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Evaluating the influence of racially targeted food and beverage advertisements on Black and White adolescents' perceptions and preferences

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Abstract

Introduction: The present study measures how racially-targeted food and beverage ads affect adolescents' attitudes toward ads and brands, purchase intentions for advertised products, and willingness to engage with brands on social media.

Methods: Black and White adolescents were recruited through Survey Sampling International in 2016. Participants completed an online survey in which they were randomized to view either four food and beverage ads (e.g., soda, candy commercials) featuring Black actors or four food and beverage ads featuring White actors.

Results: For the two components of the attitudinal outcome, Black participants were more likely to report a positive affective response toward racially-similar ads compared to Whites. However, White participants were more likely to like ads that were racially-dissimilar compared to Black participants. Data were analyzed in 2016–2017, and we used an alpha level of 0.05 to denote statistical significance.

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Appendix A. Supplementary data

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Conflicts of interest

The authors have no conflicts of interest relevant to this article to disclose.

Conclusions: Both Black and White adolescents reported more positive affective responses to ads that featured Blacks compared to ads that featured Whites. Because there were no differences on two outcomes, future research should examine the influence of racially-targeted marketing in real-world contexts (e.g., social media) and longitudinal exposure to targeted advertising on dietary behavior.

Keywords

Racially-targeted marketing; Adolescent; Brand engagement; Advertisement; Social media

1. Introduction

Over 20% of adolescents ages 12–19 years in the United States are obese or overweight (Ogden, Carroll, Fryar, & Flegal, 2015). Further, 19.5% of Black youth ages 2–19 years meet criteria for obesity compared to 14.7% percent of White youth (Ogden et al., 2015). Developing obesity at a young age places youth at a greater risk of negative health outcomes in adulthood (Tirodkar & Jain, 2003).

Food and beverage advertising has been identified as a major contributor to childhood obesity (Halford et al., 2004, 2008; Harris, Bargh, & Brownell, 2009a; McGinnis, Gootman, & Kraak, 2006). Nielsen data estimating television advertising exposure rates in the U.S. show that adolescents view over 4000 food and beverage television ads annually (Frazier & Harris, 2017), the vast majority of these commercials promoting unhealthy products (Boyland & Halford, 2013; Harris et al., 2013, 2014). Numerous studies have demonstrated exposure to food marketing associated with increased food intake (even for foods not advertised), purchase requests, and stronger brand preferences among children (Boyland & Halford, 2013; Cairns, Angus, Hastings, & Caraher, 2013; McGinnis et al., 2006).

Targeted marketing (i.e. using common characteristics and behaviors that appeal to a certain consumer group, and positioning products in mediums most likely to reach them) is one tool used by food companies to reach specific demographics (e.g. airing commercials during shows popular among adolescents) (Grier & Kumanyika, 2010). This may be especially powerful among adolescents, who seek products and brands that provide them with a sense of identity (Grier & Kumanyika, 2010), aim to distinguish themselves from parents (Kersting, 2004), and may respond more favorably to adolescent-targeted ads featuring someone with desired qualities (e.g. fame, beauty). (Marwick, 2010).

Nielsen reports that it is common industry practice for companies to include Black celebrities as spokespersons in marketing because Black consumers are more likely to purchase products with Black spokespersons compared to White spokespersons (Harris et al., 2009b; Nielsen Company And. Incr, 2015). Targeted ads convey inclusivity themes (e.g. ethnic symbols, linguistic styles), reinforcing a sense of identity with young minority consumers (Adeigbe, Baldwin, Gallion, Grier, & Ramirez, 2015; Grier & Kumanyika, 2008; Scott, 2012). Thus, it is alarming that food and beverage companies advertise more unhealthy food products on television channels popular among Black youth, while healthier products appear on channels popular among White youth (Harris, Shehan, Gross, & Others, 2015). Compared to White youth, Black youth are exposed to 70% more fast

food and beverage TV commercials than commercials promoting healthier foods, and these advertisements primarily feature unhealthy products (Grier & Kumanyika, 2008). Black youth are especially appealing to marketers because of their high media use, spending patterns, and companies perceive them as trendsetters with more cultural influence than other demographic groups (Grier & Kumanyika, 2008).

Numerous studies have demonstrated that youth are heavily targeted by food companies (Grier & Kumanyika, 2010; Harris et al., 2013, 2014, 2015; Montgomery & Chester, 2009; Powell et al., 2007, 2014; Story & French, 2004; Weber, Story, & Harnack, 2006), but only a few have examined the influence of such ads on adolescents (Cairns et al., 2009, 2013; Dixon et al., 2014; Grier, 2009; Kelly et al., 2016; Scully et al., 2012; Woodward et al., 1997). Although numerous studies demonstrate the pervasiveness of racially-targeted marketing (Adeigbe et al., 2015; Grier, 2009; Grier & Kumanyika, 2008; Harris et al., 2015), none have assessed the effects of racially-targeted ads on Black and White adolescents. Because adolescents are in a critical stage of identity development that facilitates the adoption of strong brand loyalty and product preferences (Grier, 2009; Grier & Kumanyika, 2010; Kersting, 2004; Marwick, 2010), and they account for millions in spending power (McGinnis et al., 2006), more research is needed on the influence of food and beverage marketing on adolescents because targeted marketing may play an influential role in various health behaviors (e.g. caloric intake). This study aims to examine the effect of Black- and White-targeted commercials on Black and White adolescents' attitudes toward ads, product preferences, and willingness to engage with food and beverage brands on social media.

2. Methods

2.1. Participants

In 2016, we recruited 1533 participants ages 12–17 years to complete an online survey. Survey Sampling International (SSI) recruited participants for the study. Survey Sampling International is a firm that maintains panels of adults and adolescents in the United States who are recruited via online communities and panels, social media sites, and online banner advertising. Their recruitment materials invite participants to answer survey questions, using incentives such as cash, sweepstakes, and charity donations. SSI's participant panels have been included in public health studies that span a range of topics (e.g., sugary beverage warning labels (Moran & Roberto, 2018; Roberto, Wong, Musicus, & Hammond, 2016; VanEpps & Roberto, 2016), food advertising (Fleming-Milici, Harris, & Liu, 2018; Goren, Harris, Schwartz, & Brownell, 2010), food and tobacco policy (Fong et al., 2006; Harris, Thompson, Schwartz, & Brownell, 2011; Loureiro & Umberger, 2007; Petrescu, Hollands, Couturier, Ng, & Marteau, 2016), and media messaging (Gollust, Lantz, & Ubel, 2009; Puhl et al., 2013)). The firm uses a three-stage randomization process to match participants with surveys for which they likely meet eligibility criteria. First, randomly selected participants who are already members of SSI's panels are combined with a pool of potential participants who are joining SSI for the first time after responding to SSI's recruitment materials. This combined group of potential participants receives an invitation to "take a survey," but the recruitment materials do not provide the participants with additional details about the surveys that might introduce systematic selection bias (e.g., "take survey on food

commercials" might lead people with an interest in food to click the survey link). Second, to become eligible for a specific study that is available at that time point, the potential participants complete quality control questions and are randomly matched with surveys they for which they likely meet eligibility criteria that is available at that time. Finally, among the randomly selected participants who have expressed an interest in and have been randomly matched with a survey, a subset are randomized to complete a specific survey. That subset makes up the final participant sample. For the present study, SSI recruited participants who identified as Black/African American or White (Table 1). A total of 1533 participants started the survey, 1503 completed it, and 30 were excluded because they: (1) they self-identified as a race/ethnicity other than Black or White; (2) were outside the eligible age range (12–17 years); or (3) incorrectly answered the data integrity question that appeared after survey television commercials (i.e. "What was the name of the product being shown?").

2.2. Selecting and pre-testing food and beverage commercials

Using a 2 × 2 design, participants were randomized to view four food and beverage commercials featuring Black actors (Black-targeted condition) or four food and beverage commercials for the same brands featuring White actors (White-targeted condition). This generated four groups: 1) Black participants who saw Black-targeted ads; 2) Black participants who saw White-targeted ads; 3) White participants who saw Black-targeted ads; and 4) White participants who saw White-targeted ads. Television commercials were purchased through Kantar Media, a company that maintains AdScope's database of all television, website, radio station, newspaper, and magazine advertisements since 1996 (AdScope Intelligence, 2017). We obtained recent food and beverage advertisements that aired in 2010 or later using search terms associated with brands that spend more than other food and beverage companies on advertising (e.g. "Coca-Cola") (Harris et al., 2012, 2013, 2014, 2015) as well as race/ethnicity keywords. In a set of 945 potential AdScope commercials, we used the keywords "Black" and "African American" to identify a list of 46 potential food and beverage commercials including Black actors. We then searched for 46 ads featuring White actors that were most similar to the ads with Black actors. We excluded ads that did not feature adolescents or have a potential match. Two commercials were considered matches when they each promoted the same brand, featured only White or only Black adolescents, and had an ad duration within 15 s of its counterpart. For example, a Gatorade ad featuring Black individuals would be considered a match for a Gatorade ad featuring White individuals.

The final set of options included six Black- and six White-targeted commercials, which were pretested through SSI with 50 Black and 50 White adolescents ages 12–17 years to ensure ads were rated as adolescent-targeted. All adolescents in the pretest viewed the commercials and reported the perceived target audience by answering three questions evaluated on 7-point scales with responses ranging from 1 (disagree completely) to 7 (agree completely): "I feel the advertisement was intended for people like me," "I do not believe I was in the target market the company created the advertisement for," and "The advertiser made that advertisement for people like me." (Aaker, Brumbaugh, & Grier, 2000) The four pairs of commercials with the highest pre-test ratings were selected for inclusion in the final survey. To ensure the ads we were studying were perceived by adolescents as targeted towards them,

we excluded two pairs of commercials with the lowest ratings for the pre-test questions related to the perceived target audience. Our final sample of ads included four Black- and four White-targeted ads. The selected advertisements represented four well-known brands: Gatorade, Skittles, Pebbles Cereal, and Trolli Gummi Candy. Three Black-targeted ads were 15 s in duration, and one Black-targeted ad was 30 s in duration. Three White-targeted ads were 30 s in duration and one White-targeted ad was 15 s in duration (See Appendix 1 for descriptions of the ad content).

2.3. Survey procedure

Eligible participants provided informed consent and completed the survey, which involved viewing four commercials and answering questions about each one (see Supplementary Table 1 for survey questions). The average duration of each commercial was 22.5 s, and the median survey completion time was 22 min. The Institutional Review Board at NYU Langone Medical Center approved this study.

2.4. Primary outcomes

2.4.1. Liking of the ad—Supplementary Table 1 displays all survey items and response choices. After viewing a commercial, participants responded to the question, “Did you like the ad?,” adapted from Spears and Singh’s (Spears & Singh, 2004) attitude toward the brand measure. The response options included eight choices that enabled the participant to indicate that they liked or disliked the ad. We dichotomized this variable into “liked the ad” if participants indicated a “positive” response (e.g. *The ad is good*) or “did not like the ad” if they indicated a “negative” response (e.g. *I disliked the ad*).

2.4.2. Affective response to the ad—We adapted the Attitude Toward the Ad Inventory (Madden, Allen, & Twible, 1988) and participants responded to the question, “How did the ad for this product make you feel?” Participants selected one affective reaction among a list. Responses were dichotomized into “positive affective reaction” to the ad if participants reported feeling *cheerful*, *excited*, *pleased*, *stimulated*, and *soothed* in response to the ad, while *repulsed*, *insulted*, and *irritated* were considered “negative affective reaction.”

2.4.3. Taste perception—We measured perceived tastiness using responses to the question, “How good/bad do you think this product would taste?” on a 7-point Likert scale (1 = Very Bad; 7 = Very Good).

2.4.4. Response to the brand—Participants responded to four questions assessing their reaction to the brand being advertised (see Supplementary Table 1 for survey items). A composite measure for each ad was created by averaging participants’ responses to these items, and the brand trust question was linearly transformed from a 5-point scale to a 7-point scale. This expanded the range of the 5-point scale to 7 points with even spacing between each point (Howell, 2012), ultimately allowing us to combine this item into a composite measure with the other three items.

Participants also responded to the question, “How much do you like the brand?,” which we adapted from Spears and Singh’s (Spears & Singh, 2004) attitude toward the brand measure. Responses were coded as liking the brand (e.g. *I like the brand*) or not liking the brand (e.g. *The brand is bad*).

2.5. Secondary outcomes

2.5.1. Brand engagement—Participants were asked whether they would “follow” or “like” product accounts on Facebook, Twitter, and Instagram if they did not follow the brand or product account already. Participants’ responses were combined across all three platforms into a single dichotomous variable indicating whether or not they would follow the product on any social media platform. We excluded responses indicating the participant did not use that platform or already followed the product because we were interested in whether the ad would influence brand engagement on social media.

2.5.2. Purchasing and consumption intentions—Participants indicated how likely they were to purchase the product shown in the ad using a 7-point Likert scale. Participants also reported how often they would consume the product if possible (measured on a 5-point scale).

2.5.3. Statistical analyses—To explore the influence of ad targeting on Black and White adolescents, we used R[50] and *lme4*[51] to conduct a multilevel regression on each of the outcome measures described above. We analyzed binary outcomes using logistic regressions, and continuous outcomes using linear regressions. In each model we included participant race, whether participants viewed ads that were congruent or incongruent with their own race, and the interaction of these two variables as between subjects fixed effects. Because this was a randomized experiment, we did not control for any other variables in our primary analysis. We did, however, repeat our main analysis adjusting for age, gender, and parental education (measured as the maximum education achieved by either parent) because two of these variables were not balanced across the groups, suggesting the need to adjust for demographic covariates. To account for individual differences, we included a random intercept of participant in each model. When applicable, we broke down significant interactions to explore the simple effects of ad targeting within Black and White adolescents, respectively, and estimated the effect of ad targeting within Black and White adolescents separately.

3. Results

3.1. Liking of the ad

On average, participants liked 84% of the ads (SD = 26%). Using a multilevel logistic regression, we found a main effect of participant race such that on average, Black participants were more likely to like the ad (adjusted probability = .96) than were White participants (adjusted probability = .90), $b = 0.50$, $se = 0.07$, $z = 6.71$, $p < .001$ (Table 2). We did not find evidence for a main effect of ad targeting ($p = .51$), however, the interaction between participant race and ad targeting was significant, $b = 0.17$, $se = 0.08$, $z = 2.16$, $p = .03$. Breaking down this interaction to look at the simple effect of targeting within Black

and White adolescents respectively, we found that White participants were more likely to like Black-targeted ads than White-targeted ads, $b = -0.21$, $se = 0.10$, $z = 2.08$, $p = .04$. For Black participants, we did not find evidence for an effect of targeting on the probability of liking the ad, $b = 0.11$, $se = 0.11$, $z = 1.01$, $p = .31$. For White participants, the adjusted probability of liking a White-targeted ad was 88% while the adjusted probability of liking a Black-targeted ad was 91% (Fig. 1). For Black participants, the adjusted probability of liking a Black-targeted ad was 96% and the adjusted probability of liking a White-targeted ad was 95%. Further analyses revealed that this interaction effect held for the Gatorade and Skittles ads, but was not significant for the Trolli and Cocoa/Fruity Pebbles ads.

3.2. Affective response to the ad

On average, participants reported a positive affective reaction to 90% of the ads (SD = 20%). Although we found neither a main effect of participant race ($p = .47$) nor of ad targeting ($p = .57$), there was a significant interaction, $b = 0.27$, $se = 0.07$, $z = 3.75$, $p < .001$. Breaking down this interaction into its simple effects, we found that White participants were more likely to report a positive affective reaction to ads that were Black-targeted than White-targeted, $b = -0.32$, $se = 0.10$, $z = 3.09$, $p = .002$; the adjusted probability of reporting a positive affective reaction to a White-targeted ad was 95% while the adjusted probability of reporting a positive affective reaction to an Black-targeted ad was 97% (Fig. 2). Conversely, we found that Black participants were more likely to report positive affect in response to Black-targeted ads than White-targeted ads, $b = 0.22$, $se = 0.10$, z = 2.20, $p = .03$. The adjusted probability of Black participants reporting a positive affective reaction to a Black-targeted ad was 97% and the adjusted probability of reporting a positive affective reaction to a White-targeted ad was 95%. Follow up analyses revealed that this effect was driven by the Trolli and Skittles ads, while the interaction between participant race and ad targeting was not significant for Gatorade and Cocoa/Fruity Pebbles ads.

3.3. Taste perception

Participants' average taste rating of products was $M = 6.05$ ($SD = 1.94$). We failed to find evidence for an effect of participant race ($p = .42$), ad targeting ($p = .97$), or their interaction ($p = .72$) on participants' taste ratings for the product featured in the ads.

3.4. Response to the brand

Overall, participants reported an average of score of $M = 5.88$ (out of 7) ($SD = 1.13$) on the composite measure of participants' response to the brand. We failed to detect a significant effect of participant race ($p = .57$), ad targeting ($p = .68$), or their interaction on participants' response to the brand ($p = .24$). We found that on average, participants liked 91% of the brands (SD = 18%). We found neither a main effect of participant race ($p = .52$) nor of ad targeting ($p = .60$), and the interaction was not statistically significant, $b = 0.12$, $se = 0.07$, $z = 1.83$, $p = .07$.

3.5. Brand engagement

Participants said they would "like" or "follow" 64% of the ads. We failed to find evidence that participant race ($p = .10$), ad targeting ($p = .69$), or their interaction had a significant effect on participants' likelihood of social media engagement ($p = .32$).

3.6. Purchase intentions

Participants reported an average of $M = 5.72$ ($SD = 1.60$) on the item measuring likelihood of purchasing the featured product. We failed to detect a significant effect of participant race ($p = .86$), ad targeting ($p = .67$), or their interaction ($p = .29$).

3.7. Consumption intentions

The average rating on the item asking participants how often they would eat/drink the featured product if possible was $M = 2.76$, $SD = 1.26$ (0 = Never; 4 = Daily). We found a significant main effect of participant race such that black participants said they would be less likely to consume the featured product $b = -0.06$, $se = 0.03$, $t(1497) = 2.60$, $p < .001$. We failed to detect a significant effect of either ad targeting ($p = .88$) or the interaction between ad targeting and participant race ($p = .80$). When we included age, gender, and parental education in the model as covariates, we found that the main effect of participant race was no longer significant (p = .45).

4. Discussion

This study aimed to examine the influence of Black- and White-targeted food and beverage commercials on Black and White adolescents' attitudes toward ads, perceived tastiness of advertised products, attitudes toward brands, willingness to engage with brands on social media, and purchase and consumption intentions. Overall, Black and White adolescents reported positive responses to both Black- and White-targeted ads indicating the broad appeal of both types of food and beverage ads. Our hypothesis that participants would report favorable attitudes toward commercials featuring actors whose race matched their own was partially supported. When asked how the ad made them feel, Black participants were more likely to report a positive emotional response to ads featuring Black actors. Unexpectedly, White participants were also more likely to report a positive emotional response to ads featuring Black actors. For the more overt attitudinal question "Did you like the ad?," White adolescents also preferred Black-targeted ads compared to White-targeted ads, but there was no difference between Black adolescents' ratings of Black- and White-targeted ads.

White adolescents' preference for Black-targeted ads may not be surprising given that companies often view Black adolescents as trendsetters (Zmuda, 1377). For example, the Assistant Vice President of African American Marketing at Coca-Cola remarked on the trendsetting role of young Black consumers: "Teens really are the future of America, and African-American teens, in particular, have proven to be trendsetters in the U.S. Their ability to shape culture is really critical." (Zmuda, 1377) Further, the Senior Vice President of U.S. Strategic Community Alliances and Consumer Engagement, Nielsen reinforced the trendsetting nature of Black consumers, stating, "Our research shows that Black consumer choices have a 'cool factor' that has created a halo effect, influencing not just consumers

of color but the mainstream as well." (Black Dollars Matter, 2018) Although we did not hypothesize that White adolescents would have some stronger preferences for Black-targeted ads relative to White-targeted ads, these industry insights suggest that Black-targeted media may be highly appealing to other racial/ethnic groups.

Our observed effect sizes were small, which is consistent with industry reports and academic literature that suggests enormous amounts of repeated exposure are needed for consumers to maintain brand awareness (Holman & Hecker, 1983; Online or Traditional Adv, 2016; Reuters, 2013), which is a prerequisite for brand loyalty and leads to increased purchases (How does advertising work, 2018; Macdonald & Sharp, 2000; Reuters, 2013). As highlighted by industry reports, brief ad exposure can produce very small effects, but when aggregated over time, can lead to more substantial influence on purchasing (How does advertising work, 2018). Because industry literature indicates that repeated exposure is needed to affect consumers' perception and behavior, it is possible that repeated exposure to racially targeted advertisements would increase product preferences among racially targeted group. Although racially targeted marketing is not inherently problematic, it raises issues of social justice when the advertisements promote unhealthy products. Social cognitive theories predict that repeated exposure to food advertising can also lead directly to beliefs and behaviors without active, deliberate processing of the information presented (Bargh & Ferguson, 2000; PsycNET, 2018; Strack & Deutsch, 2004; Wilson & Bar-Anan, 2008).

This study makes a contribution to the literature on racially-targeted marketing because much of the existing research in this area has focused on tobacco and alcohol and much of the food marketing work has only documented the prevalence of racially targeted marketing. Research shows racially targeted marketing is prevalent and promotion of unhealthy products appears more frequently in Black communities and media outlets compared to White communities and media outlets (Tirodkar & Jain, 2003; Yancey et al., 2009; Cruz, Wright, & Crawford, 2010; Seidenberg, Caughey, Rees, & Connolly, 2010; Henriksen, Schleicher, Dauphinee, & Fortmann, 2012; Ohri-Vachaspati et al., 2015; Duerksen et al., 2005; Home -onn Rudd Center, 1115; Bang & Reece, 2003; Henderson & Kelly, 2005; Morland, Wing, & Roux, 2002; Harrison, 2006; WebsiteSteinburg, 2012; Hackbarth et al., 2001). Survey research on tobacco ads showed that adolescents who responded favorably to tobacco advertisements were more likely to like tobacco brands which, in turn, predicted increased likelihood of smoking (Image Advertisements' Inf, 2018; Díaz, Villalbí, Nebot, Aubà, & Sanz, 1998; Armstrong, de Klerk, Shean, Dunn, & Dolin, 1990). Consistent with other research that found that racial/ethnic minorities are more likely to respond to racially-similar ads (Appiah, 2001; Brumbaugh, 2009; Deshpandé & Stayman, 1994; Green, 1999), we found that Black participants had a more positive emotional response to racially-similar ads. This is the first study to our knowledge to experimentally examine the influence of racially-targeted ads on Black and White adolescents, and is novel because its focus on youth.

5. Conclusions

Although there was some evidence that Black-targeted marketing increased positive responses toward ads among Blacks, the effects only occurred with adolescents' ratings of

how much they liked the ad and how it made them feel. There were no observed differences on adolescents' tastiness perceptions, brand liking, likelihood of following brands on social media, or purchase and consumption intentions. This may be because brand loyalty tends to be relatively stable over time (Cowie, Swift, Borland, Chaloupka, & Fong, 2014; Torres, Augusto, & Godinho, 2017), making it unlikely that this study's single exposure to racially-targeted marketing ad would have immediate effects on brand loyalty. Although it is possible that racially-targeted marketing does not influence the other product and brand outcomes measured in this study, more research involving repeated exposure to such ads is needed to understand whether a relationship exists.

5.1. Limitations

This study has several limitations. First, it is impossible to match commercials that are identical in every aspect except race/ethnicity because each commercial has a slightly different theme (e.g. "kitten condominium" versus "candy dog" in Trolli Candy commercials). We included four commercials that varied in their music, themes, and actors to prevent narrow stimulus sampling and determine if any effects replicated across multiple commercials. The race/ethnicity of the individual in the ad was the only factor consistently manipulated. Our pre-test, however, did not include questions to assess the likeability of other ad features (e.g., music, attractiveness of actors). We therefore cannot rule out that other ad features may explain our results, which emerged for two, but not all four ads. It is also important to recognize that racially-targeted marketing often encompasses other features aside from just the race of actors, including featuring certain themes, music etc. This means that any differences driven by other ad features like music or themes, might also reflect racial-targeting. Finally, it is possible adolescents' responses were affected by varying duration of the commercials (i.e., some were 15 s and others were 30 s in duration). In addition, because Black and White participants responded very favorably to ads, it may have been difficult to detect meaningful differences in adolescents' responsiveness to the racially-targeted component of the ads. Our use of a convenience sample also means our results cannot be generalized to all Black and White adolescents. Finally, because this is one of the first studies examining the effects of targeted food marketing among Black and White adolescents, we used an alpha level of 0.05 to denote statistical significance and did not correct for multiple tests, suggesting the need for replication of this research before drawing firm conclusions.

This study has a number of strengths, including the large sample size and inclusion of adolescents, who are understudied in food and beverage marketing. This study is also the first to examine the influence of racially-targeted food and beverage ads on Black and White adolescents' attitudes toward ads, brands, purchase intentions, and willingness to engage with brands on social media. Although this study provides some evidence that Black-targeted ads influence adolescents' preferences for those ads, more research is needed to examine how these ads affect actual purchases and food consumption.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Dr. Marie Bragg originated the study idea and design, helped with data acquisition and analyses, led the writing of the manuscript, had full access to all of the data in the study, and takes responsibility for the integrity of the data and accuracy of the analysis. Ms. Alysa Miller helped with the data acquisition and analysis, and helped draft the manuscript. Dr. David Kalkstein helped lead the data analysis and with interpretation of study results. Dr. Brian Elbel helped interpret study results and provided critical feedback on the drafts of the manuscript. Dr. Christina Roberto helped with leading the data analysis, interpreting results, and provided critical manuscript feedback.

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Appendix 1

Descriptions of Ad Content

The Gatorade ads featured an athlete engaging in physical activity and drinking Gatorade. Both Pebbles cereal ads featured a celebrity athlete engaging in physical activity and eating cereal. The Trolli candy ads featured adolescents engaging in a silly activity involving the candy; in the Black-targeted ad, an adolescent was eating the candy while kittens sat on top of his head. In the White-targeted Trolli ad, the adolescent was playing with a toy dog covered in the candy. In the Skittles ad in the Black-targeted ad condition, a Black individual is working out in a gym filled with Skittles. In the Skittles ad in the White-targeted ad condition, two White individuals are talking next to bleachers on a football field. Although the duration and theme of the ads are not identical, these ads were the most similar among the 92 ads that were identified through the search process as either featuring White or Black individuals in the ads.

Appendix

Appendix 2.

Pre-Test Results Exploring Adolescents' Perceptions about Ad Stimuli *

Demographic Characteristics			
Race/ethnicity	**Female (*n*)**	**Male (*n*)**	**Average Age (years)**
Black	34	16	15.4
White	28	22	15.3

Average Pre-test Advertisement Ratings Across the Sample (1–7 Point Likert Scale)

Demographic Characteristics			
Race/ethnicity	**Female (*n*)**	**Male (*n*)**	**Average Age (years)**
	"I do not believe I was in the target market the company created the advertisement for."	**"I feel the advertisement was intended for people like me."**	**"The advertiser made that advertisement for people like me."**
Skittles Ad Featuring Black Individuals			
Black participants' ratings	2.6	5.9	6.0
White participants' ratings	2.5	5.9	5.7
Skittles Ad Featuring White Individuals			
Black participants' ratings	2.5	6.0	6.7
White participants' ratings	2.6	6.0	6.0
Gatorade Ad Featuring Black Individuals			
Black participants' ratings	2.5	6.1	6.2
White participants' ratings	2.7	5.9	6.1
Gatorade Ad Featuring White Individuals			
Black participants' ratings	2.6	6.0	5.9
White participants' ratings	2.5	5.7	6.0
Trolli Ad Featuring Black Individuals			
Black participants' ratings	2.6	5.8	6.2
White participants' ratings	2.4	6.0	6.1
Trolli Ad Featuring White Individuals			
Black participants' ratings	2.5	5.9	5.9
White participants' ratings	2.4	5.9	6.0
Fruity/Cocoa Pebbles Ad Featuring Black Individuals			
Black participants' ratings	2.7	5.8	6.2
White participants' ratings	2.8	5.9	5.8
Fruity/Cocoa Pebbles Ad Featuring White Individuals			
Black participants' ratings	2.4	6.0	6.1
White participants' ratings	2.4	6.1	6.0
McDonald's Ad Featuring Black Individuals			
Black participants' ratings	2.4	5.5	6.0
White participants' ratings	2.5	5.6	5.7
McDonald's Ad Featuring White Individuals			
Black participants' ratings	2.2	3.1	3.9
White participants' ratings	2.1	3.6	3.5
Coca-Cola Ad Featuring Black Individuals			
Black participants' ratings	2.4	6.0	6.0
White participants' ratings	2.6	6.1	6.2
Coca-Cola Ad Featuring White Individuals			
Black participants' ratings	4.7	2.5	2.8
White participants' ratings	5.7	2.3	2.7

[*] Chi-squared tests and t-tests did not indicate any differences in the Black and White participants' ratings of the 8 pairs of commercials. The two lowest scoring commercials (i.e., McDonald's and Coca-Cola) were removed and the remaining 6 pairs were used as the stimuli for this study.

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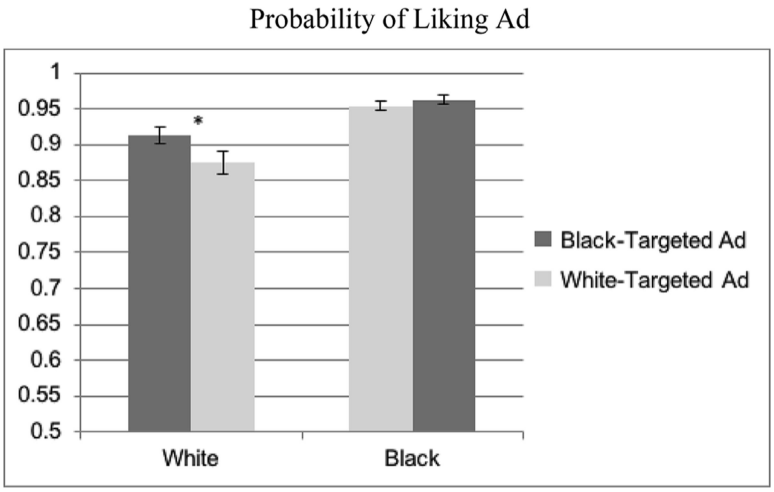

Fig. 1.

Estimated adjusted probability of liking ad based on participants' race and whether the ad they viewed was targeted toward their own racial group or was targeted toward another racial group*$p < .05$.

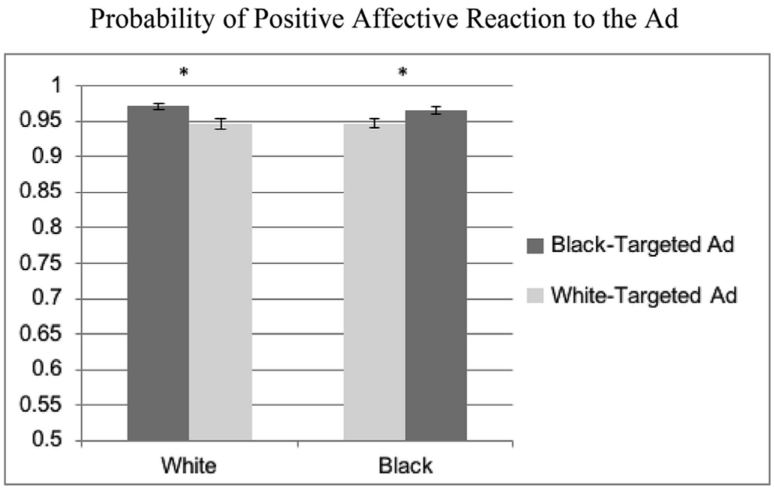

Fig. 2.

Estimated adjusted probability of a positive affective reaction to an ad based on participants' race and whether the ad they viewed was targeted toward their own racial group or was targeted toward another racial group*$p < .05$.

Table 1

Sociodemographic characteristics of sample.

Demographic Characteristics	Full Sample N (%)	Black Adolescents *n* (%)	White Adolescents *N* (%)
N	1502	769 (51.2)	733 (48.8)
Female	44.6	413 (61.5)[b]	258 (38.5)[b]
Male	55.3	356 (42.8)[b]	475 (57.2)[b]
Average age, y	14.73	14.9	14.5
Race			
White	733 (48.8)	0 (0)	733 (48.8)
Black	769 (51.2)	769 (51.2)	0 (0)
Average parent 1 education			
Less than high school	126 (8.4)	69 (4.6)	57 (3.8)
High school/GED	279 (18.6)	156 (10.4)	123 (8.2)
Vocational/Trade school	59 (3.9)	39 (2.6)[b]	20 (1.3)[b]
Some college	317 (21.1)	215 (14.3)[b]	102 (6.8)[b]
Bachelor's degree	395 (26.3)	180 (12.0)[b]	215 (14.3)[b]
Master's degree	225 (15.0)	72 (4.8)[b]	153 (10.2)[b]
Advanced graduate work or PhD	85 (5.7)	25 (1.7)[b]	60 (4.0)[b]
Not sure	14 (0.9)	11 (0.7)	3 (0.2)
Not applicable	2 (0.1)	2 (0.1)	0 (0)
Average parent 2 education			
Less than high school	49 (3.3)	25 (1.7)	24 (1.6)
High school/GED	284 (18.9)	173 (11.5)[b]	111 (7.4)[b]
Vocational/Trade school	60 (4.0)	41 (2.7)[b]	19 (1.3)[b]
Some college	343 (22.8)	220 (14.6)[b]	123 (8.2)[b]
Bachelor's degree	401 (26.7)	157 (10.5)[b]	244 (16.2)[b]
Master's degree	175 (11.6)	45 (3.0)[b]	130 (8.7)[b]
Advanced graduate work or PhD	78 (5.2)	27 (1.8)[b]	51 (3.4)[b]
Not sure	48 (3.2)	35 (2.3)[b]	13 (0.9)[b]
Not applicable	64 (4.3)	46 (3.0)[b]	18 (1.2)[b]
How often are you exposed to advertisements of this product?[a]	2.62	2.6	2.7 (0.2)

[a]Response choices were: 0 = Never; 1 = A few times a year; 2 = Once a month; 3 = Once a week; 4 = Every day. There was no significant difference between self-reported exposure rates between groups, and the average rating for the whole sample was 2.62.

[b]If $p < .05$ when comparing Black and White adolescents.

Table 2

Outcomes by advertising condition.

Percentages (SEs)	Black Participants		White Participants	
	Targeted	**Non-Targeted**	**Targeted**	**Non-Targeted**
Liking of Ad	96.0% (.01)	95.0% (.01)	88.0% (.02)	91.0% (.01) *
Positive Affective Reaction	97.0% (.01)	95.0% (.01) *	95.0% (.01)	97.0% (.01) *
Liking Brand	96.0% (.01)	95.0% (.01)	95.0% (.01)	96.0% (.01)
Brand Engagement	77.0% (.04)	75.0% (.04)	80.0% (.03)	84.0% (.03)
Means (SEs)				
Taste	6.06 (.04)	6.08 (.05)	6.04 (.05)	6.02 (.05)
Response to Brand	5.88 (.05)	5.85 (.05)	5.86 (.05)	5.93 (.05)
Likelihood of Purchasing	5.70 (.06)	5.74 (.06)	5.77 (.06)	5.68 (.06)
Desired Consumption Frequency	2.69 (.05)	2.71 (.05)	2.83 (.05)	2.82 (.05)

* Indicates significant differences between targeting conditions for Black and White participants, respectively.

* $p < .05$.

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