

Current Research

A Media Literacy Nutrition Education Curriculum for Head Start Parents about the Effects of Television Advertising on Their Children's Food Requests

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ABSTRACT
Objective

To evaluate whether a media literacy nutrition education curriculum about the effects of television advertising on children's food choices influenced the behavior, attitudes, and knowledge of Head Start parents.

Subjects

Participants were a convenience sample of 35 parents from Head Start programs.

Design

This study used a pretest–posttest, comparison condition–intervention condition design.

Intervention

The 35 parents participated in both a four-week food safety curriculum (to serve as an educational placebo, comparison condition) that was followed immediately by a four-week media literacy nutrition education curriculum (intervention condition).

Main Outcome Measures

Evaluation measures included parents' understanding of the persuasive techniques of commercials; ability to distinguish between truths and claims in advertising; and outcome expectations, values, self-efficacy, and behaviors in relation to talking about television advertisements with children while co-viewing or in response to purchase requests in the grocery store.

Statistical Analyses

Paired *t* tests, analysis of covariance, and χ^2 analyses were used.

Results

The media literacy nutrition education intervention curriculum had significant effects in terms of Head Start parents' understanding television advertising ($P < .001$), attitudes about television advertisements ($P < .001$), outcome expectations ($P < .05$), values ($P < .01$), self-efficacy ($P < .001$), and TV mediation behaviors ($P < .001$), and understanding of, and ability to read, food labels ($P < .001$).

Conclusions/Applications

Results suggest that a media literacy nutrition education curriculum can be easily conducted by dietitians. Dietitians can modify the curriculum to teach parents how to critically analyze many other forms of media (supermarket magazines, brochures, newspapers, Web sites) that sell nutrition misinformation to the public.

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Television remains one of the most powerful sources of communication despite the introduction of other technological innovations such as the Internet (1,2). Children, who continue to make up a large portion of the television viewing audience, watch approximately 27 hours of television per week (3), with minority children spending more time watching television (4). Overwhelmingly, the food advertisements aimed at young children are for less-nutritious food products, with sugared cereals and high-energy snacks heading the list (5). Television advertisements include nutrition information that is frequently misleading and inaccurate (6). Examining research conducted during the last 25 years, Gamble and

Cotugna concluded that commercials continue to promote high-fat, low-fiber foods (5).

Researchers have found that the more children are exposed to television commercials, the more they request and prefer advertised foods and the more energy they consume (7-11). Galst and White reported that 4- to 6-year-olds who worked hardest to watch more television commercials (by exerting pressure on a button every four seconds to maintain watching television) also made more purchase-influencing attempts at the supermarket (9). In another study, 2- to 6-year-olds who watched a videotape embedded with television food advertisements were more likely to choose the advertised items than children who did not watch the television food advertisements (12). Findings from a recent qualitative study suggest that although parents of preschool children have some understanding of the influence of commercials on their children's purchase requests for nonfood items, they do not make the connection between food commercials and their children's food purchase attempts or food choices (13).

Parents may play an important role in teaching their children how to understand and critically observe commercials.

Television viewing by young children often occurs with parents. In a sample of 3- to 5-year-olds, "...the great majority (about 75%) of the time spent viewing adult programs was in the company of one or both parents" whereas only 25% of young children's programming is co-viewed with parents (14). Several studies have shown that parents and children co-view television when they enjoy watching the same series, but an earlier study found that families do not often discuss television commercials that are being viewed (15).

Several studies have shown that children can benefit from the comments of family members or significant others while they are watching television and television commercials (16-18). Galst found that adults who make positive comments while co-viewing food commercials with 3- to 6-year-olds were most effective in reducing a young child's selection of snacks that contained added sugar, compared with negative comments and no-comment conditions (19). These studies suggest that parents may play an important role in teaching their children how to understand and critically observe commercials.

During the last 25 years, nutrition researchers have recommended consumer education programs and curriculums that can provide parents with skills to assess the inaccurate nutrition information presented through television advertising and programs targeting their children (5,6,20). As parents discuss, interpret, and evaluate television commercials with their children, their children will also learn how to critically view television (20-22).

The purpose of this study was to examine the effects of a media literacy nutrition education intervention on Head Start parents' knowledge, psychosocial beliefs, and ability to mediate the impact of television food advertising to their children. This study was approved by the Columbia Independent Review Board.

METHODS

Overview of Research Design

The study used a quasi-experimental pretest-posttest, comparison condition and intervention condition design. The same sample first participated in a four-week comparison condition involving a food safety nutrition education curriculum and, immediately following, a four-week intervention condition involving a media-based nutrition education curriculum designed for the study. In this design, the food safety curriculum served as an educational placebo so as to equalize the attention participants would receive in both conditions. The participants served as their own controls. To remove the teacher-effect, one of the researchers (T.J.H.) taught both curriculums. The participants were tested before and after the comparison condition and before and after the intervention condition. Four Head Start groups were recruited for the study, which took place during a nine-week time period from May 2000 to July 2000. The groups met concurrently: each group was assigned one day of the week and each session lasted about two hours. Recruitment fliers announced the topics of the workshops.

Subjects

A convenience sample of parents of children ages 3 to 6 years was recruited from four Head Start sites located in several boroughs of New York City. The nutrition coordinator for several Head Start programs in the city identified the sites. Parents were recruited at each site by the education director or family services coordinator. The participants consisted of 33 mothers, 1 grandmother (the child's caregiver), and 1 father (child's caregiver) for a total of 35 families (ie, one participant represented one child).

Intervention

Comparison Condition Curriculum. In the comparison condition, a food safety curriculum developed for limited-resources audiences (23) was selected as an educational placebo. It was modified to be as similar as possible to the intervention curriculum in intensity and nature of activities. Thus, participants also viewed a food safety video developed by the US Department of Agriculture, participated in group activities, and received handouts and homework assignments.

Media Literacy Nutrition Education Curriculum: Theoretical Framework. Comprehensive reviews of nutrition education literature have suggested that nutrition education is more likely to be effective if it is behaviorally focused and based on theory and prior research (24,25). The development of the curriculum for this study was influenced by these findings. The behavioral focus of the curriculum was to enhance the ability of parents to talk about television commercials with their children (TV mediation behaviors) and to read food labels so they could evaluate television commercials. Curriculum activities provided participants with awareness of the issues, impetus to change behaviors, and knowledge and skills necessary to make behavioral changes. The activities were systematically guided by variables from several psychosocial theories, such as attitudes, outcome expectations and values from expectancy-value theory to enhance motivation (26), and behavioral capability and self-efficacy from social cogni-

tive theory (27,28). Strategies for teaching critical television viewing skills were obtained from workshop materials on media literacy (29,30).

Motivational activities included the use of prerecorded television segments, including programming and advertisements, a professional video on media literacy (31), and hands-on group activities that encouraged the parents to critically evaluate claims made by television advertising to their children. Self-assessment activities helped parents identify how they responded to their children's requests for food products advertised on television. Behavioral capabilities and self-efficacy were enhanced through modeling and practicing new skills and behaviors in the workshop setting, at home, and at the supermarket.

Intervention Media Literacy Nutrition Education Curriculum. The overall intervention goals were to help parents: a) comprehend the effect of television advertising on their young children; b) appreciate the benefits of talking about and analyzing television food advertisements with their young children; c) develop skills to evaluate television food advertisements by reading food labels; and d) demonstrate the ability to analyze and talk about food commercials with their children. The media literacy nutrition education curriculum was pilot-tested at two Head Start centers before use in the intervention study. A brief description of the four-week curriculum follows:

- Session 1: Learning about television food commercials. Parents discussed media techniques used in television food advertising and how children perceive television advertising.
- Session 2: Analyzing food products advertised on television. Reading food labels. Parents role-played situations in which their children requested advertised products and ways they usually respond, and they learned how to read the food labels.
- Session 3: Truth in advertising. Parents evaluated claims in television advertisements by comparing the claims with the food label information for the same products. They explored ways to talk with their children about requests for foods advertised on television and at the food store.
- Session 4: Talking to your child about television food commercials. Parents practiced analyzing television food commercials and talking about them with their children and reading food labels. Homework was assigned after each session to provide practice in analyzing television advertisements and talking with their child about them.

Evaluation Instruments

Two evaluation instruments were developed, an outcome evaluation instrument and a process evaluation instrument.

Outcome Evaluation Instrument. The purpose of the outcome evaluation instrument was to measure the factors that were hypothesized to improve as a result of the media literacy nutrition education workshops: behaviors, mediating psychosocial variables, and knowledge in the two domains addressed by the intervention. The two knowledge domains were: a) talking about and analyzing television food advertisements, labeled the TV mediation domain; and b) reading and understanding food labels, labeled the food information domain.

Scales were developed for variables within each domain as follows:

- *Behaviors* were measured on a 5-point scale: ranging from does not apply = 0; never = 1; to always = 4. There was one behavioral scale in each domain, labeled the TV mediation domain (eg, I talk to my preschooler about how TV commercials are made) and the food information domain (eg, I look at the food label to find out how much fiber is in a food when I shop at the market).
- *Psychosocial variables* were measured on a 4-point scale, ranging from strongly disagree, 1; to strongly agree, 4. In the TV mediation domain, there were four scales: attitudes about talking with their children about television advertising (eg, I feel food commercials are something important to talk about with my family), outcome expectations (various anticipated outcomes from engaging in TV mediation with their children), the value they give these outcomes, and self-efficacy (confidence in ability to analyze and talk about television advertisements with their children). In the food information domain there was only one scale, outcome expectations or anticipated benefits from reading food labels.
- *Knowledge* was measured in each domain with multiple-choice questions, which were scored 0=incorrect and 1=correct. The questions measured parents' understanding of the use of persuasive techniques used in marketing food to their children and parents' ability to read labels to distinguish between claims and truths in television food commercials. The instrument also collected data on demographics, use of the media, and other general information.

The evaluation instrument went through several stages of pilot testing. Face validity was established by a panel of 10 nutrition education experts and several media literacy experts. Cognitive testing was conducted with parents of preschool children and Head Start parents to establish clarity of the questions, appropriate literacy level, and comprehension.

Parents placed increased value on good nutrition, and they felt that it was important to them that their children understand what is truthful in television advertisements.

Reproducibility was established by a test-retest procedure. The instrument was administered twice, one week apart, to 30 Head Start parent volunteers. The test-retest correlation indicated good to excellent reliability for all scales (.62 to .85) with one exception, knowledge in the TV mediation domain, for which the correlation was .42. The low reliability could be because there was little variability in the responses. Internal consistency was determined by calculating the Cronbach α correlation for the items on the pretest; α ranged from .60 to .84, with the knowledge α being approximately .45.

Process Evaluation Instrument. A process evaluation instrument was developed to assess whether the participants considered the workshops helpful, useful, and under-

standable. Reliability analysis revealed good reliability for all items ($\alpha=.87$).

Data Collection and Analysis

The outcome evaluation instrument was administered three times. Time 1 was the pretest before the start of the comparison condition (food safety education curriculum). Time 2 was the posttest for the comparison condition, and this posttest also served as the pretest for the intervention condition (media literacy nutrition education curriculum). Time 3 was the posttest for the intervention condition (media literacy nutrition education curriculum).

Student *t* tests were calculated to examine intervention effects on parents' behaviors, psychosocial variables, and knowledge. Significance was set at $P<.05$. Analysis of covariance was used to compare main effects differences between sites controlling for scores at Time 1 and Time 2; χ^2 and analysis of covariance were calculated for demographic data and the process evaluation instrument.

RESULTS

Demographic Data

Based on self identification, the ethnic make-up of the 35 participants was as follows: Latin American, 7 of 35; African American, 6; Central American, 4; South American, 2; West Indian, 4; Spanish Caribbean, 4; Indian, 2; Haitian, 4; African, 2.

Educational background of the participants was as follows: 12 did not complete 12th grade; 12 had high school or equivalent degrees; 9 completed one to two years of college; and 2 were college graduates.

Media Use Data

Additional information was collected about the number of television sets in the home, the number of hours children watch television as reported by participants, participants' viewing habits with children, and number of participants who take their children to the food store with them. The survey information indicated that 21 participants (74%) had two or three television sets in the home; 12 participants (43%) had a television in the preschooler's room; 22 participants (80%) watched television with their preschooler; 22 participants (80%) co-viewed children's programs on weekdays with their preschooler; 4 participants (14%) co-viewed children's programs on the weekend with their preschooler; 2 participants (6%) did not answer the co-viewing question; 12 participants (60%) reported that their preschoolers accompany them to the food market; and, as reported by the participants, their preschoolers watched television an average of 24 hours per week.

Outcome Evaluation

The Table presents the results from the outcome evaluation instrument and shows comparison of means for behavior, psychosocial, and knowledge scale variables at pretest (Time 1); after the comparison condition: food safety curriculum (Time 2); and after the intervention condition: the media literacy nutrition education curriculum (Time 3) with an *n* equal to the number of participants (*n*=35). Significance was set at $P\leq.05$.

Table. Comparisons of means of behaviors, attitude, and knowledge variables between intervention condition and comparison condition^a

Variable	Comparison Condition: (Food Safety Curriculum)		Intervention Condition: (Media Literacy Curriculum)
	Time 1	Time 2	Time 3
Behaviors (range 0-4) ←— <i>mean±standard deviation</i> —→			
TV Mediation Domain			
Talk/Analyze Behavior	1.78±0.43	1.85±0.43	3.04±0.55***
Food Information Domain			
Read Food Label Behavior	1.92±0.78	1.98±0.85	3.06±0.75***
Psychosocial Variables (range 1-4)			
TV Mediation Domain			
Attitudes	2.62±0.51	2.73±0.48	3.25±0.39***
Self Efficacy	2.40±0.51	2.44±0.50	3.01±0.26***
Value of outcome	3.25±0.45	3.17±0.58	3.48±0.41**
Outcome expectations	2.44±0.48	2.50±0.43	2.80±0.46*
Food Information Domain			
Outcome expectations	2.67±0.52	2.66±0.44	2.87±0.36*
Knowledge (range 0-1)			
TV Mediation Domain			
Talk/Analyze Knowledge	0.371±0.21	0.395±0.22	0.673±0.15***
Food Information Domain			
Read Food Label Knowledge	0.376±0.2	0.392±0.24	0.832±0.15***

^aSignificance of differences based on paired *t* tests comparing Time 1 with Time 2: Comparison condition; and Time 2 with Time 3: Intervention condition (*n*=35)
* $P<.05$; ** $P<.01$; *** $P<.001$

Behavior. There were no significant differences between the pretest and posttest comparison condition scores in the talk/analyze behavior scale in the domain of TV mediation or the read food label behavior scale in the domain of food information. However, there was a significant mean increase between pretest and posttest intervention scores at the $P<.001$ level for both of these behavior scales ($P<.001$).

Psychosocial Variables. There were no significant differences in the mean pretest and posttest comparison condition scores in the domains of TV mediation and food information. However, there was a significant mean increase for all the psychosocial scales in the domains of TV mediation and food information for the pre-and-post-intervention scores at the $P<.001$, $P<.01$, and $P<.05$ level.

Knowledge. There was no significant change in mean pretest to posttest scores for each knowledge scale in the domains of TV mediation and food information in the compar-

ison condition. However, there was a significant change for the mean pretest to posttest scores in the intervention condition in both domains. In the domain of TV mediation, on average 37.1% of the questions were answered correctly by the participants at Time 1 and 39% at Time 2 (comparison condition), compared with Time 3 (the intervention condition), where on average 67.3% of the questions were answered correctly ($P < .001$). In the domain of food information, on average 37.6% of the questions were answered correctly by the participants at Time 1 and 39.2% at Time 2 (the comparison condition), compared with Time 3 (the intervention condition), where on average 83.2% of the questions were answered correctly ($P < .001$).

In summary, parents who received the intervention changed behaviors, attitudes, self-efficacy, values, outcome and outcome expectations in terms of talking with their children about television food commercials, responding to their children's requests for foods advertised on television, and reading food labels to counter claims made by television advertising. In addition, they showed increased awareness of the purpose of television commercials and understanding of the food label.

Between-Site Differences: Results of Analysis of Covariance

There were some differences between the four Head Start sites for each of the scales. Overall, there was a tendency for the smaller Head Start sites to do well ($N=6$ and $N=5$), and the larger sites ($N=11$ and $N=13$) to do less well in relation to scores on the tests. The differences were not significant except for the talk/analyze behavior scale and the self-efficacy scale in the domain of TV mediation ($P < .05$).

Comparison of Means on Individual Item about Healthful Snacks

In the behavior section of the outcome evaluation, the individual item "When my preschooler asks for a snack food advertised on television I give vegetable snacks to him/her" was treated as a separate question (measured on a 5-point scale in the behavior scale). This question was designed to evaluate whether the act of providing snack foods to parents during the intervention workshops (as examples of healthful snack choices to offer their children in place of snack foods advertised on television) would, by itself, have an impact on parents. Results showed that while there was no significant mean change between the pretest and posttest scores in the condition when the parents' association supplied the (less nutritious) snacks, there was a significant mean shift at the $P < .001$ level in the pretest to posttest scores in the intervention condition when the researcher supplied the more nutritious snacks.

Process Evaluation Instrument

Attendance was consistent and high, the incentives being a certificate and \$100. The three parents who missed a session each attended make-up sessions. Participant responses to the process evaluation instrument reflected that they found the intervention curriculum useful and helpful. Participants also reported satisfaction with the workshop leader.

DISCUSSION

This research study is one of the few nutrition education studies directed at parents of young children (31,32),

specifically Head Start parents (33,34), and the only intervention study to apply media literacy concepts and strategies to television food advertising. This study demonstrates the efficacy of teaching parents how to mediate the impacts of television advertising on their preschoolers.

In particular, the results show that parents learned how to critically analyze television commercials as well as understand the media elements and persuasive techniques used by advertisers to make commercials. Parents placed increased value on good nutrition, and they felt that it was important to them that their children understand what is truthful in television advertisements. Parents indicated increased self-confidence in being able to understand food labels, judge claims made about foods in television advertising, and talk about advertising with their preschoolers. They demonstrated better attitudes about the importance of talking with their children about television food commercials and an increased ability to respond more appropriately at home and at the supermarket to their children's requests for foods advertised on television.

The dietetics profession must provide the public with the skills to evaluate advertising on television and in other media channels as well.

The impacts were achieved by an activity-based, hands-on curriculum that provided opportunities (through role playing and structured home activities) to practice talking about and analyzing television food commercials with their children while co-viewing television commercials and shopping together at the market. The curriculum also provided parents with activities to motivate them to read and discuss the food label when their children requested foods advertised on television.

Parent involvement in nutrition education has often been used as an adjunct to school-based programs. This study shows that Head Start program parents can and will participate in nutrition education if it is specifically related to their children about issues of concern to them.

Parents of preschool children provide the primary socializing environment for their children. Parental health behavior is often the model for health practices in children. The family environment offers many opportunities for influencing behavior, attitudes, and knowledge (33,35). Children between the ages of 3 to 7 generally spend only 25% of their television viewing time with a parent when they watch children's television programming (36). Children can learn about the persuasive techniques of television advertising by co-viewing television with their parents. As parents discuss, interpret, and evaluate television commercials with their children, their children will also internalize these skills (37). This study shows that such mediation skills can be taught to parents in a program of short duration if it is behaviorally focused and uses appropriate psychosocial theory.

Television viewing is also a major source of "nutrition (mis)information" (6) and a strong predictor of unhealthy

eating habits (38). For parents to evaluate television commercials in terms of nutrition (mis)information, they also need appropriate food and nutrition information. In this study, this was provided through teaching the skills of reading food labels, which can be used to judge the claims made for specific food products.

Considering that preschool children watch 25 to 27 hours of television per week, including three hours of food commercials (3,4), and that these commercials have an important impact on children's attempts to influence parents' food purchases (9), enhancing media literacy should be emphasized in nutrition education with parents. Indeed, because older children and teenagers watch approximately 24 hours of television and adults watch approximately 17 hours of television per week, media literacy should be an important topic in nutrition education with all age groups. The dietetics profession must provide the public with the skills to evaluate advertising on television and in other media channels as well.

A strength of this study was its design. Parents in the comparison condition received equal attention: a food safety curriculum of similar length that was designed to have all the same pedagogical features of the intervention condition such as videos, hands-on activities, and role modeling. The topic was also of considerable interest to the parents, who demonstrated equal attention to the placebo curriculum. The use of the same instructor for both conditions also eliminated the potential effect of the personality of the instructor. The process evaluation indicated that the participants judged the curriculum in a positive way. In addition, the materials were designed to be appropriate to the low English literacy level of the participants.

There were some limitations, however. The sample selection was not random and the number of parents was relatively small. Reaching parents is not easy, and it required workshops at four different sites to enroll a sufficient number of parents. However, the television programs that children view are broadcast nationally and the foods advertised are nationally available and consumed by children. In addition, a previous study with a similar group (39) indicated that the Head Start families were similar to national samples in terms of number of television sets in the home, hours of television the preschool children watch per week, as well as the specific programs they watch. We expect, therefore, that this media literacy curriculum would be effective with other groups as well.

CONCLUSIONS

- The curriculum used in this study can be used easily by dietitians and other health professionals and early childhood personnel and does not require much space or money. In addition to television advertising, television programs, film, newsletters, newspaper, magazines, and supermarket brochures are also major sources of nutrition information and misinformation. Thus, dietitians can modify the media literacy nutrition education curriculum to teach parents how to critically analyze these other forms of media that frequently provide nutrition misinformation to children.
- To effectively educate the public, nutrition professionals must become aware of what the people they serve are viewing on television and acquire the skills to help

their clients of any age analyze the food advertisements on television and evaluate the nutrition claims. Therefore, media literacy nutrition education workshops should be developed similar to this one for dietitians and other health professionals as well. Such an extended effort will help people of all ages be more knowledgeable consumers and more critical viewers of television food advertising.

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