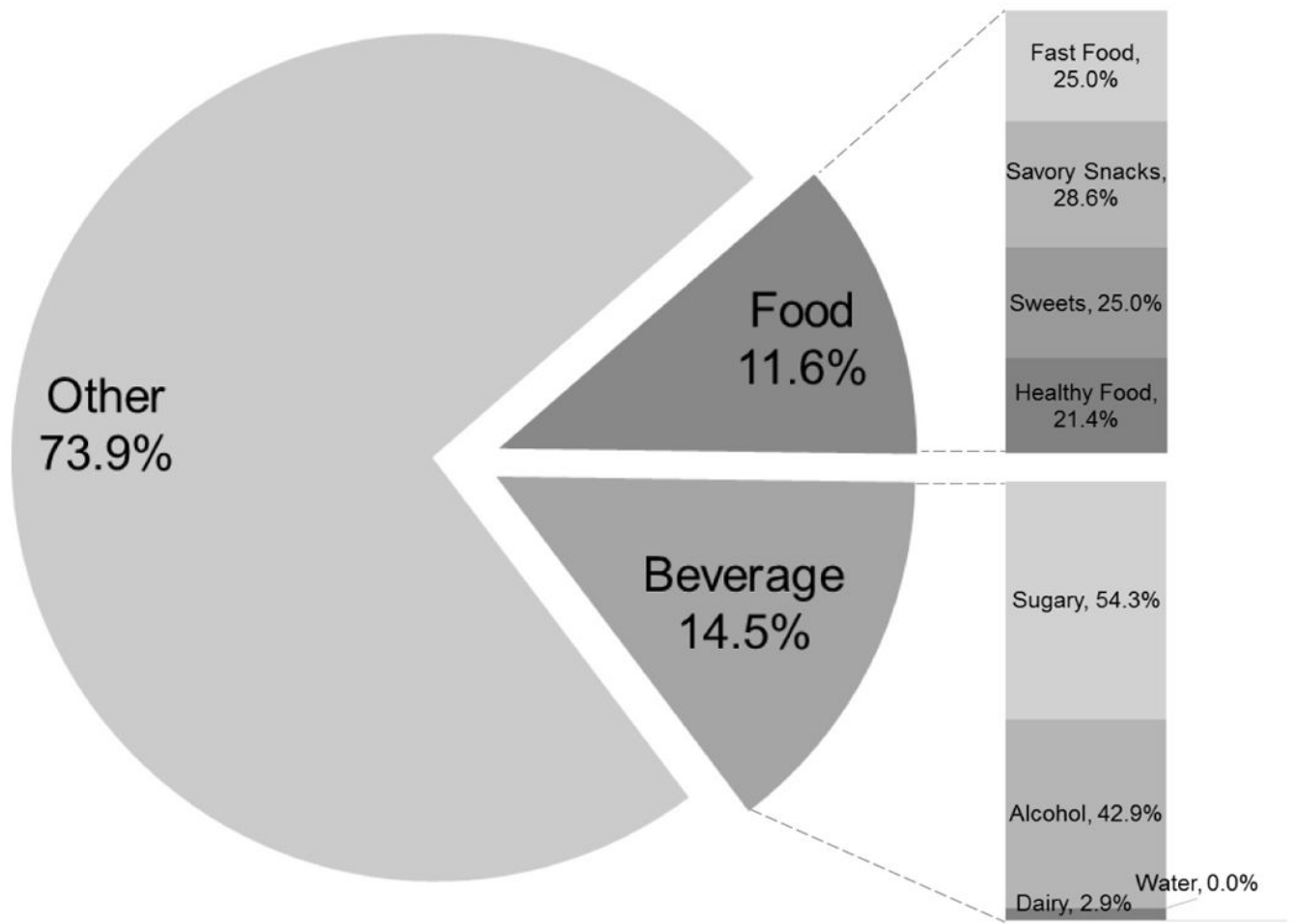


Figure 1. Food and Beverage Advertisements

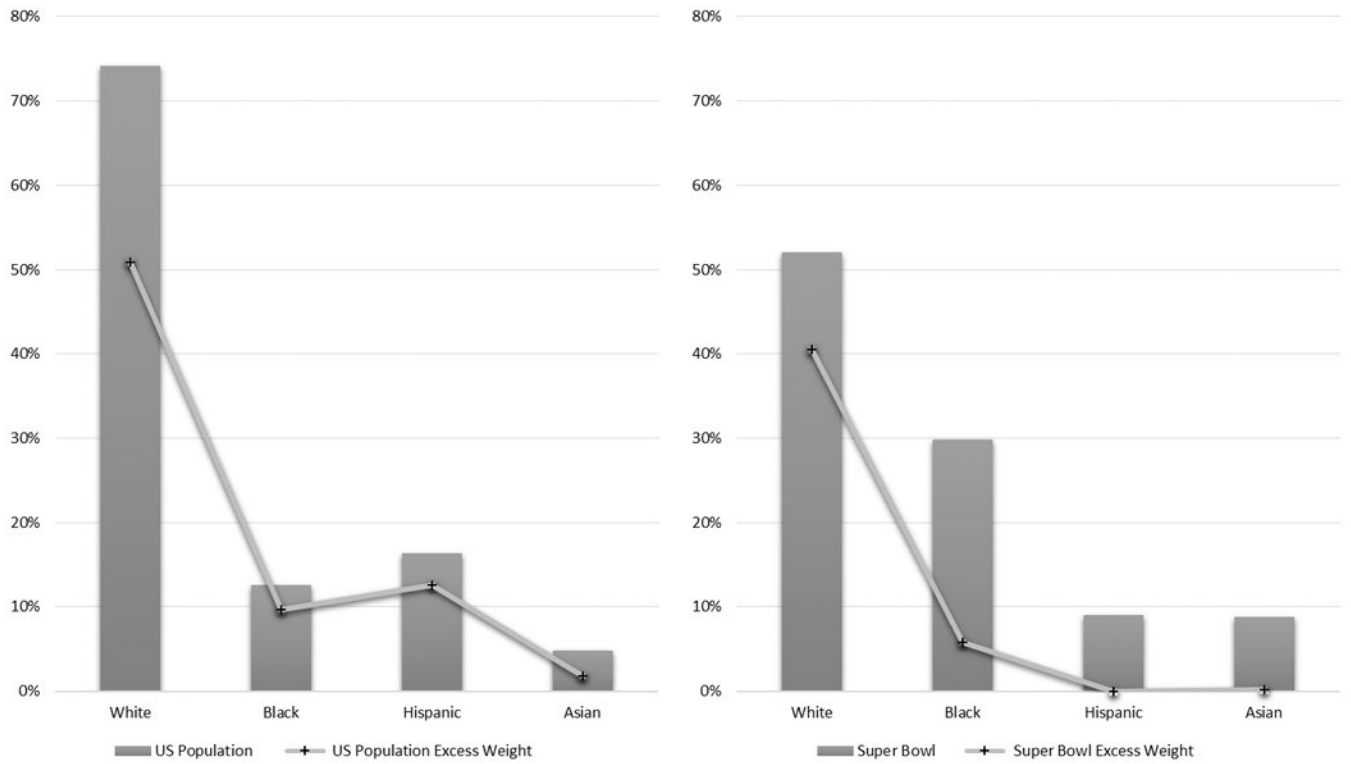


Figure 2. Racial/Ethnic diversity of persons with overweight/obesity in the US compared with Super Bowl ads

Table 1
Descriptions of Key Variables and their Coding Guidelines

<i>Variable</i>	Description	How to Code	Mean Kappa	Kappa Description^d
<i>Type of commercial</i>	The product or service being advertised. Examples: Food, Drink, Car, Movie, Electronics/Technology	Open-ended		
<i>Celebrity</i>	Was at least one celebrity (example: TV personality, movie actor, sports figure, musician) featured?	0=no celebrity 1=celebrity	.883	Almost perfect
<i>People</i>	Are people visible?	0=no people 1=at least one person	.780	Substantial
<i>Men</i>	Are male actors (any age, race, weight, etc.) visible?	0=no men 1=at least one man	.907	Almost perfect
<i>Women</i>	Are female actors (any age, race, weight, etc.) visible?	0=no women 1=at least one woman	.915	Almost perfect
<i>Intended humor</i>	Does the commercial make you laugh, or does it seem to be trying to make people laugh?	0=no humor 1=humor	.844	Almost perfect
<i>Tone</i>	Overall tone	0=neutral 1=serious 2=light-hearted	.578	Moderate
<i>Race of actors</i>	Visible race. Rate only when highly confident in the race of the actor. **Multiple codes permitted when multiple actors are in ad	1=White/Caucasian 2=Black/African American 3=Latinx/Hispanic 4=Asian 5=other 6=unknown 9=no people in ad	.764	Substantial
<i>Type of beverage commercial</i>	What type of beverage is being advertised? Example categories: Sugary drinks (soft drink, sports drink), alcohol, dairy, water	1=sugar sweetened 2=water 3=alcohol 4=dairy 9=not a beverage ad	.989	Almost perfect
<i>Type of food commercial</i>	What type of food is being advertised? Write in if does not fit category. Examples: fast food, savory snacks (chips), sweets (pastry, candy), dairy (cheese, yogurt), fruits/vegetables, food to cook at home for a meal	1=fast food 2=savory snacks 3=sweets/candy 4=dairy product 5=fruits/vegetables 6=home cooked 9=not a food ad	.900	Almost perfect
<i>Consumption</i>	Actor shown consuming product (food/beverage)	0=no consumption 1=woman 2=man 9=not a food/beverage ad	.572	Moderate
<i>Body Weight</i>	Code if at least one person appears to have overweight/obesity . Has clear excess weight.	1=overweight/obesity 9=no people in ad	.654	Substantial
<i>Men with overweight/obesity</i>	Is there at least one male actor with overweight/obesity?	0=no male with overweight/obesity 1=male with overweight/obesity 9=no people in ad	.705	Substantial
<i>Women with overweight/obesity</i>	Is there at least one female actor with overweight/obesity?	0=no female with overweight/obesity 1=female with overweight/obesity	.611	Substantial

<i>Variable</i>	Description	How to Code	Mean Kappa	Kappa Description^a
		9=no people in ad		
<i>Race of actors with overweight/obesity</i>	Visible race. Rate only when highly confident in the race of the actor. **Multiple codes permitted when multiple actors are in ad	1=White/Caucasian 2=Black/African American 3=Latinx/Hispanic 4=Asian 5=other 6=unknown 9=no people in ad	.742	Substantial

^aKappas are inter-rater agreement between each primary coder with the secondary coder. Kappa descriptions of agreement of based on Viera and Garrett [40] categories.

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Table 2
Unadjusted and Adjusted Percentage of Ads with Actors Representing Varied Racial/Ethnic Groups.

	Unadjusted			Adjusted		
	All Ads	Food/Beverage	Overweight/Obesity	All Ads	Food/Beverage	Overweight/Obesity
<i>n</i>	241	63	35			
White	86.7%	85.7%	91.4%	52.4%	48.6%	78.0%
Black	49.4%	50.8%	22.9%	29.8%	28.8%	19.5%
Hispanic	14.9%	20.6%	0.0%	9.0%	11.7%	0.0%
Asian	14.5%	19.0%	2.9%	8.8%	10.8%	2.4%
						4.8%

Note. Percentage of advertisements that had at least one actor from the specified racial/ethnic group. Adjusted proportions account for multiple races/ethnicities represented in the same advertisement. U.S. population proportions obtained from U.S. Census Bureau [35].