

Food Advertising in the Age of Obesity: Content Analysis of Food Advertising on General Market and African American Television

VANI R. HENDERSON, MS; BRIDGET KELLY, MPH

Annenberg School for Communication, University of Pennsylvania, Philadelphia, Pennsylvania

ABSTRACT

Objective: To document the types of foods advertised and weight-related nutritional claims made during advertisements appearing on general market and African American television programming.

Design: Content analysis of 553 food advertisements appearing during 101.5 prime-time television hours.

Outcome Measures: Advertisements were classified according to general category (fast-food restaurant, sit-down restaurant, packaged food), specific food type, and the presence of a weight-related nutritional claim.

Analysis: The type of foods advertised and nutritional claims made on general market and African American programs were compared using t and chi-squared tests.

Results: More food advertisements appeared during African American programs than general market programs. These advertisements were more likely to be for fast food, candy, soda, or meat and less likely to be for cereals, grains and pasta, fruits and vegetables, dessert, or alcohol. Of all of the food advertisements, 14.9% made a weight-related nutritional claim. More claims related to fat content appeared during African American programming, whereas more light and lean claims appeared in general market advertisements.

Conclusions and Implications: Practitioners and policy makers should be aware of the prevalence of food advertisements and their potential impact on knowledge and behavior and should consider working more closely with food manufacturers to encourage the creation and promotion of weight-friendly foods. Meanwhile, nutrition educators can help by teaching consumers critical thinking skills as may relate to food advertisements.

KEY WORDS: food and beverages, marketing, advertising, nutrition

(*J Nutr Educ Behav.* 2005;37:191-196.)

INTRODUCTION

In the last several years, the US obesity epidemic has reached unprecedented severity. According to the National Health and Nutrition Examination Survey (NHANES), as of 2002, 65% of American adults over 20 years of age were overweight; of these, 30% were obese, and 5% were extremely obese. For African Americans, the prevalence of obesity is even higher: among black women over 20 years, 77% are overweight and 49% are obese, whereas among black men, 63% are overweight and 28% are obese.¹

It is generally recognized that obesity occurs from regular consumption of energy in excess of that used by the body; thus, one approach to weight reduction is to decrease the calories consumed. One barrier to reducing calorie consumption may be the intense marketing by producers of less healthful foods (eg, candy, soda) and insufficient counter-marketing of healthful foods.

A body of research has linked frequent television viewing with obesity, especially in women and children.²⁻⁵ Three mechanisms have been proposed to explain the link between obesity and television viewing: (1) television displaces exercise and other active pursuits, (2) television leads to increased food consumption while watching, and (3) exposure to advertising on television leads to subsequent consumption of advertised foods.⁶ This article focuses on the third theory: the potential of television ads to increase consumption of advertised foods.

There is a great deal of advertising of energy-dense or low-nutrient foods on television. An analysis of 2001 advertising spending found that US companies spent \$3.5 billion on fast-food advertisements and \$5.8 billion on the separate food, beverage, and confectionary category, including \$785.5 million for the top 5 soda brands.⁷ Other analyses of televised food references have also shown that many are for high-calorie or low-nutrient foods.^{8,9} Importantly, there is evidence of behavioral implications of exposure to food advertising. Consumption of advertised foods is higher than consumption of foods that are not advertised,^{2,10} and advertising expenditures are generally greatest for the most highly processed and packaged foods.¹¹ Children exposed to more food advertising have been found to choose the products advertised at significantly higher rates than children not exposed to the advertisements,^{12,13} and the time spent with television has been significantly associated with the pur-

Address for correspondence: Vani R. Henderson, MS, Annenberg School for Communication, University of Pennsylvania, 3620 Walnut St, Philadelphia, PA 19104; Tel: (415) 568-6365; Fax: (215) 898-2024; E-mail: vhenderson@asc.upenn.edu.
©2005 SOCIETY FOR NUTRITION EDUCATION

chase-influencing attempts of children at the grocery store.¹⁴ Further, it stands to reason that food manufacturers are putting millions of dollars behind advertising campaigns because they are effective at promoting sales. Food companies could encourage better nutritional practices and perhaps play a role in countering the increase in obesity by creating more healthful foods and explicitly promoting the foods on the basis of weight-friendly nutritional properties, such as being low in fat, low in calories, or otherwise contributing to a healthful diet.

The extent to which obesity-related health claims are included in televised food advertisements has not been established. A number of studies have documented the prevalence of different categories of foods advertised on television and in magazines, and content analyses of print advertisements have found that nutritional claims are in the minority.¹⁵ Other recent research found that food advertisements aired on African American television are typically for less healthful foods.¹⁶ However, less is known about the types of nutritional claims that appear on television, the most important medium used for food advertising.¹⁵ The present study sought to document the presence of nutritional claims in food advertisements aired during popular television programs and, more specifically, to compare advertising on shows targeted to African Americans with advertising during programming aimed at a general audience.

DESCRIPTION OF STUDY

Sample

Television is the primary medium used for food advertising¹⁵; therefore, television advertisements were sampled in this study. Advertisements aired during and around popular prime-time television shows during October and November 2003 served as the sample because prime-time shows garner the largest viewing audience. All shows appeared on 1 of 5 national networks: NBC, ABC, CBS, Fox, and UPN. One-time and special event programming, such as sports events, were excluded from analysis. A list of the season's 20 television programs with the highest viewership between September 15 and October 7, 2003, served as the basis for the selection of general market programs.¹⁷ Nineteen programs (the 20th program was a one-time sports event) were selected from the list for inclusion to represent the general market.

In addition, Nielsen Media Research's weekly list of the top 10 shows among African American viewers was used to select shows for that audience.¹⁸ Shows that appeared on the weekly top 10 list for more than 3 consecutive weeks between September 15 and October 7, 2003, and that were not sports or special event programming were selected for inclusion (a slightly different methodology was used in selecting the African American programs because of the availability of weekly reports of the top 10 African American shows rather than a midseason summary). Nine regularly scheduled programs appeared consistently. Two programs

appeared as top shows on both the general market and African American lists. It was determined a priori that if the African American audience comprised less than 10% of the viewing audience of the duplicate show, the show would be counted as a general market program, and if it comprised more than 10%, the show would be excluded from the analysis. Using this criterion, the 2 shows that appeared on both the general market and African American lists were counted as part of the general market.

All commercials aired during and after the target programs until the beginning of the next program were included. A total of 101.5 hours of television programs (32 hours of African American and 69.5 hours of general market) were analyzed.

Coding Procedures

Each advertisement identified as promoting a food product was analyzed for content, whereas nonfood advertisements were simply counted to assess the percentage of food commercials as a proportion of all advertisements aired. Food advertisements were coded in 3 ways: general type of product advertised, specific food category, and obesity-related nutritional claim.

The general type of product advertised included fast-food restaurant, sit-down restaurant, or packaged food. Also, we coded for a specific food category. We developed a coding scheme based on that used by Ippolito and Pappalardo¹⁵ but adapted to identify food categories that might, as per a recent Centers for Disease Control and Prevention report, contribute to energy imbalance (ie, foods high in fat and sugar, high in energy density, and low in fiber).¹⁹ Thus, although any food eaten in sufficient quantities can contribute to overweight, we were particularly interested in categories of foods that were likely to be high in fat, "empty" calories, and refined and other processed sugars and/or low in fiber, such as soda, candy, desserts, salty snacks, and pizza. Final coding categories included dairy, meat/eggs/mixtures, poultry/fish/mixtures, cereals/breads/pasta, salty snacks, pizza, fruits/vegetables/100% juice, candy/sweets, desserts/sweet breads, soda, coffee/tea/other drinks, alcohol, fats/oils, condiments, and advertisements for multiple items or meals.

Third, we coded any advertising claims related to the nutritional content of the food product on dimensions that have been shown to be related to weight loss. We were particularly interested in claims related to fiber, fat, calories, sugar, and (given the recent increase in the popularity of low-carbohydrate/high-protein weight loss diets) protein and carbohydrates, as well as claims around weight management or dieting. Manifest content analysis was used, that is, only explicit claims, whether stated verbally in the voiceover, superimposed in text over the visual, or included as part of a visual, were coded,²⁰ and coders did not attempt to interpret implicit or latent meanings of words or images. All distinct claims in each advertisement were recorded, so an advertisement could have multiple claims.

The two authors were trained and served as coders. Both coders separately coded each advertisement in the sample. Most of the disagreements between the coders involved one coder missing a claim, and disagreements were resolved through discussion.

FINDINGS

General Prevalence of Food Advertisements and Nutritional Claims

Because cumulative exposure to advertising content is believed to be important, each advertisement for a food product that appeared in the sample of programming was counted, even though the same advertisement may have appeared more than once in the sample (9.4% of the programs had more than one advertisement for the same brand appear within the same episode, but advertisements for the same brand never appeared more than twice within the same episode). The 101.5 hours of prime-time programming analyzed included 44 60-minute programs, all of which were dramas and reality programs, and 115 30-minute programs, all of which were situation comedies. Sixty-four of the programs (32 hours) aired on African American-targeted television and 95 (69.5 hours) on general market television. Of the 3062 advertisements that appeared during these programs, 553 (18%) were food advertisements. The top 5 food advertisers in terms of the number of advertisements were all fast-food companies: McDonald's (9.3% of all food advertisements), Kentucky Fried Chicken (7.3%), Wendy's (6.4%), Pizza Hut (5.9%), and Burger King (5.0%). On average, 4.7 food advertisements appeared in each 30 minutes of programming. Overall, 15.7% of the food advertisements made at least one nutritional claim related to weight management. Thus, an individual watching 2 hours of popular prime-time television per day, 5 days a week, 52 weeks a year might view up to 4888 food advertisements and, assuming a typical advertisement length of 30 seconds, could be exposed to over 40 hours of food marketing over the course of a year.

Differences by Market

There was a significant difference in the prevalence of food advertising between the 2 markets, with more food advertisements appearing during African American-targeted shows (Table 1). We also conducted post hoc analyses to determine whether the differences in the number of food

advertisements may have resulted from the program context within which the advertisements aired; all of the African American shows were 30-minute situation comedies, whereas 46% of the general market shows were 60-minute dramas and 54% were 30-minute situation comedies. However, after controlling for the length of the show, the significant relationships remained.

There were also significant differences between markets in the types of advertisements that ran. For example, fast-food advertisements aired more often during the African American market shows, whereas packaged food advertisements appeared more often during general market shows (Table 2).

We next examined which specific food products were promoted in each of the 3 general categories. There were no significant differences in the specific type of food promoted in fast-food advertisements between markets. Also, the only significant difference in the specific type of food promoted in sit-down restaurant advertisements was for full meals, with general market advertisements in this category more likely to promote multicomponent meals than advertisements in African American programming.

We investigated whether there were differences in which kinds of packaged foods were advertised in general market compared with African American market shows. Packaged food advertisements aired during African American programming were significantly more likely to be for candy, soda, or meat (eg, sausages, cold cuts), whereas advertisements for packaged foods aired during general market programming were significantly more likely to be for cereals, grains and pasta, fruits and vegetables or 100% juices, dessert, and alcohol (Table 3). Types of food advertisements that did not differ significantly between the 2 markets included pizza, dairy products, poultry/fish/mixtures, salty snacks, coffee/tea/other drinks, condiments, and advertisements for prepared meals or multiple items. It should be noted that most of the advertisements for brands that appeared on both African American and general market programming were the same; in general, the same execution was used for both markets when advertisers chose to buy advertising space in the 2 programming venues.

Next, to determine the prevalence of food advertisements overtly targeting the weight conscious, we counted the number of claims regarding a product being "lean," "light," or an aid in weight management, as well as specific claims around a product's calorie, fat, sugar, protein, carbohydrate, or fiber content (Table 4). There were no differences between the 2 programming types in the total number of

Table 1. Total Number of Food Advertisements by Market

Number of Advertisements	African American Market (n = 1033)	General Market (n = 2029)	P Value
Number of food advertisements (as % of all advertisements)	251 (24.3)	302 (14.9)	.001
Mean number of food advertisements per 30 minutes	3.97	2.42	.01

P values based on Student's t test.

Table 2. Type of Food Advertised by Market

Food Category	African American Market	General Market	P Value
	Number (%) of All Food Advertisements (n = 251)	Number (%) of All Food Advertisements (n = 302)	
Fast-food restaurant	136 (54.2)	97 (32.1)	.001
Sit-down restaurant	21 (8.4)	57 (18.9)	.001
Packaged food	94 (37.5)	148 (49.0)	.001

P values based on the χ^2 statistic.

claims made related to weight-important food characteristics. However, although general food claims about products being “lean” or “light” were used infrequently, significantly more of these claims were made during general market programming compared with African American programming. In addition, significantly more low-fat claims were made during African American market programming. Health claims around calories, protein, fiber, and sugar did not differ between markets; very few advertisements mentioned these attributes.

DISCUSSION

In the long run, marketers’ decisions about which foods to promote and what positioning to use to promote them can have an impact—positive or negative—on public health, particularly given the evidence of the power of advertising to affect food choice. We found that despite increased pub-

lic pressure for food marketers to take greater responsibility for the nutritional value of the foods they sell, the preponderance of food advertised during primetime was for less healthful products, including fast food and packaged food, such as candy and desserts. In addition, a minority of food advertisements explicitly promoted products as being light, lean, low fat, or otherwise appropriate for individuals who are watching their weight (given that many of the foods advertised were of low nutritional value, this was perhaps to be expected).

Although we found that general market food advertisements were more likely to make broad claims around a product being light, lean, or diet, food advertisements aired during African American shows were nearly twice as likely to contain low-fat claims. The greater proportion of fat claims in food advertisements aired during African American shows appeared to be driven largely by fast-food restaurants promoting lower-fat menu options. Given that marketers typically do not promote products to targets they do not believe

Table 3. Type of Packaged Food Product Advertised by Market

Food Category	African American Market	General Market	P Value
	Number (%) of Packaged Food Advertisements (n = 94)	Number (%) of Packaged Food Advertisements (n = 148)	
Candy/sweets	34 (36.2)	7 (4.7)	.001
Soda	10 (10.6)	3 (2.0)	.004
Coffee/tea/other drinks	10 (10.6)	9 (6.1)	.199
Meat/eggs/mixtures	7 (7.4)	2 (1.4)	.015
Condiments	6 (6.4)	9 (6.1)	.924
Salty snacks	6 (6.4)	8 (5.4)	.751
Dairy	4 (4.3)	8 (5.4)	.688
Meal/multiple items	3 (3.2)	3 (2.0)	.570
Bread/grain/cereal/pasta	2 (2.1)	26 (17.6)	.001
Desserts/sweet breads	1 (1.1)	21 (14.2)	.001
Fruit/vegetables/100% juice	1 (1.1)	12 (8.1)	.018
Pizza	1 (1.1)	6 (4.1)	.176
Alcohol	0 (0)	13 (8.8)	.003
Chicken/fish/mixtures	0 (0)	4 (2.7)	.108

P values based on the χ^2 statistic.

Table 4. Number (%) of Food Advertisements Making Health Claim by Market

Health Claims	African American Market Number (%) of Food Advertisements (n = 251)	General Market Number (%) of Food Advertisements (n = 302)	P Value
Light/lighter, lean/leaner, diet	0 (0)	12 (4.0)	.001
Fat claim (eg, no/low/less fat)	34 (13.5)	23 (7.6)	.022
Calorie claim (eg, no/low/fewer calories)	11 (4.4)	9 (3.0)	.379
Protein claim (eg, source of/high in protein)	2 (0.8)	4 (1.3)	.551
Carbohydrate claim (eg, no/low/fewer carbohydrates)	2 (0.8)	9 (3.0)	.067
Fiber claim (eg, contains/high in fiber/bran)	1 (.4)	4 (1.3)	.252
Sugar claim (eg, no/low/less sugar)	0 (0)	2 (0.01)	.196

P values based on the χ^2 statistic.

will be responsive, these advertisements may be a leading indicator of a growing consciousness in the African American community of the need to modify dietary behaviors.

This study had some limitations. Prime-time television may provide a different picture of the prevalence of different types of food advertisements than other times of the day—daytime, for instance. Similarly, the fall season may paint a different portrait than would other seasons. Further, the coding scheme used did not include evaluations of the nutrient content of the advertised foods. For instance, although candy and soda are widely recognized as less healthful dietary additions, chicken could be healthful if it is a grilled, skinless breast but less healthful if it is dark meat and fried. Additionally, the coding scheme did not take into account portion size, which is an important contributor to obesity.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Although this study does not establish a causal connection between food advertising and food intake, other studies have shown that advertising can affect food choice preferences and eating behaviors. Further research is needed to better examine the mechanisms that underlie the relationship between television exposure and obesity and to determine the magnitude of the effect of exposure to food advertising on food consumption. In addition, more research is needed to assess whether consumers' knowledge and food choice behaviors are affected by advertisements that make nutrition-related claims.

The continued prevalence of advertisements that promote food of poor nutritional quality should be a public health concern, particularly for African Americans, because the advertising could serve to further endanger a population already at risk of overweight, obesity, and comorbid conditions. Nutrition educators can help counter the effects of unhealthy food advertising by teaching consumers the critical thinking skills needed to evaluate the advertisements.

REFERENCES

- Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999–2002. *JAMA*. 2004;291:2847–2850.
- Jeffrey RW, French SA. Epidemic obesity in the United States: are fast foods and television viewing contributing? *Am J Public Health*. 1998;88:277–280.
- Hu FB, Li TY, Colditz GA, Willett WC, Manson JE. Television watching and other sedentary behaviors in relation to risk of obesity and type 2 diabetes mellitus in women. *JAMA*. 2003;290:332.
- Tucker LA, Bagwell M. Television viewing and obesity in adult females. *Am J Public Health*. 1991;81:908–911.
- Andersen RE, Crespo CJ, Bartlett LJ, Cheskin LJ, Pratt M. Relationship of physical activity and television watching with body weight and levels of fatness among children: results from the Third National Health and Nutrition Examination Survey. *JAMA*. 1998;279:938–942.
- Dietz WH. You are what you eat—what you eat is what you are. *J Adolesc Health Care*. 1990;11:76–81.
- Welch G. Spending in the U.S. on advertising for fast foods, sodas, and automobiles: food for thought regarding the type 2 diabetes epidemic. *Diabetes Care*. 2003;26:546.
- Byrd-Bredbenner C, Grasso D. Health, medicine, and food messages in television commercials during 1992 and 1998. *J Sch Health*. 2000;70:61–66.
- Kuribayashi A, Roberts MC, Johnson RJ. Actual nutritional information of products advertised to children and adults on Saturday. *Children's Health Care*. 2001;30:309–322.
- Boynon-Jarrett R, Thomas TN, Peterson K, Wiecha J, Sobol AM, Gortmaker SL. Impact of television viewing patterns on fruit and vegetable consumption among adolescents. *Pediatrics*. 2003;112:1321–1326.
- Gallo A. Food advertising in the United States. In: Frazao E, ed. *America's Eating Habits: Changes and Consequences*. Washington, DC: Economic Research Service, US Dept of Agriculture; 1999:173–180.
- Borzekowski DL, Robinson TN. The 30-second effect: an experiment revealing the impact of television commercials on food preferences of preschoolers. *J Am Diet Assoc*. 2001;101:42–46.
- Gorn G, Goldberg M. Behavioral evidence of the effects of televised food messages on children. *J Consum Res*. 1982;9:200–205.
- Galst JP, White MA. The unhealthy persuader: the reinforcing value of

- television and children's purchase-influencing attempts at the supermarket. *Child Dev.* 1996;47:1089-1096.
15. Ippolito PM, Pappalardo JK. *Advertising Nutrition and Health: Evidence from Food Advertising*. Washington, DC: Federal Trade Commission, Bureau of Economics, Federal Trade Commission; September 2002.
 16. Tirodkar MA, Jain A. Food messages on African American television shows. *Am J Public Health.* 2003;93:439-441.
 17. All Your Television. Ratings: the season so far. Available at: <http://www.allyourtv.com/ratingsseason.html>. Accessed October 12, 2003.
 18. Nielsen Media Research. Top ten primetime TV programs among African-Americans. Available at: <http://www.nielsenmedia.com>. Accessed October 12, 2003.
 19. US Dept of Health and Human Services. Resource guide for nutrition and physical activity interventions to prevent obesity and other chronic diseases. Available at: http://www.cdc.gov/nccdphp/dnpa/pdf/guidance_document_3_2003.pdf. Accessed June 13, 2004.
 20. Potter WJ, Levine-Donnerstein D. Rethinking validity and reliability in content analysis. *J Appl Community Res.* 1999;27:258-283.