Racial Disparities in Food Advertising in the U.S.

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Abstract

The prevalence of obesity in the U.S. is one of the highest in the world, and it is especially high among African Americans. Ethnic targeting in food advertising has been criticized for perpetuating unhealthy diet among African Americans in the U.S.Based on social learning theory, this study investigates racial disparities in magazine food advertisements. A content analysis of 680 food advertisements was conducted from 2008 and 2011 issues of Ebony, Essence, both of which target African Americans,and Peoplewhich targets general consumers. Comparisons are made in the 13 food categories,57 product types,and 199 brands advertised. First, unhealthy food categories(e.g., alcoholic beverages, fast food restaurants) continue to be disproportionately advertised in Ebony and Essence. Second, healthier product types(e.g., sugar-free beverages)are morefrequently offered in People than they are in Ebony and Essence in several food categories, but the overall results are inconclusive. Third, significantly fewer brands are advertised in Ebony and Essence than in People, and the dominant food brands in Ebony and Essence are concentrated in the categories of alcoholic beverages, fast food restaurants, non-alcoholic beverages, and meat. These results raisethe concern that unhealthy foods continue to be excessively advertised to African Americans as the demand forunhealthy foods declines among the general population. The findings regarding product types and number of brands also bear a resemblance to the history of distorted ethnic targeting in cigarette advertising. Calls-to-action are made toward reducing the racial disparities in food advertising in the US.

Key Words:obesity, racial disparities, magazine food advertising, content analysis, African Americans

Introduction

The prevalence of obesity in the United States is one of the highest in the world. The World Health Organization (WHO, 2015) estimates that 33.7% of adults in the U.S. are obese, far above the world average of 13%. Obesity affects some groups more than others. The most recent report by the U.S. Centers for Disease Control and Prevention (CDC) reveal that 47.8% of African Americans are obese compared with 32.6% of whites(Ogden, Carroll, Kit, &Flegal, 2014). The CDC called for surveillance, policies, programs, and supportive environments to reduce the racial disparities in obesity(CDC, 2009).

Ethnic targeting in food advertising is considered a part of the food environment for African American consumers. Foodcompaniesincrease the persuasive appeal of their advertising by customizingtheir advertising strategy according to the known cultural characteristics of the target ethnic segment. While ethnic targeting generatesprofit for food companies, the practice raises public health concerns when the advertised food products have negative consequences onthehealth of the target segment. Ethnic targeting in food advertising has been criticizedfor perpetuating unhealthy diets and contributing to high obesity rates among African Americans in the U.S.(see Grier & Kumanyika, 2008, for a meta-analysis).

This study aims to investigate the racial disparities in food advertising in the U.S. by comparing the food and beverage advertisements in African Americans magazines with those found in a popular mainstream magazine. Food productsare the second most heavily advertised category in the U.S. consumer magazines after toiletries/cosmetics(Publishers Information Bureau, 2011). In 2010, food and beverage advertisers spent $2.7 billion in national consumer magazines (Ad Age DataCenter, 2011).African American magazines are considered an attractive medium for ethnic targeting. In 2008-2009,African Americanmagazines accounted for 18%-25% of all advertising spending in African American media (Nielsen Wire, 2010).

The investigation is conductedat three distinctlevels: *food categories* (FC) advertised (e.g., non-alcoholic beverages), *product types*(PT) advertised within each food category (e.g., regular cola or diet cola within the non-alcoholic beverages), and the *number of brands*(NB) advertised within each food category. While an analysisatthe FC level is a timely update of past researchon the topic,a systematic and comprehensive

analysisat the levels of PTandNBwithin each FC addsfurtherdepth to understanding of theracial disparities in food advertising in the U.S.

Ethnic targeting in food advertising

Drawing from Social learning theory(Bandura, 1977), ethnic targeting through ethnic media is considered effective becauseindividuals are more likely to model the behaviors of people with whom they identify, whether such behaviors are observed in person or through mass media. Ethnic targeting of food products to African American consumershas existed since the 1930s (Tharp, 2001). The practice is based on the belief that the food shopping and consumption behaviors of African American consumers are distinctively different from those of the general population in U.S. African American households areknown for more frequent food shopping and higher spending per shopping occasion when compared with the general population (Gallop-Goodman,2001).They also shop more frequently at convenience stores and drug stores than at large grocery stores (Pearson-McNeil&Hale, 2011), and they are known for heavy consumption of processed or fast foods and low consumption of fresh fruits and vegetables (Basiotis, Gerrior, Juan, & Lino, 2002). This consumption behavior is largely attributed to the relatively low cost of these unhealthy foods (Drewnowski, 2007) and the lack of healthy foods available in places where African American consumersfrequently shop, both of which leadtoa condition known as "food deserts" (e.g., Ford &Dzewaltowski, 2008).According to the U.S. Census Bureau (2012), the median income among black households remains at about two-thirds of that of the general population.

While individual food preferences are largely influenced by cultural heritage and socio-economic status (Airhihenbuwaet al., 1996; Drewnowski, 2007; James, 2004), food marketing environment also plays an important role (Harris, Bargh, & Brownell, 2009). Advertising and insufficient nutrition education are reported to influence unhealthy food choices among African Americans (Bibeau et al., 2012). African American consumers hold higher brand loyalty than white consumers do (Williams & Tharp, 2001), and they are more than twice as likely to trust black media as they are to trust mainstream media (Miley, 2009). Their reaction to targeted advertising has been mixed (Grier &Brumbaugh, 1999; Holland & Gentry, 1999).

Food advertising in African American magazines

Food Categories (FC) Advertised

Past research on food and beverage advertisements in African American magazines frequently focused on alcohol advertising. Cui (2000) reported that the extents of alcohol advertising in African American magazines and mainstream magazines were similar until the mid-1980s, but, by 1992, both the number and proportion of alcohol advertisements were consistently higher in African American magazines than they were in mainstream magazines. Pratt and Pratt (1996) indicatedthat alcohol advertising accounted for 62% and 46% of all food ads in *Ebony* and *Essence*, respectively, between 1980 and 1992. The intensity of alcohol advertising in African American magazines subsided somewhat by the early 2000s (Kean &Prividera, 2007).Other studieshave consistently found an abundance of alcohol and fast food advertisements but almost a complete lack of fruit and vegetable advertisements in African American magazines (Duerksenet al.,2005; Mastin&Campo, 2006).

Product Types (PT)Advertised

When investigating racial disparities in food advertising, aPT-level analysis may reveal valuable insights that could be masked ata FC-level analysis.Earlier research indicated that regular beer ads were seen more frequently in black magazines than in general audience magazines while the reverse was true for light beer ads (Cui, 2000). Similarly, weight-loss products and low calorie foods were advertised far less frequently in AfricanAmerican magazines than in mainstream magazines (Duerksen et al., 2005).

In recent years, food and beverage manufacturers have been increasinglyexpanding their product lines to include less unhealthy options. A spokesperson from the Coca-Cola Company claims that 41% of the current volume sold by Coke is for low or no-calorie products, up from 1% in 1982 and 32% in 1999 (Aizenman, 2012). This claim is echoed in amulti-media advocacy campaign "Delivering Choices" by the American Beverage Associationin 2012, which was part of the industry's fight against potential legislation on soda tax or other forms of regulation. The American Beverage Association has also spent $70 million on lobbying in 2011 (Team, 2012).

Similarly, leading snack food companies in the U.S. have been successfully marketing healthier product types that are lower in fat, sodium, or sugar than their regular types. In 2006, sales of 100-calorie snack packs grew 28%while sales of the snack industry as a whole grew just 3.5% (Peters, 2007). Sales of mid-calorie products (e.g., reduced-fat chips by Pringles®) rose to $51.72 billion in 2011, a 16% increase from 2006 (The Associated Press, 2012).

Number of brands(NB) Advertised

The framework for a brand-level analysis is borrowed from past research on ethnic targeting in cigarette advertising. Although food products and cigarettes are different in many ways, some concerns about the role of food advertising in obesity epidemic resemble criticisms regarding the role of cigarette advertising in the health problems of smokers (Brownell& Warner,2009; Moss, 2013). The U.S. cigarette companies offered significantly fewer brands of cigarettes to the readers of *Ebony,* a predominantly African American magazine*,* than they did to the readers of *Life,* a mainstream magazine, in the early 1960s, even as they substantially increased the number of cigarette advertisements in *Ebony*. Furthermore, those few cigarette brands in Ebonywere mostly the more unhealthy unfiltered-types (Pollay, Lee, & Carter-Whitney, 1992).

One may expect that fewer food brands be advertised in African American media than they are in mainstream media because not all food brands are engaged in ethnic targeting.For example, McDonald's®uses ethnic media to appeal directly to African Americans (Moses, 2010; York, 2009) while Burger King® uses mass-market media to target all ethnic segments (Target Media News, 2010).If fewer food brands are offered in African American media, it is plausible to expect that the number of food advertisements will also be fewer in African American media than it is in mainstream media, thus keeping the ad-brand ratio (the number of ads per brand) similar between the mainstream media and the African American media. On the other hand, if the ad-brand ratio is substantially higher in African American media than in mainstream media, African American segment may be targeted not only separately but also unequally. Frequent advertising by a limited number of food brands in the African American media, especially in generally unhealthy food categories, may contribute to perpetuating unhealthy diet of African American consumers.

Research Questions

Findings from previous research on ethnic targeting in food advertising allow directional predictions in some food categories (FC), such as alcoholic beverages and fast food restaurants, but not inother food categories, such as non-alcoholic beverages and packaged foods.In addition, this study is the first attempt to conduct a comprehensive analysis ofproduct types (PT)and number of brands(NB)offered within each food category. Therefore, the current study is descriptive in nature and explores the following three research questions.

RQ1:*Does thefrequency of the* ***food categories (FC) advertised*** *differ between African American magazines and mainstream magazines in the U.S.?*

RQ2:*Does the frequency of the* ***product types (PT) advertisedwithin each food category*** *differ between African American magazines and mainstream magazines in the U.S.?*

RQ3:*Does the number of brands* ***(NB) advertised within each food category*** *differbetween African American magazines and mainstream magazines in the U.S.?*

Method

Profile of Magazines

A content analysis was conducted with food and beverage advertisements ("food ads" hereafter) from 2008 and 2011 issues of *Ebony, Essence*, and *People.* All three magazines have been used in previous research on racial segmentation in advertising (Duerksen et al.,2005; Kean &Prividera,2007; McLaughlin & Goulet,1999). *Ebony* and *Essence* are the most widely circulated consumer magazines among black readers (Kantar Media SRDS, 2013),and are read by 37% and 28%, respectively, of African American adults (Mediamark Reporter, 2011a). The two magazines complement each other in their editorial focuses: education, history and politics in *Ebony* vs. fashion, beauty and lifestyle in *Essence* (Kantar Media SRDS, 2013).*People*is a popular mainstream lifestyle magazine read by 19% of all adults, and itslarge readership reflects the characteristics of the U.S. population in general (ibid.).The readership size and demographics of each magazine are shown in Table 1.

Over 90% of the readers of *Ebony* and *Essence* are black whereas over 75% of the readers of *People* are white. The gender and age make-up of the readers of *Ebony* and *Essence*, when combined, is comparable to that of *People*. The differences in median household income and education level of the readers are consistent with those differences between races in the U.S. population in general.

Table 1.*Readership demographics for Ebony, Essence, and People*

	Ebony	*Essence*	*People*
Readers 18+ (projected)	9.7 mil	7.5 mil	42.9 mil
Gender			
Male	34.0%	24.9%	30.4%
Female	66.0%	75.1%	69.6%
Race			
Black	92.3%	90.7%	12.4%
White	5.0%	6.2%	75.9%
Other	2.7%	3.1%	11.7%
Age			
Median	43.4	41.8	42.2
Median HH income	$44,017	$48,663	$69,114
Education-Highest Level			
High school graduate	30.1%	29.0%	28.0%
Some college	26.5%	24.7%	23.3%
Bachelor's degree	14.2%	17.3%	19.5%
Master's degree	5.4%	6.9%	7.6%

(Source: GfK Mediamark Research & Intelligence, Inc. (2011).Publication Search).

Sampling

The years 2008 and 2011 were chosen because the CDC declared in 2009 reduction of racial disparities to be one of the priorities in the nation's fight against obesity epidemic. A three-year data collection point was somewhat arbitrary, but was considered a convenient and realistic interval for continued trend analysis in the future. For *Ebony* and *Essence,* which are published monthly, all issues from2008 and 2011were included in the study. For *People*, which is published weekly, one issue was randomly selected from each month, following the method used in previous research (Basil, Altman, Slater, Albright, &Maccoby, 1991; Pollay et al., 1992). In all, 72 issues of the magazines were used in the study, 24 issues from each title. From each issue selected, a census was taken of every display ad or insert for food and beverage productwhich was at least 1/3 page or larger in size, excluding pages marked "special promotion." Most of display advertisements in these magazines were 1/3 page or larger.

Pretest

The overall coding process followed the recommendations by Wimmer and Dominick (1997). During the pretest, the research team created a preliminary coding scheme from over 100 food and beverage ads found in consumer magazines that were not included in the main study. Lists of specific FC and PTwere first compiled from previous research (Cui, 2000; Duerksen et al.,2005; Kean &Prividera, 2007; Pratt &Pratt 1996; Warren, Wicks, Wicks,Fosu, &Chung,2008) and were then expanded by referencing to the product classification system used in Mediamark Reporter (2011b). MediamarkReporter is a syndicated database widely used in the advertising industry for identifying target audience demographics for a vast number of consumer products and brands sold in the U.S. A list of brand names was also generated during the pretest.

Main Study and Inter-Coder Reliability

Using thead sampleand the preliminary coding scheme from the pretest, the first coder (the author) conducted a practice session with the second coder who was experienced in content analysis of food advertising but was not involved in the pretest. This process ensured that the coding scheme was logical and clear to any coder with some experience in content analysis of advertising, and that any bias that may have been created unintentionally during the initial construction of the coding scheme would be detected before coding of the data in the main study (Krippendorff, 2004). Once the second coder clearly understood the coding scheme and felt confident about the coding process,each coder proceeded to code independently the food advertisements in the main study.

Because it was expected that additional PT and brands would be found from the main study, the final coding scheme was expected to evolve from the coding

process itself and the inter-coder reliability needed to be assessed after all ads were recoded using the final coding scheme (ibid.). After both coders completed the first round of coding, they examined all entries coded as "other." Several new PTswere added to the coding scheme while referencing the product classifications in Mediamark Reporter. Many brand names were added to the coding scheme as well. In the end, the final coding scheme consisted of 13 food categories (FC), 57 product types (PT), and 199 brands. The number of PT within each FC varied from two in the soup category to nine in the non-alcoholic beverage category. The number of brands within each FC varied widely from three in the soup category to 44 in the sweets and desserts category.

Using the final coding scheme, each coder independently recoded about 15% of the ad units in the main study, as recommended by Wimmer and Dominick (1997), to assess the inter-coder reliability. The inter-coder agreement reached .95 using Holsti's (1969) method, both in FC and in brand names. A few disagreements were initially observed inPT within the non-alcoholic beverages category and sweets category, and Krippendorff's alpha was calculated as a conservative measure of reliability in these two food categories. The Krippendorff's reliability coefficient for PT was .94 in the non-alcoholic beverage category and .77 in the sweets category. Krippendorff (2004) recommends α above .80 as an indicator of reliable data and α between .667 and .800 acceptable for drawing tentative conclusions. Considering that the lowest α in the current study was on the high end of the acceptable range, and that it occurred in only one of the 13 FC investigated in this study, the coders felt confident about the overall reliability in the coding process and completed recoding of the rest of the ads independently.

Results

A total of 680 food ads were included in the analysis. On average, food advertising pages accounted for 8.8%, 9.7%, and 22.5% of all advertising pages in *Ebony*, *Essence*, and *People*, respectively, with substantial month-to-month variations in all three titles. Of the 680 ads, 137 were from *Ebony*, 214 were from *Essence*, and 329were from *People*; 370 ads were from the 2008 issues and 310 were from the 2011 issues. For the purpose of this study, data from *Ebony* and *Essence* are aggregated (N=351) and compared against the data from *People* (N=329).The results are also combined from the years of 2008 and 2011.

RQ1: Food Categories (FC)

The first research question investigates whetherfrequency of the advertisedFCdiffers between African American magazines and mainstream magazines.Table 2 shows the results. A Chi-square statistics from a crosstab analysis indicates that the overall frequencies with which various FC are advertised differ significantly between the two magazine groups [$\chi^2_{(12,\ 1)}$=98.45, p<.001].A series of paired comparisons found significant differences between the two magazine groups in six of the 13 FC. Fast food restaurants and alcoholic beverages are advertised far more frequently in *Ebony* and *Essence* than in *People*. On the other hand, sweets, snacks, and packaged meals are advertised more frequently in *People* than in *Ebony* and *Essence*. Fruits and vegetables are advertised in *People* only. In the remaining seven FC, no significant differences are found between the two magazine groups.

Table 2. *Distribution of ads by food category*

Food Categories (All food ads=680)	*Ebony* + *Essence* (N=351)		*People* (N=329)		% diff*
	Ads	%	Ads	%	
1. Non-alcoholic beverages (139)	81	23.1%	58	17.6%	n.s.
2. Sweets (100)	37	10.5%	63	19.1%	*
3. Soup (62)	34	9.7%	28	8.5%	n.s.
4. Packaged meals (59)	22	6.3%	37	11.2%	*
5. Condiments (54)	33	9.4%	21	6.4%	n.s.
6. Snacks-not sweet (52)	8	2.3%	44	13.4%	*
7. Fast food restaurants (52)	40	11.4%	12	3.6%	*
8. Alcoholic beverages (47)	41	11.7%	6	1.8%	*
9. Milk and dairy products (31)	16	4.6%	15	4.6%	n.s.

10. Breakfast foods (30)	12	3.4%	18	5.5%	n.s.
11. Meat (24)	16	4.6%	8	2.4%	n.s.
12. Bread/rice/pasta (19)	11	3.1%	8	2.4%	n.s.
13. Fruits and vegetables (11)	0	0.0%	11	3.3%	*

Notes:
Overall difference of frequencies between the two magazine groups: $\chi^2_{(12,1)} = 98.45$, p<.001
** A significant difference at p<.05 between the two percent columns.*

RQ2: Product Types (PT)

The second research question addresses whether the frequency of the advertised PTswithin each FC differs between African American magazines and mainstream magazines. The results are shown in Table 3. The overall between-magazine differences are significant in four of the 13 food categories: non-alcoholic beverages (p<.001), non-sweet snacks (p<.001), alcoholic beverages (p<.01), and dairy products (p<.01). In six of the remaining nine FC, the overall between-magazine difference was marginal and failed to reach a statistical significance (.05<p<.10).

Table 3. *Distribution of ads by food category and product type*

Food Categories/Product Types	*Ebony + Essence*		*People*		Diff.*
	Ads	%	Ads	%	
Non-alcoholic beverages (N=139)	**81**	**100.0%**	**58**	**100.0%**	
Soft drinks: regular, sugar-added	22	27.2%	2	3.4%	*
Soft drinks: low-calorie, fortified	1	1.2%	11	19.0%	*
Juice: flavored, sugar-added	4	4.9%	4	6.9%	
Juice: real fruits & vegetables	4	4.9%	12	20.7%	*
Powdered drinks: sugar-free, light	22	27.2%	4	6.9%	*
Coffee, tea, water: unsweetened	8	9.9%	21	36.2%	*
Shakes: low-calorie	0	0.0%	4	6.9%	*
Institutional ads	13	16.0%	0	0.0%	*
Other	7	8.6%	0	0.0%	
Overall : product types x magazines				$\chi2$ (8,1)=82.65, *P<.001*	
Sweets and desserts (N=100)	**37**	**100.0%**	**63**	**100.0%**	
Cookies, cakes, pudding: regular	10	27.0%	14	22.0%	
Cookies, cakes, pudding: low-calorie	4	10.8%	5	7.9%	
Candies, chocolate: regular	11	29.7%	18	28.6%	
Candies, chocolate: low-calorie	3	8.1%	3	4.8%	
Gums, mints: regular	9	24.3%	7	11.1%	
Gums, mints: low-calorie	0	0.0%	2	3.2%	
Ice cream, frozen yogurt: regular	0	0.0%	12	19.0%	*
Ice cream, frozen yogurt: low-calorie	0	0.0%	2	3.2%	
Overall : product types x magazines				$\chi2$ (7,1)=12.82, *n.s. (P=.077)*	
Soup (N=62)	**34**	**100.0%**	**28**	**100.0%**	
Regular	30	88.2%	20	71.4%	
Low-sodium, low-calorie	4	11.8%	8	28.6%	
Overall : product types x magazines				$\chi2$ (1,1)=2.78, *n.s.(P=.096)*	

Packaged meals (N=59)	**22**	**100.0%**	**37**	**100.0%**	
Frozen meal/pizza	7	31.8%	22	59.5%	*
Lunch combo	13	59.1%	11	29.7%	*
Packaged or canned meal	2	9.1%	4	10.8%	
Overall : product types x magazines				$\chi 2$ (2,1)=5.14, *n.s. (P=.078)*	
Condiments (N=54)	**33**	**100.0%**	**21**	**100.0%**	
Dressing (salad dressing, mayonnaise)	16	48.5%	11	52.3%	
Seasoning	9	27.3%	1	4.8%	*
Pasta sauce	3	9.1%	6	28.6%	*
Other	5	15.1%	3	14.3%	
Overall : product types x magazines				$\chi 2$ (3,1)=6.83, *n.s. (P=.077)*	
Snacks-not sweet (N=52)	**8**	**100.0%**	**44**	**100.0%**	
Crackers: regular	5	62.5%	10	22.7%	*
Crackers: low-calorie, smaller packs	3	37.5%	0	0.0%	*
Chips, pretzels: regular	0	0.0%	20	45.5%	*
Chips, pretzels: baked, low-sodium	0	0.0%	7	15.9%	
Granola bars, rice cakes-regular	0	0.0%	5	11.4%	
Other	0	0.0%	2	4.5%	
Overall : product types x magazines				$\chi 2$ (5,1)=26.39, *P<.001*	
Fast food restaurants (N=52)	**40**	**100.0%**	**12**	**100.0%**	
Sandwiches and other meat items	6	15.0%	6	50.0%	*
Kids' meals	9	22.5%	2	16.7%	
Salads or fruits	2	5.0%	0	0.0%	
Beverages-McCafe items	5	12.5%	3	25.0%	
Institutional ads by McDonald's	16	40.0%	1	8.3%	*
Other	2	5.0%	0	0.0%	
Overall : product types x magazines				$\chi 2$ (5,1)=10.02, *n.s. (P=.075)*	
Alcoholic beverages (N=47)	**41**	**100.0%**	**6**	**100.0%**	
Liquor	27	65.9%	3	50.0%	
Institutional ads by Anheuser-Busch	11	26.8%	0	0.0%	
Other (beer, wine, other)	3	7.3%	3	50.0%	*
Overall : product types x magazines				$\chi 2$ (2,1)=9.29, *P<.01*	
Dairy products (N=31)	**16**	**100.0%**	**15**	**100.0%**	
Fresh or Lactaid milk	7	43.8%	7	46.7%	
Yogurt	7	43.8%	0	0.0%	*
Cheese	0	0.0%	7	46.7%	*
Other	2	12.4%	1	6.6%	
Overall : product types x magazines				$\chi 2$ (3,1)=14.32, *P<.01*	
Breakfast foods (N=30)	**12**	**100.0%**	**18**	**100.0%**	
Cold cereals-unsweetened	1	8.3%	8	44.4%	*
Hot cereals	4	33.3%	3	16.7%	

Other (frozen breakfasts, pancake mix)	7	58.4%	7	38.9%	
Overall : product types x magazines			χ2 (2,1)=4.55, *n.s. (P=.103)*		
Meat or meat products (N=24)	**16**	**100.0%**	**8**	**100.0%**	
Natural or lean-processed meat	4	25.0%	6	75.0%	*
High fat processed meat-sausages, hot dogs, bacons, SPAM	11	68.8%	2	25.0%	*
Other	1	6.3%	0	0.0%	
Overall : product types x magazines			χ2 (2,1)=5.59, n.s. (*P=.061)*		
Bread, rice, pasta (N=19)	**11**	**100.0%**	**8**	**100.0%**	
Bread-regular or low sodium	3	27.3%	5	62.5%	
Rice	8	72.7%	2	25.0%	
Other	0	0.0%	1	12.5%	
Overall : product types x magazines					a
Fruits and vegetables (N=11)	**0**	**0.0%**	**11**	**100.0%**	
Fruits-fresh, canned, dried	0	0.0%	6	54.5%	
Vegetables-fresh, frozen, roasted	0	0.0%	5	45.5%	
Overall : product types x magazines					a

Notes:
**A significant difference between the two percent columns is at p<.05.*
[a]A paired-comparison or Chi-square goodness-of-fit test is not performed due to small sample size; more than 80% of cells had expected frequency less than 5 (Wimmer& Dominick, 1997).

In the non-alcoholic beverage category, the between-magazine difference at the PT level is especially striking because there was no significant between-magazine differenceat the FC level. In*Ebony* and *Essence*, ads for unhealthy beverages (regular soft drinks and powdered drinks) and institutional ads (e.g., Essence Music Festival sponsored by Coca-Cola®) represent 70.4% of the ads in this category. Less than 25% are as such in *People*; over 75% of ads are for generally healthier beverages, such as coffee/tea/water, real fruit juices, and low-calorie soft drinks.

In the non-sweet snacks category, asignificant difference is seen in the limited options offered in *Ebony* and *Essence*relative to those in *People*. Crackers are the only non-sweet snack advertised in *Ebony* and *Essence* whereas a variety of snack types is advertised in *People*, including chips, pretzels, granola bars, and rice cakes. In addition, baked or low-sodium snacks are advertised in *People* only. In the alcoholic beverage category, numerous liquor and non-product (institutional) ads areseen in *Ebony* and *Essence* while they are mostly non-existent in *People*. In the dairy products category, yogurts are exclusively advertised in *Ebony* and *Essence* while cheese products are exclusively advertised in *People*.

In addition, lunch combo meals, seasoning, high-fat processed meat (hot dogs, bacon), and non-product (institutional) ads for fast food restaurants are more frequently advertised in *Ebony* and *Essence* than in *People*. On the other hand, ice cream, frozen pizza/meals, pasta sauce, unsweetened cold breakfast cereals, and natural or lean-processed meat (beef, pork, or turkey) are more frequently advertised in *People* than in *Ebony* and *Essence*.

RQ3: Number of Brands (NB)

The third research question explores whether the NBwithin each FC differsbetween African American magazines and mainstream magazines. The results are shown in Table 4. Overall, the number of foodbrands advertised in *Ebony* and *Essence* (81 brands) is about half of that in *People* (154 brands) while the number of food advertisements is similar between the two magazine groups (351 vs. 329). The average ad-brand ratio is twice as high in *Ebony* and *Essence* (4.3 ads per brand) as it is in *People* (2.1 ads per brand). A Chi-square statistics from a crosstab analysis indicates that the number of food brands advertised in 13 different food categories differ significantly between the two magazine groups [$\chi^2_{(12,\ 1)}$=23.3, p<.05].

A large portion of food advertisements in *Ebony* and *Essence*is from"dominant brands," whichisdefined in this study as a brand advertised six or more times, or on average three times or more each year, in each magazine group. Advertisers often receive frequency discounts in advertising rates when they advertise at least three or more times in a magazine within a one-year contract period (Kantar Media SRDS, 2012).Almost 60% of all food ads in *Ebony* and *Essence* are for the dominant brands while less than 25% are as such in*People*. Furthermore, 13 of the 17dominant brands in *Ebony* and *Essence* are concentrated in non-alcoholic beverages (Coca-Cola®,Crystal Light®, Pepsi Cola®, Kool-Aid®, Gold Peak®), alcoholic beverages (Budweiser®, Bacardi®, Rose Courvoisier®),fast food (McDonald's®), dairy (Milk, Yoplait®), and meat (Hillshire Farm®, Oscar Mayor®). In *People*, the sevendominant brands are dispersed across seven different food categories.

Table 4.*Distribution of ads by food category and number of brands*

Food Categories	*Ebony* + *Essence* (2008, 2011)	*People* (2008, 2011)
Overall (All food ads=680)		
Number of ads/Number of brands[1]	351/**81**	329/**155**
Ad-brand ratio	4.3	2.1
Number of dominant brands[2]	17	7
Percent of ads by dominant brands[3]	58.1%	23.1%
1. Non-alcoholic beverages (N=139)		
Number of ads/Number of brands	81/**15**	58/**28**
Ad-brand ratio	5.4	2.1
Number of dominant brands	5 (Coca-Cola, Crystal Light, Pepsi Cola, Kool-Aid, Gold Peak)	1 (Starbucks)
Percent of ads by dominant brands	70.3%	10.3%
2. Sweets and desserts (N=100)		
Number of ads/Number of brands	37/**16**	63/**35**
Ad-brand ratio	2.3	1.8
Number of dominant brands	None	1 (M&M's)
Percent of ads by dominant brands	N/A	9.5%
3. Soup (N=62)		
Number of ads/Number of brands	34/**3**	28/**3**
Ad-brand ratio	11.3	9.3
Number of dominant brands	1 (Campbell)	1 (Campbell)
Percent of ads by dominant brands	82.4%	89.3%
4. Packaged meals (N=59)		
Number of ads/Number of brands	22/**7**	37/**17**
Ad-brand ratio	3.1	2.2
Number of dominant brands	1 (Oscar Mayer)	1 (Oscar Mayer)
Percent of ads by dominant brands	59.1%	29.7%
5. Condiments (N=54)		
Number of ads/Number of brands	33/**10**	21/**11**
Ad-brand ratio	3.3	1.9
Number of dominant brands	1 (Hidden Valley)	1 (Hellmann's)
Percent of ads by dominant brands	33.3%	33.3%

6. Snacks-not sweet (N=52)		
Number of ads/Number of brands	8/**3**	44/**22**
Ad-brand ratio	2.7	2.0
Number of dominant brands	None	None
Percent of ads by dominant brands	0%	0%
7. Fast food restaurants (N=52)		
Number of ads/Number of brands	40/**2**	12/**2**
Ad-brand ratio	20.0	6.0
Number of dominant brands	1 (McDonald's)	1 (McDonald's)
Percent of ads by dominant brands	95.0%	83.3%
8. Alcoholic beverages (N=47)		
Number of ads/Number of brands	41/**11**	6/**4**
Ad-brand ratio	3.7	1.5
Number of dominant brands	3 (Budweiser, Bacardi, Rose Courvoisier)	None
Percent of ads by dominant brands	56.0%	0.0%
9. Dairy products (N=31)		
Number of ads/Number of brands	16/**3**	15/**5**
Ad-brand ratio	5.3	3.0
Number of dominant brands	2 (Milk, Yoplait)	1 (Milk)
Percent of ads by dominant brands	87.5%	46.7%
10. Breakfast foods (N=30)		
Number of ads/Number of brands	12/**6**	18/**12**
Ad-brand ratio	2.0	1.5
Number of dominant brands	None	None
Percent of ads by dominant brands	0.0%	0.0%
11. Meat or meat products (N=24)		
Number of ads/Number of brands	16/**3**	8/**4**
Ad-brand ratio	5.3	2.0
Number of dominant brands	2 (Hillshire Farm, Oscar Mayer)	None
Percent of ads by dominant brands	75.0%	0.0%
12. Bread, rice, pasta (N=19)		
Number of ads/Number of brands	11/**2**	8/**3**
Ad-brand ratio	5.5	2.7
Number of dominant brands	1 (Uncle Ben's)	None
Percent of ads by dominant brands	72.7%	0.0%
13. Fruits and vegetables (N=11)		
Number of ads/Number of brands	0/**0**	11/**8**
Ad-brand ratio	N/A	1.4
Number of dominant brands	N/A	None
Percent of ads by dominant brands	N/A	0.0%

Notes:

Overall differences in the number of brands between the two magazine groups: $\chi^2_{(12,1)} = 23.3$, $p<.05$

[1]The number of brands includes duplication between categories

[2]Brands advertised six or more times in each magazine group

[3]Percent of ads from the dominant brands

Discussion

Disparitiesin Food Categories(FC) Advertised

Alcoholic beverages are still the second most frequently advertised category in *Ebony* and*Essence*, while they are the least frequently advertised category in *People*. While alcoholic beverages companies reduced their advertising spending in general consumer magazines by 44% between 2004 and 2011 (Ad Age Data Center, 2012), such drastic cut is not evident in *Ebony* or *Essence*. Persistent ethnic targeting in alcohol advertising is troubling especially when the proportion ofalcoholic beverage users is smaller among African Americans than it is among whites according to the data released by the CDC (US DHHS, 2012).

Fast food restaurants, too, maintained a steady level of advertising in *Ebony* and*Essence*between 2008 and 2011 while the food industry overall lowered its ad spending in magazines by 17.6% in 2011 alone (Publishers Information Bureau 2012). African American households are only14% more likely to frequent fast food restaurants than their white counterparts are (Mediamark Reporter,2011b).However, fast food advertisements arethree timesmore frequently found in *Ebony* and *Essence* than they are in *People*.

Advertising for fruits and vegetables is still rare. A small number of these ads appear in Peoplewhile none appears in *Ebony* and *Essence*. The lack of advertising for fruits and vegetables has been reported as abarrier to increasing the consumption of fruits and vegetables in the U.S. (Goldberg &Gunatsi, 2007). Evidence outside the U.S. suggests that large scale advertising campaigns can increase the consumption of fruits of vegetables and improve the public's knowledge and general attitudes about fruits and vegetables (Pollard et al., 2008).

Disparitiesin Product Types(PT) Advertised

In the categories non-alcoholic beverages, alcoholic beverages, and meat, unhealthy PT are far often offered in *Ebony* and *Essence* thanthey are in *People*, whereas healthier or less unhealthy PT are advertised more often in *People* than in *Ebony* and *Essence*. Non-product (institutional) advertising is prevalent in *Ebony* and *Essence*, but only in the categories of alcoholic beverages, non-alcoholic beverages and fast food restaurants. Significant between-magazine differences also exist in various PT in the categories of snacks and dairy, but these product typescannot be categorically labeled healthy or unhealthy.

One may argue that food companies aresimply responding to the existing ethnic differences in food preferences. However, results from this study suggest that food advertising directed to African Americans does not consistently reflect the known food preferences of African Americans. For example, bottled water, fruit juice, canned or jarred fruit, and frozen vegetables are almost exclusively advertised in *People* when African Americans are more likely than the general population to be heavy users of these products (Mediamark Reporter, 2011b). At a brand level, Yoplait® advertises frequently in *Ebony* and *Essence* although African Americans are generally light users of yogurt.

Disparitiesin the Number of Brands (NB) Advertised

The overall number of food brands advertised is twice as high in *People*asit is in*Ebony* and *Essence*. In addition, big food brands of non-alcoholic beverages, fast food, alcoholic beverages and meatdominate food advertising in *Ebony* and *Essence* to amuch greater extent than they do in *People*.The overrepresentation of the big food brands in *Ebony* and Essencemay be an unintended consequence of strategic decisions made by individual food brands. While the decision to advertise in ethnic media certainly rests with each brand, at a collective level, the big food brands' dominancein *Ebony* and *Essence*is striking.

Advertising cost efficiency is an important factor to consider in the selection of advertising vehicles. Cost Per Thousand Impressions (CPM) is the cost to build 1,000 exposures of an advertising message against the target audience, and is a standard metric used by media buyers when comparing cost efficiency among various advertising vehicles. Based on the advertising rate and circulation information from the 2012 Standard Rate and Data Services (SRDS), the cost efficiencies of *Ebony* (CPM=$53.7) and *Essence* (CPM=$96.9) are at least comparable to that of *People* (CPM=$88.7). Therefore, the advertising cost differential is unlikely to be a major factor for most of the national food brands' decision to advertise or not to advertise in ethnic magazines.

Conclusion

This study compared food advertisements in *Ebony* and *Essence*with those in *People* at three levels of analysis: food categories (FC), product types (PT), and number of brands (NB). In all, 13 food categories, 57 product types, and 199 brands were analyzed from 680 food advertisements. In conclusion, significant racial disparities exist between the two African American magazines (*Ebony* and *Essence*) and a popular mainstream magazine (*People*) in terms of the food categories (FC) and the number of brands (NB) advertised. Racial disparities in the product types (PT) are inconclusive within the data analyzed in this study. Furthermore, racial disparities in magazine food advertising are most likely found in the generally unhealthy food categories of alcoholic beverages, non-alcoholic beverages, fast food restaurants, and meat. In these categories, readers of *Ebony* and *Essence*, when compared with those of *People*, are being more frequently targeted for unhealthier product types that are offered by a smaller number of big food brands.

Negative media coverage of food advertising in recent years may contribute to growing public awareness of the relationship between food advertising and obesity-related health issues (e.g., HBO, 2012; Moss, 2013). Resultsfrom the current study highlight the concern that African American consumers are being continuously targeted for the marketing of unhealthy foods, as the general population becomes more health conscious and the demand for unhealthy foods declines. This overall pattern seems to bear a resemblance to the history of ethnic targeting in cigarette advertising (Basil et al., 1991; Pollay et al., 1992) in which African American consumers were treated separately, but not equally.

The scope of this study is limited to food advertisements that appeared in the print format of *Ebony*, *Essence*, and *People* from 2008 and 2011. To increase the generalizability of the findings, it is recommended that future studies expand the pool of magazines, both in print and in digital formats, as well as adding cable television that has gained a significant share of advertising expenditure within the African American media (Nielsen Wire, 2010). It is also recommended that the time frame of the analysis be expanded to detect trends over an extended period.As a content analysis, this study neither makes explicit claims about the intent of the advertisers nor establishes a direct causal link between magazine food advertising and food consumption among the targeted segments. A longitudinal trend analysis is desirable to understand the relationship between food advertising and food consumption. Public health organizations and advocacy groups need to monitor food advertising continuouslyin African American media, especially in the food categories where clear racial disparities are shown, and bring the issue to the attention of the media, public, and food companies.Current racial disparities in food advertising, coupled with the “food deserts” existing in the African American communities, may challenge the government’s effort toward promoting healthy eating among African Americansand reducing the racial disparities in obesity.

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