

Depiction of Food as Having Drug-like Properties in Televised Food Advertisements Directed at Children: Portrayals as Pleasure Enhancing and Addictive

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ABSTRACT

Introduction: The purpose of this study was to examine food commercials airing during children's TV programming for portrayals of behaviors associated with substance use, violence, disrespect, and stealing. It was hypothesized that these behaviors would be present and would be more frequent in commercials advertising specific products (e.g., ready-to-eat cereals) than for those advertising restaurants (e.g., fast food).

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Method: A content analysis of 147 food commercials televised during children's TV programming on U.S. broadcast networks examined commercials for behaviors associated with substance use behavior, physical violence, and other problematic behaviors for children.

Results: Commercials contained depictions of exaggerated pleasure sensation and dependency/addiction, portrayals of physical violence, trickery, thievery/stealing, fighting and taking extreme measures to obtain a food, and treating adults with disrespect. More portrayals appeared in commercials for high-sugar cereals than in those for fast-food restaurants.

Discussion: Findings raise concern about the presence of this content in televised food advertisements targeting children and serve to alert pediatric health professionals and other child health advocates to take a closer look at this issue. *J Pediatr Health Care.* (2009) 23, 150-157.

Key words: Advertising, food marketing, child health

Childhood obesity is a major public health problem in the United States and in many other areas of the world (Anderson & Butcher, 2006), yet children are heavily targeted with marketing for foods high in sugar, fat, calories, and sodium and low in nutritional value (Linn, 2004; Palmer & Carpenter, 2006). A joint report prepared by the World Health Organization and the Food and Agriculture Organization concluded that the heavy marketing of fast food and high-caloric snack foods and beverages is a probable causal factor in weight gain and obesity in children (World Health Organization, 2003). According to a recent report by the Institute of Medicine (IOM) (2006), between 1994 and 2004, the rate of increase in the introduction of new food and beverage products targeted to children and youth substantially outpaced the rate for

those targeting the total market. The report estimates that more than \$10 billion per year is spent for all types of food and beverage marketing to children and youth in the United States.

While children today use a variety of media, TV remains the primary venue for reaching children with marketing messages, especially younger children (Roberts, Foehr, & Rideout, 2005). According to Palmer and Carpenter (2006), children and teens today may view approximately 60,000 commercials a year, up from 20,000 in the 1970s, 30,000 in the 1980s, and 40,000 in the 1990s. Stanley (2004) points out that TV receives the majority of the advertising budget because it reaches a larger proportion of a targeted audience compared with the newer interactive media. Research conducted in the 1990s showed that at least half of advertisements shown during children's TV programming (primarily Saturday morning programming) were food advertisements, of which 90% were for products high in fat, sugar, and/or salt and low in essential nutrients (Gamble & Cotugna, 1999; Kotz & Story, 1994; Taras & Gage, 1995). Kotz and Story calculated that children view an average of one food commercial for every 5 minutes of TV viewing time and may see as many as 3 hours of food commercials each week.

It is interesting that most advertisements for food products marketed to children are cleverly constructed to get the young viewers to have an emotional association with the foods, with little or no mention of actual product qualities (Buijzen & Valkenburg, 2002; IOM, 2006; Kunkel & Gantz, 1992). These advertisements appeal to children's interests and desires for fun/happiness, play, wanting to feel grown up, peer popularity, humor, sports, and action-adventure (Buijzen & Valkenburg; Connor, 2006; Folta, Goldberg, Economos, Bell, & Meltzer, 2006; Tseng, 2001). A content analysis study by Rajecki and col-

leagues (1994) suggested that food advertisements targeting children also may associate foods with having mood altering and dependency properties, similar to certain drugs of abuse, and portray inappropriate behaviors such as violence, thievery, and trickery. This study and others (Consumers International, 1999; Lewis & Hill, 1998) identified dependency (e.g., addiction to the food product) and mood alteration (e.g., using the product to obtain drug-like effects) to be present in food commercials appearing in the 1990s. Rajecki and colleagues also identified themes, exhibited by portrayal of inappropriate behaviors, such as violence, conflict, trickery, and cheating, as themes in TV advertisements for children. These portrayals are meaningful to consider because they may connect with children's beliefs and attitudes about the advertised food products. Messages that eating a particular food can lift your mood or tastes so good that you cannot live without it, or the need to take extreme measures such as fighting or trickery to obtain the food, may be motivational to children in terms of desiring, requesting, purchasing, or eating the food. Pediatric health care professionals and other child advocates should be interested in the nature and extent of these portrayals, consider the appropriateness of this content for children, and investigate public policy and educational measures to confront or control material that is deemed to not be in the best interests of children's health and well-being.

While there have been numerous studies analyzing the content of children's televised food advertisements (Buijzen & Valkenburg, 2002; Folta et al., 2006; Gamble & Cotugna, 1999; Kotz & Story, 1994; Taras & Gage, 1995), the aspect of content depicting behaviors associated with substance use and other inappropriate behaviors has received only minimal attention, with only one study in the professional literature appearing in a social psy-

chology journal in 1994 (Rajecki et al., 1994). Given the declaration of childhood obesity as "epidemic" (Anderson & Butcher, 2006) and growing concern among health professionals about possible linkages between obesity and food advertising practices (Lewin, Lindstrom, & Nestle, 2006), we believe this issue needs to be explored more fully. Thus, the purpose of this study was to examine televised food commercials airing during children's programming for depictions of behaviors associated with substance use and other problematic behaviors such as physical violence, disrespect, and stealing. It was hypothesized that depictions of these behaviors would appear in food commercials and be more likely to appear in commercials advertising specific products (e.g., ready-to-eat cereals) than for those advertising restaurants (e.g., fast food). This hypothesis was based on the assumption that advertising for food products would focus on specific attributes of a food item or the obtaining of the food item rather than the general experience of visiting a fast-food restaurant.

METHODOLOGY

Sampling Units

The commercials included in this study appeared during children's programming blocks, primarily Saturday morning, on the five U.S. broadcast networks (ABC, CBS, NBC, Fox, and WB). Broadcast TV is widely available to almost all U.S. children. Although 82% of children live in households that have cable or satellite TV, 99% of children have at least one TV set in the household allowing them access to broadcast TV networks (Roberts et al., 2005). The sampling units for this study were the 147 distinct food commercials appearing in 59 hours of recorded children's TV programming on U.S. broadcast networks. We recorded 15 separate Saturday morning children's programming blocks, representing three separate blocks from each of

the five broadcast networks (ABC, CBS, NBC, Fox, and WB) through their Salt Lake City, Utah, affiliates. The programming blocks were recorded between September 2004 and February 2005 and are listed in Table 1. Programming was not recorded in December because it is known that advertising to children varies seasonally and the Christmas/holiday season often is characterized by a shift in the type of products advertised (Kunkel & Gantz, 1992). In an effort to obtain a greater number of unique food commercials for the content analysis, two of the *Kids WB!* weekday afternoon blocks airing in March and April (2005) also were recorded.

A total of 590 food commercials aired during the 59 hours of programming, and of these, 147 were unique, distinct commercials. These 147 commercials served as the sample for this study. The 147 commercials included 37 for high-sugar cereals and 24 for fast-food restaurants. We examined these two food categories in our analysis to examine differences in depictions of behaviors associated with substance use and other problematic behaviors. Other food product categories that were advertised in the commercials were other breakfast foods (12), pizza restaurants (7), fruit-like snacks (10), confectionary/candies (9), noncarbonated sweet drinks (9), yogurt (7), chewing gum (5), cereal bars (3), soup (3), prepared or easy to prepare meals/combo meals (3), prepared/packable lunch (2), chocolate or flavored milk (1), cookies/cakes/donuts (1), and low-sugar cereals (1). Examples of food products for which there were no commercials were fruits, vegetables, water, bread, jams or jellies, frozen desserts, peanut butter, pizza, or milk.

Coding Procedures

The commercials were placed onto DVDs, allowing the analyst easy playback features for viewing and reviewing each commercial

TABLE 1. Children's programming blocks included in the analysis between September 2004 and February 2005

Network/programming block	Date	Hours of programming
ABC Saturday morning	September 18	3*
ABC Saturday morning	October 30	3*
ABC Saturday morning	January 15	4
NBC Saturday morning	September 25	3
NBC Saturday morning	November 6	3
NBC Saturday morning	January 22	3
FOX Saturday morning	October 2	4
FOX Saturday morning	November 20	4
FOX Saturday morning	February 12	4
CBS Saturday morning	October 2	3
CBS Saturday morning	November 13	3
CBS Saturday morning	January 29	3
WB Saturday morning	October 9	5
WB Saturday morning	November 27	5
WB Saturday morning	February 19	5
WB weekday afternoon	March 29	2
WB weekday afternoon	April 18	2
Total	17 programming blocks	59

*The shorter time block in September and October can be attributed to ABC's airing of college football during the last hour of the children's block in the Mountain Time Zone, where the recording was done.

multiple times during commercial analysis. A single analyst was trained for the content analysis using children's food commercials that were independent of those used in the current study. During analysis, when there was indecision or difficulty coding a particular item, the analyst recorded on the coding instrument the specific item where difficulty/indecision was encountered. The analyst then conferred with the study team so that a consensus decision could be made on how to code that particular item. The analyst rated the difficulty of analyzing each commercial on a rating scale of 1 (clear, straightforward, no difficulty making decisions) to 5 (much ambiguity, difficult to make coding decisions). Commercials with a rating of 3 or higher were reviewed by the study team to ensure the accuracy of each coding decision for the commercial. All coding decisions were reviewed by the study team to verify that they were valid coding responses.

In a similar fashion to content analysis research conducted by Kotz and Story (1994) and Page and Brewster (2007) on food commercial content, coding variables were coded as explicit, implicit, or no portrayal (the behavior was not depicted in the commercial). A portrayal was coded as "explicit" when the behavior or property under consideration was expressed verbally or was observable from the commercial's action or theme. "Implicit" was coded when the behavior or property under consideration was implied, though not directly expressed through words or action. An implicit characteristic theoretically relies on the viewer to make the connection between commercial content and a particular element (Byrd-Bredbenner & Grasso, 1999). Two behaviors associated with substance-use behavior were exaggerated pleasure sensation and dependency. These depictions are similar to what might be experienced when a person takes a stimulant (e.g., cocaine or

methamphetamine) or a hallucinogenic drug (e.g., LSD or ecstasy) to get high or achieve a mood-altering state (Hanson, Venturelli, & Fleckenstein, 2004). Exaggerated pleasure sensation showed or described a product causing a sensation beyond the normal pleasurable sensation typically associated with consumption of a food. Many drugs of abuse are associated with heightened pleasure responses or euphoric states (Goode, 2005). Dependency displayed behavior depicting dependency on the product or used expressions such as "gotta have it," "can't live without it," or other depictions exhibiting loss of control in obtaining the product. Dependency and addictive behavior are clearly associated with psychoactive active drug-taking behavior (Hanson et al.; Goode).

Each commercial also was coded as explicit, implicit, or no for a number of negative portrayals. These portrayals included cheating; conflict or fighting over the product/extreme measures to obtain the product (e.g., chasing); physical violence; eating too much food/unhealthy eating habits; children treating adults with disrespect; adults portrayed negatively or in an uncomplimentary manner (e.g., stupid, incompetent, and mean); adult authority undermined; learning or education shown in negative light; and boredom with things important to the development of children (e.g., school, libraries, museums, household chores, and classical music).

Inter-rater Reliability

During the course of the study and prior to any meetings to verify coding decisions, a member of the study team independently analyzed 20 randomly selected commercials that were analyzed by the analyst and included in this study. There was 100% agreement (Holsti coefficient of reliability = 1.00) between the analyst and study team member for food product category and these content categories of in-

terest: exaggerated pleasure sensation, dependency/addiction/can't live without trickery, thievery, cheating, eating too much, learning or education shown in a negative light, and boredom with things important to the development of kids (Holsti, 1969; Stacks & Hocking,

analyzed with SAS version 9.1 for Windows.

RESULTS

Twelve (8.2%) of the commercials were coded for an exaggerated pleasure sensation and 19 (12.9%) showed depictions of dependency

Twenty-four commercials (16.3%) portrayed conflict, fighting, or taking extreme measures, 18 (10.2%) depicted thievery or stealing, nine (6.1%) showed trickery, and 14 (9.5%) contained portrayals of physical violence....

1998). Holsti reliability coefficients were .93 for conflict, physical violence, eating too much, and adult authority undermined. The reliability coefficient for adults portrayed negatively or in an uncomplimentary manner was .85.

Data Analysis

The frequency and percentage of inappropriate behaviors were determined across the 147 commercials. Chi-square tests were used to determine differences between high-sugar cereal (N = 37) and fast-food restaurant (N = 24) commercials; however, low numbers of commercials in the following food categories prohibited meaningful statistical analysis of the other food categories in this study: other breakfast foods (N = 12), pizza restaurants (N = 11), fruit-like snacks (N = 10), confectionary/candy (N = 9), noncarbonated sweet drinks (N = 9), yogurt (N = 7), chewing gum (N = 5), cereal bars (N = 3), soup (N = 3), prepared or easy-to-prepare meals/combo meals (N = 3), prepared/packable lunch (N = 2), chocolate or flavored milk (N = 1), cookies/cakes/donuts (N = 1), and low-sugar cereals (N = 1). Data were

or addiction. Twenty-four commercials (16.3%) portrayed conflict, fighting, or taking extreme measures, 18 (10.2%) depicted thievery or stealing, nine (6.1%) showed trickery, and 14 (9.5%) contained portrayals of physical violence; these behaviors were usually in connection with efforts by a character to obtain a food product. Eighteen of the commercials (12.2%) portrayed adults in negative or uncomplimentary ways, nine (6.1%) depicted child characters treating adults with disrespect, and five commercials (3.4%) depicted the undermining of adult authority. These variables are displayed in Tables 2 and 3.

Table 4 lists the coding variables for high-sugar cereal and fast-food restaurant commercials that differed significantly ($P < .05$) on chi-square tests of difference. None of the fast-food restaurant commercials portrayed exaggerated pleasure sensation. However, six (16.2%) high-sugar cereal commercials portrayed exaggerated pleasure sensation and nine (24.3%) portrayed dependency. More than half (20; 54.0%) of high-sugar cereal commercials included a depiction of one or more of the other inappropriate behaviors, compared with one

TABLE 2. Frequency of portrayals of behaviors associated with substance use (N = 147 commercials)

	Total % (f)	Explicit % (f)	Implicit % (f)
Exaggerated pleasure sensation	8.2 (12)	6.1 (9)	2.0 (3)
Dependency/cannot live without	12.9 (19)	8.8 (13)	4.1 (6)

f, Frequency.

TABLE 3. Frequency of portrayals of other inappropriate behaviors (N = 147 commercials)

	Total % (f)	Explicit % (f)	Implicit % (f)
Trickery	6.1 (9)	6.1 (9)	0.0 (0)
Thievery/stealing	10.2 (15)	8.2 (12)	2.0 (3)
Cheating	0.0 (0)	0.0 (0)	0.0 (0)
Conflict/fighting/extreme measure	16.3 (24)	12.9 (19)	3.4 (5)
Physical violence	9.5 (14)	3.4 (5)	6.1 (9)
Unhealthy eating	3.4 (5)	1.4 (2)	2.0 (3)
Disrespectful treatment of adults	6.1 (9)	4.8 (7)	1.4 (2)
Adults portrayed negatively/in an uncomplimentary manner	12.2 (18)	8.8 (13)	3.4 (5)
Adult authority undermined	3.4 (5)	3.4 (5)	0.0 (0)
Learning/education portrayed negatively	0.0 (0)	0.0 (0)	0.0 (0)

f, Frequency.

quarter (6; 25%) of fast-food restaurant commercials.

DISCUSSION

The results of this study supported our hypothesis that depiction of behaviors that closely resemble behavior associated with substance-using behavior is present in the televised food commercials examined in this study. Approximately one in 12 of the commercials across all of the food categories depicted an exaggerated pleasure response to eating a food product, defined as beyond the normal pleasurable sensation typically associated with consumption. This response is similar to the response to certain drugs of abuse known to produce euphoric highs, particularly stimulant drugs such as cocaine and methamphetamine or hallucinogenic drugs such as LSD or ecstasy (Hanson et al., 2004). These depictions often resembled effects where the consumption of the food causes a commercial character to see a kaleidoscopic cascading of colors (visual hallucinations),

be taken to an exotic location or place of adventure or excitement, exhibit a surge in power or energy, or go from a state of sadness to a state of excitement and happiness. Approximately one in eight commercials exhibited a dependency theme or portrayal. These commercials typically showed characters taking extreme measures to obtain a food that a character could not do without and a subsequent loss of control over the food product. These connections or associations of food with exaggerated pleasure, mood alteration, and addictive behavior, which often are behaviors that psychoactive drug users seek (Goode, 2005), are cause for concern, because thinking of food in these terms may predispose to disordered eating (Kilbourne, 2000). Connecting or associating these addictive, pleasure, and extreme mood enhancement properties with food should be questioned as a responsible manner in which to market food products to children. It seems disingenuous to portray products such as sweetened ready-

to-eat breakfast cereal, candy, or salty snacks as products that cannot be lived without or having capabilities of changing one's emotional state from sadness or boredom to happiness or producing profound pleasure sensations. The portrayal of food in this manner is particularly troublesome in view of the fact that scientists are discovering that overeating shares many characteristics with substance use disorders (Baicy, 2005; Joranby, Pineda, & Gold, 2005).

Our hypothesis that there would be a higher prevalence of the depictions examined in this study in commercials advertising specific products (e.g., ready-to-eat cereals) than for those advertising restaurants (e.g., fast food) is supported by the results. We found that the high-sugar cereal commercials were more likely to have exaggerated pleasure sensation and dependency/addiction/can't live without depictions than did fast-food restaurant commercials. This finding is not surprising given the fact that high-sugar cereal commercials focus more on product consumption and product-obtaining attributes, while fast-food restaurants focus more on the benefits of going to the restaurant (e.g., fun associated with a visit, toys and other premium offers associated with a children's meal or purchase). Rarely do fast-food commercials advertise specific products available at the restaurants, but instead promote the emotional experience (e.g., fun and fantasy) of visiting the restaurant. The current study was limited by the small number of commercials in food product categories other than high-sugar cereals and fast-food restaurants. Future research should investigate differences across the range of food product categories.

A common scenario in commercials revolved around having two characters wanting the featured food product (conflict) because it is so tasty, delicious, sweet, "chocolatey," or "fruity." If one gains or

TABLE 4. Differences in behaviors associated with substance use/other inappropriate behavior portrayals between high-sugar cereal (N = 37) and fast-food restaurant commercials (N = 24)*

	Cereal % (f)	Fast Food % (f)
Substance use		
Exaggerated pleasure sensation	16.2 (6)	0
Dependency/cannot live without	24.3 (9)	0
Other inappropriate behavior		
Contained a portrayal of a negative behavior†	54.0 (20)	25.0 (6)

f, Frequency.
 *Items appearing in this table were the content items in which high-sugar cereal and fast-food restaurants differed significantly ($P < .05$) on Chi-square tests. The percentages and frequencies displayed indicate the commercials in which a particular coding characteristic was present. For the items on this table, explicit and implicit coding categories were combined.
 †Although there were no significant differences in the specific "other inappropriate behavior" portrayals (e.g., trickery and thievery) shown in Table 4, when examined as a group, there was a significant difference ($P < .05$) in frequency of whether a commercial contained any inappropriate behavior portrayal.

keeps the prize, the other must go without, and this causes great distress or frustration. One (or both) of the characters then resort to extreme measures, fighting, physical violence, trickery, or thievery/stealing to obtain the desired food product. This depiction sends a message that the advertised product is so good that it is worth taking these measures to obtain the food. The portrayal of physical violence in any form of media directed at children is troubling, especially given what has been learned about social learning and the tendency of children to imitate what they see (Bandura, 1973; 1977). Extensive research has shown that higher levels of children's exposure to media violence correlate with increased acceptance of aggressive attitudes and increased aggressive behavior (Bushman & Huesmann, 2001). Recent studies associate exposure to violence in the media with violent behaviors (Huesmann, Moise-Titus, Podolski, & Eron, 2003). Others worry about children's exposure to televised violence due to a potential "desensitizing effect" in which young people may become less sensitized to violence and the pain and suffering of others.

Much of the focus of concern with TV violence centers upon programming, but Martinez, Prieto, and Farfan (2006) argue that further analyses of the effects of televised violence should take in the totality of the television environment, including advertising content. These authors explain that violence is incorporated into child-focused advertising content to enhance persuasion, get and capture audience interest, and maximize the impact of a message and is used "to incite

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purchase and consumption of a wide variety of inoffensive products such as sports footwear, cereals, soft drinks, desserts, sweets, school materials, etc." (Martinez et al., p. 275).

Our study also involved the portrayal of adults in the food commercials. A commercial could be coded as portrayal of an adult in a negative or uncomplimen-

tary way if the portrayal showed an adult as stupid, incompetent, or mean. Unfortunately, we did not delineate this coding category down into further classification as stupid, incompetent, or mean, which represents an important limitation of our study. Future research should be more specific in this regard. In most of these depictions, children played the roles of protagonists, whereas an adult played the antagonist role, representing opposition against which the main characters or protagonists must contend to succeed in enjoying the food product. These portrayals also are concerning because they can potentially perpetuate negative stereotyping of adults in children's minds. Advertisers do not serve children well when portraying adults as stupid, incompetent, or mean. It can be argued that there are already too many negative role models surrounding children. Instead, children need positive role models who demonstrate responsible values and behavior as opposed to media models portraying the opposite.

It is interesting that commercials for high-sugar breakfast cereals were more likely to contain depictions of inappropriate behaviors than were fast-food restaurants. In

fact, more than half of high-sugar cereal commercials contained portrayals of inappropriate behavior; yet, one fourth of fast-food restaurant commercials displayed at least one inappropriate behavior. Again, it is unfortunate that we lacked sufficient sample size to make meaningful comparisons of these behaviors involving other food categories.

Additional research is needed to determine the impact that the portrayals examined in this study have on children. Are these portrayals effective as marketing messages? Do they, in fact, increase desire for food products? Do the portrayals of inappropriate behavior make food commercials more interesting for children so they pay higher attention? Does exposure to the modeling of these behaviors increase the likelihood that children will behave in similar ways? We have little understanding of these important questions. Another important avenue for future research to take is the comparison of these behaviors depicted in the food advertisements with the nonfood advertisements that children view. It is important to gain an understanding of the totality of advertising exposure to fully address these questions.

The research addressed in this study suffers because it has received so little previous research attention. The study by Rajrecki and colleagues (1994) is basically the only study in the literature we found that addresses inappropriate behavior portrayals in children's food commercials and mention of possible "drug-like" behavior portrayals in these advertisements. Additional research is definitely needed to extend understanding about the role of these portrayals in children's advertising in general and children's food advertising specifically. In the meantime, we are left to wonder what the effects of depicting behaviors resembling substance-use behavior and other portrayals of inappropriate behavior such as fighting, physical violence, and stealing within this advertising context might have on children.

This study raises concern about the presence of these portrayals within children's televised food advertisements and serves to alert pediatric health professionals and child health advocates to take a closer look at this issue. With a growing interest in advertising's role in the "epidemic" of childhood

obesity (IOM, 2006; Quigley & Watts, 2005), the timing for closer examination of this issue seems to be now. Some child health advo-

children view (e.g., television, movies, and video games) is an issue that continues to receive much attention. However, physical vio-

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cates insist that educating parents about the links between commercial culture and obesity is not adequate by itself and are calling upon regulatory and legislative measures to restrict the aggressive nature of food marketing targeting children (IOM, 2006; Linn, 2004; Zywicki, Holt, & Ohlhausen, 2004). Linn concludes that with the growing alarm about childhood obesity and other market related health concerns, "we need to look at marketing to children as a societal issue, not just a familial one, and search for solutions that will alter the commercial culture surrounding children and families" (p. 33).

We believe that pediatric health care professionals need to be at the forefront in confronting a commercial culture that contains depictions of eating unhealthy food products in ways that mimic drugs of abuse and portray other problematic behavior (e.g., physical violence and stealing). Associating the eating of "junk food" with feelings of exaggerated pleasure sensation is not a message that any form of media should be sending to children and is not appropriate for the marketing of food to children. Pediatric health care professionals should help children and families understand that dependency/addiction on any substance, whether food, a drug, or behavior, is harmful to health and development. The physical violence in the media that

ence in commercials, particularly food commercials, is an issue in which there has been little, if any, discourse among child health advocates. The issues raised in this article about advertising practices that associate various food products with drug-like properties and other problematic behaviors need to be studied, discussed more comprehensively, and addressed by pediatric health professionals. These issues are important to the health and well-being of children.

It is important to point out that the commercials examined in this study were aired in 2004-2005. Additional content analysis research of food commercials is needed to determine whether changes have occurred in the portrayal of the behaviors examined in this study in commercials presently airing. This issue is important to consider because concerns about the unhealthy nature of foods that are heavily advertised to children on TV have greatly increased in recent years (IOM, 2006; Zywicki et al., 2004). The landscape of children's TV food advertising is likely changing because of increased public concern about the issue of advertising "junk food" to kids (IOM, 2006; Palmer & Carpenter, 2006).

Future research also needs to be conducted to determine the behavioral effects of the type of portrayals examined in this article. Studies need to be designed to test

whether children viewing these commercials behave in more negative ways than those not exposed or exposed at lower levels. If an effect on behavior is found, another issue is to determine how long these effects remain or if they “wash out” over time.

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