
How adolescent girls interpret weight-loss advertising

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Abstract

While they demonstrate some ability to critically analyze the more obvious forms of deceptive weight-loss advertising, many girls do not recognize how advertising evokes emotional responses or how visual and narrative techniques are used to increase identification in weight-loss advertising. This study examined how girls aged 9–17 years interpreted magazine advertising, television (TV) advertising and infomercials for weight-loss products in order to determine whether deceptive advertising techniques were recognized and to assess pre-existing media-literacy skills. A total of 42 participants were interviewed in seven geographic regions of the United States. In groups of three, participants were shown seven print and TV advertisements (ads) for weight-loss products and asked to share their interpretations of each ad. Common factors in girls' interpretation of weight-loss advertising included responding to texts emotionally by identifying with characters; comparing and contrasting persuasive messages with real-life experiences with family members; using prior knowledge about nutrition management and recognizing obvious deceptive claims like 'rapid' or 'permanent' weight loss. Girls were less able to demonstrate

skills including recognizing persuasive construction strategies including message purpose, target audience and subtext and awareness of economic factors including financial motives, credibility enhancement and branding.

Introduction

Finding a young woman who is never worried about her weight is almost as impossible as finding a magic pill that melts fat overnight. The 12 million 9- to 17-year old girls who live in the United States go through phases in which they care a lot about their physical appearance and mass media messages contribute to the process of their identity development and socialization [1, 2]. In the United States alone, sales of weight-loss products and dietary supplements nearly doubled between 1994 and 2002 [3]. And adolescent girls worldwide are facing risks to their health from increased pressures for slimness. A Canadian study found that 27% of 12- to 18-year old girls had disordered eating attitudes and behaviors and anorexia nervosa is becoming a clinical problem among young women in Hong Kong and other high-income Asian societies [4, 5]. When asked about the proliferation of weight-loss products and advertising, dietitians generally point out that if a weight-loss product sounds too easy, it is probably not going to work [6]. Although teens can lose weight healthfully by eating the right foods and exercising regularly, research has shown that chronic dieting can be dangerous and can lead to other health problems [7]. Health communication theory shows that media messages, including entertainment and advertising, may cultivate beliefs

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and attitudes that shape behavior [8]. For girls, exposure to weight-loss advertisements (ads) may cultivate attitudes about dieting that can have an effect on their health and lifestyle decisions throughout their lifetimes. This research explores the questions: how are the claims made in weight-loss advertising understood by girls? What kinds of attitudes, knowledge and skills can build critical thinking in response to the persuasive techniques and deceptive strategies used in weight-loss advertising?

This study examines girls' responses to print and television (TV) weight-loss advertising. By understanding the attitudes of a diverse sample of girls, this study identifies pre-existing concepts that are evident in young people's responses to magazine and TV advertising for weight-loss products. Results of this study will guide scholars interested in understanding more about the potential value of media-literacy skills as a health prevention tool. Educators and public health practitioners will be able to apply knowledge about girls' pre-existing levels of understanding in the design of media literacy and health education curricula.

A content analysis of weight-loss advertising in 2001 found that more than half of all advertising for weight-loss products made use of false, unsubstantiated claims [9]. In an examination of 300 ads from magazines, TV, radio, newspapers and direct mail solicitation, the Federal Trade Commission (FTC) identified some 'Red Flag' deceptive claims and persuasive techniques used in weight-loss advertising. These include claims of (i) 'rapid' weight loss with no exercise required, (ii) no need for diet restrictions or exercise, (iii) 'permanent' weight loss, (iv) weight loss despite previous failures, (v) scientifically proven or doctor-endorsed products, (vi) money-back guarantees and (vii) safe and natural claims. Persuasive techniques including 'before-and-after' photographs and personal testimonials were shown to be common in weight-loss advertising. In a follow-up study, FTC staff compared ads that appeared in the February through May 2004 issues of certain national magazines with ads that appeared in the same magazines in 2001. This comparison showed that while the volume of

weight-loss ads increased slightly from 2001, fewer of these ads contained obviously false claims, showing the market impact of the FTC's increased monitoring of deceptive advertising practices [10].

While the FTC has recently stepped up enforcement of false advertising claims for now-banned products like 'Fat Trapper' and 'Ab Energizer', packaging and advertising for weight-loss products still emphasize the supposed health benefits and minimize or omit the risks related to these products. Print ads often obscure important information like price, risk factors and product contents. Infomercials often use hard sell emotionally appealing techniques. And even though marketers are careful about not selling diet pills to people under 18, public health researchers have found that messages from ads negatively influence youth health behaviors by cultivating attitudes about dieting, nutrition, fitness and health that are inaccurate, distorted or incomplete [11–14]. Federal efforts at regulating deceptive advertising in the weight-loss industry, while laudatory, are inadequate to the magnitude of the challenge as the obesity epidemic rises and the market continually responds with new products and services. As Correia [15] explains, 'The fundamental problem with most weight-loss advertising is that there is a powerful incentive for advertisers to state expressly, or at least to imply, that people do not have to change their eating patterns. The FTC's resources for policing weight-loss advertising claims are taxed because of this powerful market incentive' (p. 594).

In examining the interpretations of American girls in responding to advertising messages for weight-loss products, this study uses theoretical frameworks based on the work of 'developmental psychology' and 'interpretive and semiotic perspectives on the meaning-making process'. Erikson [16] positions individuals as actively involved in constructing their own configuration of social identity and scholars have examined how everyday symbolic forms like media and technology shape processes of thought and meaning which can be examined through talk [8, 17, 18]. While participants' responses cannot be separated from their life circumstances, they can provide insight on the

multidimensional factors involved in the construction of meaning [19]. Previous research has not specifically examined girls' interpretations of deceptive techniques used in weight-loss advertising. However, theoretical frameworks have been advanced to examine the role of media exposure on the body image, self-esteem and eating behaviors of adolescent females [20–23]. Visual media play an important role in eating disorders because of their role in contributing to unrealistic images of thinness and beauty [24–26].

Media-literacy education has been investigated for its potential to contribute to the intellectual, social and emotional development of young people in responding to media messages about health [27], including substance abuse prevention [28], body image [29–31], eating disorders [32], violence prevention [33] and nutrition [34]. Building from a base of interpretive and semiotic theory, media-literacy educators in Canada, the United States and Britain emphasize a set of 'key concepts' that build critical thinking skills in responding to media messages, including (i) recognizing the author's purpose, goals, motives and point of view; (ii) conceptualizing the intended target audience and recognizing how people make interpretations of media messages based on their prior knowledge and life experiences; (iii) identifying production techniques, persuasive claims and other devices used to construct messages and (iv) understanding the political and economic context of message production and distribution [35–38].

Research on media's impact on body image has shown that, for adolescent girls, factors including both 'awareness of mediated social pressures' and an 'internalization' of these pressures contributed to body dissatisfaction [12]. Media-literacy interventions may be effective in altering media awareness and internalization. In one study, after a media-literacy intervention, girls were more likely to realize that they do not have to be passive recipients of potentially harmful beauty norms depicted by the media. Girls' knowledge and media-literacy skills were significantly improved with the help of a communication intervention, although dieting behaviors were less subject to change [39]. For health

educators and curriculum specialists interested in developing and implementing educational approaches that use media literacy in nutrition education, it is important to understand the pre-existing levels of knowledge and interpretations of weight-loss advertising.

Methods

The study population included 42 adolescent females aged 9–17 years from seven different geographic regions of the United States, including New York (Bronx), NY; West Hills, CA; Buffalo, NY; Washington, DC; Water Valley, MS; Ithaca, NY, and Clifton Park, NY. Working with groups of three girls in after-school settings, we showed specific examples of print and TV ads for weight-loss products, asking participants about their interpretations of these messages and audiotaping their responses.

Sampling

Girls were recruited from different geographic communities which varied in racial and ethnic composition to increase heterogeneity. Parents were notified in writing about the aims and methods of the research and parental consent was obtained for all participants. Thirty-seven percent of the sample included girls from racial and ethnic minority groups, with the largest percentage of girls being Caucasian ($n = 25$), followed by African American ($n = 10$), Hispanic ($n = 3$), Asian ($n = 2$) and other ($n = 2$). We also deliberately oversampled for the age range of 11–13 years, so that 62% of our sample ($n = 26$) consisted of girls in middle school. Previous studies of adolescent health have suggested that this population was actively experimenting with dieting, weight management and nutritional choices [40–42]. For many communities in the United States, Britain, Canada and other nations, middle-school students are a key school audience for media-literacy education. The sample included girls aged 9–10 years ($n = 4$), 11–13 years ($n = 26$), 14–15 years ($n = 7$) and 16–17 years ($n = 5$). The sample was also diverse

in terms of the socio-economic status of participants, which we operationalized by asking facilitators to inquire about parental occupation and neighborhood residence within the geographic context of their communities. Based on these data, 16% of girls were identified as poor ($n = 7$); 31% of the participants came from working-class families ($n = 13$); 24% of the sample was middle class ($n = 10$); 22% were upper-middle class ($n = 9$) and 7% were identified as wealthy ($n = 3$). Although only three states and the District of Columbia were represented, girls came from seven different communities, including urban (42%), suburban/small city (30%) and small town/rural (28%) communities.

Target stimuli

In selecting advertising samples to show to participants participating in the study, we contracted with researchers at Ithaca College, who maintain a representative database of TV programming from 1989 to the present. They provided a contemporary (1995–2002) sample of 42 TV commercials for weight-loss products, including dietary supplements, diet aids, food replacement products and infomercials for these products. We also collected a sample of 15 women's magazines from a 2-month period and identified 31 weight loss, meal replacement and diet ads from these publications. From this group of materials, we selected sample stimuli using the categories of deceptive advertising claims and persuasive techniques identified by the FTC report for guidance. We selected a total of seven ads: four print ads, two 30-s TV commercial spots and a 3-min excerpt from a 30-min TV infomercial. Print ads included diet products including 'Hydroxycut', featuring before-and-after images of a woman and a man, with two photographs of doctors in white lab coats; and a print ad for 'Xenadrine', a diet aid featuring Amber, a woman who lost 105 lbs, with a dramatic headline proclaiming, 'I never imagined losing weight could be so easy'. The print ad for 'Slim-Fast Meal Options' featured a granola bar with the headline reading, 'Morning Rush' and copy emphasizing the vitamins and nutritional content of the product. We also used an advertorial

(a combination of the words 'advertising' and 'editorial', this term is used in the magazine business to describe editorial content that provides detailed descriptions of products without being paid advertising). Found in the magazine *Women's Health and Fitness*, the advertorial displayed three bottles of the product, 'Body Solutions', with text including the phrase, 'It's not how much weight you lose, but rather what kind of weight you lose. Lose fat, retain, or add lean.' A 30-s TV ad for 'Dexatrim' featured a slim blonde in a rainforest-like environment with a waterfall who talks about the 'all natural' way to lose weight. A 'Slim Fast' TV ad included jazzy music and scenes of a hungry woman driving a car, passing signs for pizza, donuts and fast food. She gains control over her hunger by selecting the product from a box of bars in the seat next to her. Finally, the opening 3 min of a TV infomercial for 'Carb Trapper' showed a man and woman seated on a couch while interviewing a third woman who uses scientific language to describe how the product was developed in response to the needs of people with diabetes.

Data collection procedures

The interviews took place in November and December of 2002. To insure the comparability of data across seven different geographic sites, facilitators were introduced to the research procedures by the second author and a moderator's guide was created to help facilitators adhere to clear and detailed guidelines for recruiting participants, gaining parental permission, implementing the interviews and recording the data. Participants were recruited by facilitators who worked in community-based organizations, social service organizations and schools. Participants met in triads with two adults, a facilitator and note-taker, who welcomed participants, introduced the girls to the nature of the project and conducted a warm-up activity. Participants were shown each of the seven print, TV ads and infomercial excerpts one at a time, and a sequence of non-directive open-ended questions were used to promote discussion and interpretation of the different advertising messages. These included questions like, 'What's the first thing you

think about when you look at this ad? What do you notice specifically when you look at this ad? Which elements catch your eye? How do you feel when you look at this ad? What does this remind you of?' When the girls had completed discussion of all seven ads, they were debriefed, invited to ask questions and given a gift certificate to a local mall for participating in the study.

Data analysis procedures

Sessions were audiotaped and transcriptions of the sessions were created using a professional transcription service and then coded by hand and analyzed by the first and second author. These two coders each read through each transcription independently using an *a priori* approach to identify specific sentence-length statements from participants directly related to (i) the deceptive advertising claims and persuasive techniques which had been previously identified by a content analysis conducted by the FTC and (ii) knowledge and attitudes demonstrating critical analysis of advertising based on the key concepts of media literacy. For each of the categories used in the analysis, the first author reviewed the comments of each participant and assigned a wholistic score, one of three values to indicate an overall level of recognition. For each concept, participants received a score of 'satisfactory' when the transcript provided clear evidence of conceptual understanding, 'some evidence' to indicate that there were statements that suggested some understanding of the concepts and 'no evidence' to indicate that there were no statements related to this concept. When comments were fragmented or unclear or if girls seemed to be restating ideas or echoing observations previously articulated by other girls, we used the 'some evidence' category.

Results

Participants in this study had a wide range of perceptions and experiences relevant to the topic of weight-loss management that entered into their interpretation of the advertising they viewed in

the small-group interviews. However, girls were able to demonstrate some media-literacy skills as well as some recognition of some of the deceptive techniques used in weight-loss advertising, as identified by the FTC report [9, 10]. First, we used the data to examine the research question: How are the deceptive claims of media messages used in weight-loss products understood by girls?

As shown in Table I, 'consumer testimonials and before/after photos' were recognized as persuasive techniques by 71% of participants in the study. Girls explained that while dramatic before/after images of the 'Hydroxycut' ad captured their attention, they were interpreted with a great deal of disbelief. Some questioned whether the same person was photographed in the pictures, whether the person had lost weight actually using the advertised product, or whether the photograph had been altered. Most girls in the sample thought that either the pictures were 'fake' or 'unreal'.

Similarly, the claim that 'weight-loss products yield rapid weight loss' was also recognized as inaccurate by 57% of participants in our study. In their content analysis of weight-loss advertising, the FTC found that more than half of all weight-loss advertising promised rapid weight loss, which may lead dieters to see healthy approaches to weight loss as slow by comparison. Participants in our study routinely critiqued the claims of rapid weight loss by comparison to their own experience and their observations of their family members' experiences with weight loss.

By contrast, only 17% of participants in our study recognized the persuasive technique of claiming that products are 'doctor-endorsed and scientifically proven'. Many weight-loss ads attempt to bolster their own credibility by depicting 'doctors' or 'scientists' using phrases like 'clinically tested' or 'studies confirm ...'. This strategy is particularly manipulative considering that most consumers rarely question the advice of their doctors. Most girls in this study viewed with trust the image of the white-coated doctor, seeing it as a sign of credibility. For example, one participant said, 'If I had a weight problem, then I'd probably be more confident in that product because the specialist was in it.'

Table 1. *Girls' ability to recognize deceptive claims used in weight-loss advertising*

Types of deceptive claims	Satisfactory evidence	Some evidence	No evidence	Sample comments
Consumer testimonials and before–after photographs	64% (<i>n</i> = 30)	2% (<i>n</i> = 2)	24% (<i>n</i> = 10)	'They probably took two pictures, one from before or one after, or they did that computer thing, where you can change the ... pictures, rearrange and make your own person.' —age 10 years, white, middle class, rural 'You can tell in their face that's three totally different people.'—age 15 years, African–American, working class, urban
Rapid weight loss	57% (<i>n</i> = 24)	17% (<i>n</i> = 7)	26% (<i>n</i> = 11)	'It's funny how in the magazines the girl is so skinny, but if it happened in real life, it would take, like, [much longer] to lose the weight.'—age 16 years, African–American, working class, urban
Doctor-endorsed and scientifically proven	17% (<i>n</i> = 7)	19% (<i>n</i> = 8)	64% (<i>n</i> = 27)	'If I had a weight problem, then I'd probably be more confident in that product because the specialist was in it.'—age 12 years, white, upper-middle class, suburban
Safe and 'all natural' claims	11% (<i>n</i> = 5)	11% (<i>n</i> = 5)	78% (<i>n</i> = 32)	'She's supposed to be in the rainforest and it's kind of relaxing, so like you're kind of zoned in and you're hearing about this thing and you're like, "Oh, this must be really good for you."'—age 13 years, white, upper-middle class, urban
Permanent weight loss with no diet or exercise	48% (<i>n</i> = 20)	38% (<i>n</i> = 16)	14% (<i>n</i> = 6)	'How can you get so skinny off of some pills?'—age 11 years, African–American, working class, urban 'I got a lot of overweight people in my family and they all try to take little diet things or whatever but I have never met a person who actually lost weight from these products.'—age 13 years, white, working class, suburban

Similarly, 11% of participants recognized the persuasive technique of claiming that weight-loss products are 'safe' and 'all natural'. The FTC found that 42% of weight-loss advertising claimed to be 'safe' and often make the parallel claim of being 'natural'. In fact, the majority of 'safe and natural' claims is made in lieu of a list of the product's ingredients. According to the FTC report, roughly one-third of the ads claiming to be safe and natural also contained fine print bearing safety warnings [9, 10]. Our data revealed that very few of the participants noticed the use of visual imagery to imply that products were safe and natural and most did not

attend to the warning language present in some of the print ads. Considering the substantial health risks posed by many diet aids and supplement products on the market, this lack of attention to warning language is noteworthy.

About half (48%) of the participants in our study recognized as persuasive and deceptive the claims of 'permanent weight loss with no diet or exercise'. The FTC found these claims in 30% of the ads sampled in the 2002 report [9]. A number of participants demonstrated that they could activate their knowledge of good nutrition principles in responding to weight-loss advertising, as in this subject,

who said, ‘First of all, the natural way to lose weight, you have to work hard, you just can’t take a pill or drink some Hollywood juice, you have to exercise and eat right, eat healthy foods. Eat everything out of the food groups.’

Even though girls in our study did not have a critical appreciation of all the different types of persuasive strategies and deceptive claims used in weight-loss advertising, we did find evidence that many girls were knowledgeable about the importance of healthy eating and exercise as key components of effective weight management. In responding to persuasive claims, most girls were able to recognize the more obvious types of blatant deception.

Critical thinking about weight-loss advertising

Our second research question asked: What kinds of attitudes, knowledge and skills can build critical thinking in response to the persuasive techniques used in weight-loss advertising? Using key theoretical concepts of media literacy, we were able to identify eight elements of critical analysis that some girls spontaneously demonstrated in responding to weight-loss advertising (see Table II).

Identification with characters

More than 90% of participants ($n = 39$) were able to articulate their perceptions and feelings toward the characters depicted in the advertising. Advertising commonly uses identification with characters in

order to create emotional resonance between the consumer and the product. For example, one girl said, ‘I feel sorry for some people in the ads, because if I was fat, I would just try anything to lose weight’. Still another wondered about the psychological motivation of the character depicted in the ad, saying, ‘What made her [woman in the “Xena-drine” ad] make the decision to do that? Did people make fun of her? Or did she want to do it because she wanted to do it?’ Most girls in our study treated the people depicted in weight-loss advertising as worthy of their emotional identification. But only rarely did participants demonstrate a deeper understanding of how feelings of emotional identification with characters are manipulated to sell a product. For example, one subject said, ‘They choose people that look really pretty ... and just use them for that’.

Compare and contrast ads with real-life experiences

Most girls referred to some real-life experience with family members when they talked about the ads. Fifty-nine percent show satisfactory evidence of this concept ($n = 25$). We noticed that comparison–contrast statements served as a ‘reality check’ that helped girls in the evaluation of advertising messages by enabling them to compare the representation of weight loss depicted in advertising to the real-life experiences of their family members and peers. The most commonly used example was the descriptions of their mother’s efforts at weight loss,

Table II. *Girls’ interpretation of weight-loss ads shows some evidence of critical thinking*

Elements of critical analysis	Satisfactory evidence	Some evidence	No evidence
Identification with characters	93% ($n = 39$)	2% ($n = 1$)	5% ($n = 2$)
Compare ads to real-life experiences	59% ($n = 25$)	19% ($n = 8$)	22% ($n = 9$)
Use prior knowledge about weight management	40% ($n = 17$)	36% ($n = 15$)	24% ($n = 10$)
Identify target audience	29% ($n = 12$)	4% ($n = 2$)	67% ($n = 28$)
Recognize visual techniques used to establish credibility	17% ($n = 7$)	17% ($n = 7$)	67% ($n = 28$)
Recognize message subtext	5% ($n = 2$)	14% ($n = 6$)	81% ($n = 34$)
Recognize financial motives	2% ($n = 1$)	26% ($n = 11$)	71% ($n = 30$)
Recognize omitted information	0% ($n = 0$)	14% ($n = 6$)	85% ($n = 36$)

Numbers may not sum to 100% due to rounding error.

as in the girl who said, 'My mom's been trying to lose weight for years, and she's tried all this stuff before. It doesn't seem to do any good.'

Use of prior knowledge about weight management

As mentioned earlier, when responding to claims of permanent weight loss with no diet or exercise, some girls described how their knowledge of good nutrition affected their interpretation of weight-loss advertising. In analyzing the weight-loss ads, 40% of participants were able to activate some ideas about appropriate forms of weight management, describing knowledge or information about the value of regular exercise, calorie and portion control, selecting fruits and vegetables, limiting fast food and soft drinks, and avoiding chips, candy and high-fat foods. For example, one participant said, 'Pills don't work as well as exercise does'. In commenting on the 'Slim Fast Meal Options' product, another stated, 'Many of those kinds of bars can have a lot of calories in them. You have to read the label.' A number of girls seemed to echo these ideas or add additional informational details in responding to the comments of others.

Identification of target audience

Some participants were able to determine who the products were being marketed to in the ads (29%, $n = 12$). One young woman said, 'When I look at it, it makes me think about the people who are trying to sell it to the other people'. Girls did not spontaneously distinguish between ads targeting older and young demographic groups, however. In addition, participants in our study did not recognize techniques used to aim a message specifically at women, including the use of product packaging (making products that look like a medicine or a soft drink) or emotional appeals (focused on feelings of inferiority, which are particularly aimed at teenagers).

Recognition of visual techniques to establish credibility

Ad makers attempt to establish the credibility of their product by placing it in a context which will

reinforce the claims being made about it. Visual techniques are applied in the process to add to the credibility. 'Natural' supplements appear in forests, 'healthy' pills are touted by athletic women and 'doctors' sell medically proven formulas. These techniques were mentioned by 17% of participants in our study. One participant said, 'Well yeah, still, because she's like in this really beautiful place and it makes the product look good even if it really isn't'. Another girl said, 'They put these healthy-looking people on television so you can think that it really works'.

Recognize message subtext

Advertising persuades by using implied as well as directly stated messages. While the first element to get noticed might be an ad's literal text, just as significant are the elements of implied meanings, which, woven together, form the ad's subtext. For example, the 'Slim-Fast Meals Options' print ad implies that the product speeds up your life; the 'Slim Fast' TV ad implies that the product puts you in control of your body. The 'Dexatrim' TV ad implies that your body will be transformed by using the product. Few participants demonstrated the ability to spontaneously state the message subtext. Only two adolescent girls were clearly able to read between the lines to interpret the unstated message of an ad. One said, 'That phrase, Morning Rush, in the headline, it's giving you the feeling that the product makes you go faster'. Six others made statements that included some elements of recognizing subtext. For example, one participant's comments suggested a partial understanding of how ads sell the promise of happiness and transformation in responding to the 'Dexatrim' ad, stating, 'It makes me want to buy it, because the background is like how she is, such a nice place, and she's so skinny and energetic. It seems like it worked for her.'

Recognize financial motives

A number of girls mentioned money in their interpretations of the weight-loss messages they viewed, but only one participant clearly demonstrated an understanding of the economic realities

of weight-loss advertising from the point of view of the advertisers. She said, 'It's probably costing them [the advertisers] a lot of money. So they're saying, "We need to make money. We can spend however much it costs for our commercial, and people will probably watch it, and then buy our product."' A number of girls (26%, $n = 11$) speculated about the financial motives of the people appearing in the ads and understood that their goal (as actresses or paid spokespeople) was to make money. Some participants demonstrated some understanding but were quite tentative in describing the role of the actors depicted in the ads in relation to financial motives. One girl said, 'The company could just be paying her to go to do the commercial'. Another participant said, 'I think she [the 'Dexatrim' actress] is trying to earn money. She is just acting so she could earn money. It is not real.'

Recognize omissions

Recognizing omissions helps in the identification of a message's purpose and point of view. Adolescent girls in our study did not spontaneously generate questions or comments that demonstrated their ability to notice an omission. None mentioned the health risks or dangers associated with products containing ephedrine or other chemicals. But some intriguing questions were generated among participants in response to the content of the ads that they viewed, suggesting they were actively processing the informational content of the ads. For example, one asked, 'How long do you have to use it in order for you to start seeing the results?' One girl suggested an appreciation for the marketing message implied in the headline with her question: 'Body Solutions, whatever that means ... does it mean you'll feel better about yourself?'

In reading the transcripts, we identified some elements of their comments that demonstrated participants' pre-existing levels of critical analysis skills in responding to print, TV and infomercial weight-loss advertising. Most common were the recognition of emotional identification with the characters depicted in advertising and least com-

mon were recognition of financial motives and an ability to identify omitted information.

Discussion

This research used two *apriori* approaches to analyze how girls interpret and analyze weight-loss advertising, the first based on the results of the FTC's content analysis of the most common types of deceptive advertising and the second employing key concepts of media literacy as analytic frames for data analysis. The study found that a large number of girls demonstrate some ability to respond critically to weight-loss advertising. Evidence from this study clearly shows that girls actively engaged in the process of emotional identification with the characters and situations depicted in weight-loss advertising. Participants also recognized the obvious kinds of deceptive techniques like before/after photographs, claims of rapid weight loss and claims of permanent weight loss without exercise. Many girls were able to compare and contrast their real-world experience to the messages of advertising as they had observed family members on diets, using weight-loss products or struggling with weight management.

Some deceptive claims were not well-recognized and some elements of critical analysis were not found among the responses of girls to print, TV and infomercials. In responding to deceptive claims in weight-loss advertising, few recognized the different persuasive construction techniques used in weight-loss advertising to increase appeal and credibility. In interpreting weight-loss advertising, only a few could recognize the intended target audience or identify the implied and often emotionally resonant subtexts of the advertising messages. Few girls in this study understood the economic factors involved in weight-loss advertising, including issues related to branding and market share. None was able to spontaneously identify the risks or dangers omitted from advertising messages about weight-loss products.

Some strengths and limitations of the study must be noted. The use of qualitative interviews with

triads of girls from seven different geographic communities had both strengths and limitations. Qualitative research helps researchers obtain in-depth responses about what people think and how they feel. It is exploratory and interactive and most appropriate when used at the early stages of a research program or to examine topics or issues where there is little prior research. In this study, most girls perceived the interviews as similar to an educational experience because they were in the company of peers and most seemed unhampered by anxiety or cautiousness in their interaction with the interviewer. Nearly all the girls stated that they were highly familiar with the print and TV ads we showed and had seen numerous TV infomercials on weekend daytime (usually early morning) TV.

A significant percentage of participants were from minority groups. However, we were unable to perfectly match the sample to the demographic characteristics of the US population, since we had proportionately fewer Hispanic girls and more African-American girls than reported by the US Census. While we achieved a large measure of diversity in social class, we oversampled for younger teens and as a result, this study primarily presents evidence from middle-school girls aged 11–13 years, restricting our ability to make generalizations about developmental differences across childhood and adolescence.

We used interviewing in triads instead of a focus group methodology in order to be able to encourage all participants to share their responses. However, we still noticed that some girls were more engaged and others were less active as interview participants in the triads and it was sometimes hard to distinguish between individual responses to specific ads because of the tendency for some girls to repeat or restate the statements made by their more expressive peers. Girls were influenced by the responses of their peers and we do believe that some learning occurred as an artifact of the research process. This made it challenging to confidently assign levels of understanding to individual participants in all cases. As a result of this limitation, the assessments of girls' pre-existing levels of concep-

tual understanding which are presented in this study reflect an interpretive paradigm that recognizes that participants' responses cannot be separated from the context and circumstances in which they occurred [19]. A different group of girls may have talked about the same weight-loss ads in ways that would produce different results from the ones reported in this study. Individual interviews with adolescent females (in a non-group setting) or quantitative measures of critical analysis skills may provide more precise evidence of pre-existing levels of understanding. Future research should explicitly triangulate these methods to determine how the use of small-group interviews, individual interviews or quantitative measurement of media-literacy skills can be used to assess adolescents' ability to analyze media messages.

This study provides some evidence that will be useful for educators and health practitioners who are interested in incorporating media literacy into their instructional programs on nutrition and weight management. Weight-loss advertising messages often employ a combination of persuasive techniques that may undermine common sense and sound knowledge of nutrition. To benefit students, curriculum developers should design lessons that explicitly link more familiar critical analysis concepts with less well-understood concepts, building upon pre-existing knowledge and skills to scaffold new learning.

Discussion about persuasive techniques used in weight-loss advertising may be a useful educational vehicle for reinforcing ideas about good nutritional choices and fitness activities. Small group discussions about weight-loss advertising may enable teens to articulate ideas about healthy eating and nutrition in a shared social environment and support the development of critical-thinking skills. Media-literacy activities that encourage students to critically analyze advertising messages about weight-loss products may enhance the goals of nutrition education and health programs if they can extend the learning experience to include conceptual elements of critical analysis that are less well-understood by most adolescent girls. For girls faced with an increasingly wide array of mediated

messages about weight-loss products and strategies, this is arguably a meaningful, authentic and stimulating way to promote learning about nutrition and weight management.

Conflict of interest statement

None declared.

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