Adolescent Dieting Practices and Nutrition Knowledge

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ABSTRACT: This paper examines the dieting practices and nutrition knowledge of adolescent dieters. It also examines to what extent health instruction and nutrition instruction affect knowledge, eating behavior, and dieting practices. Dieting practices of a national sample of 3,632 eighth- and tenth-grade students indicated that adolescent dieting is widespread and more common among females (60.6%) than males (28.4%). Exposure to health and nutrition instruction resulted in some higher nutrition-knowledge scores among dieters; however, low nutrition-knowledge scores for dieters and nondieters alike indicate that the majority of adolescents do not possess the requisite knowledge to make informed dietary choices.

A growing body of literature suggests that adolescents lack accurate nutrition knowledge and have poor eating habits.[1-4] Although many studies have documented the dieting practices of adolescents, several have focused on adolescent females with eating disorders, such as anorexia nervosa and bulimia.[5-7] Relatively few studies in the literature describe the nature and extent of adolescent dieting practices. Additionally, little is known about the impact of health instruction and nutrition instruction on nutrition knowledge, eating and dieting practices of adolescents. This paper explores the nutrition knowledge, eating habits and dieting practices of 8th- and 10th-grade students who participated in the National Adolescent Student Health Survey (NASHS).[8-9]

This paper addresses the following research questions:

1. What is the prevalence of adolescent dieters?
2. To what extent do adolescent dieters practice good nutrition?
3. Do dieters differ significantly from nondieters in terms of nutrition knowledge and eating behaviors?
4. To what extent do health education and nutrition education affect nutrition knowledge, eating behaviors, and dieting practices of adolescent dieters?

METHODS

Sample

The sample of students selected for the NASHS study consisted of all 50 states and the District of Columbia from which 217 junior and senior high schools were selected, representing approximately equal numbers of urban and rural schools. Schools, classrooms, and class periods were randomly selected. Data collection was conducted using trained survey administrators. Completed surveys were obtained from 89% (n=5,859) of students enrolled in the selected classes at the 8th-grade level and 86% (n=5,560) at the 10th-grade level. Approximately 69% of survey participants were white, 17.3% black, 8.9% Hispanic, 2.4% Asian, 0.8% Native American, and 2.1% other.

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TABLE 1
Methods Used by Dieters "Most of the Time" and "Some of the Time" to Lose Weight.

	Females %	Males %
Eat less	95.3	80.8
Exercise	94.6	93.0
Avoid sweets	88.2	80.8
Eat low calorie/diet foods	84.2	64.9
Fast	54.5	43.1
Eat only fruit	65.2	65.6
Drink only liquids	41.5	47.4
Eat high protein foods	47.3	57.9
Diet pills and candies	18.9	11.0
Throw up after eating	12.7	9.0
Use laxatives	7.0	9.2
Total Number	1192	629

Three different questionnaires, each covering different health topics, were used for this study. Content and face validity of the entire questionnaire was established using health and education specialists and students representing the target population. Formal field testing of the questionnaire was conducted using approximately 463 8th- and 10th-grade students from 14 public schools. Test question readability and appropriateness and test completion time were all assessed. A more detailed description of the methods and procedures used in the national survey study is available in *The National Adolescent Student Health Survey: A Report on the Health of America's Youth.*[10]

Approximately 3,632 students completed the questionnaire that asked about nutrition and provided the data discussed in this paper. Of this sample, 1,828 were males and 1,804 were females. By grade level there were 1,851 8th graders and 1,781 tenth graders. Students who indicated they had "changed their eating habits or gone on a diet at least once for more than one week to control their weight" during the last year were defined as dieters. Although this definition usually implies an attempt to lose weight, it must be recognized that diets to control weight may include a broad spectrum of behaviors, such as weight gain, particularly among boys; a prudent reduction in the amount of sugar in one's diet or severe restrictive dieting. Because of the limitations of this study, however, weight control will be defined as dieting.

RESULTS

Dieting Incidence

Of the 1,804 females, 60.6% had dieted at least once in the past year, and of the 1,828 males, 28.4% had dieted at least once in the past year. Of the female dieters, 16.3% reported dieting at least two times in the past year, 11% three times, and 20% four or more times. Of the male dieters, 7.6% reported dieting at least two times in the past year, 4.1% three times, and 5.0% four or more times.

Approximately 64% of the 10th-grade females and 57% of the 8th grade females reported dieting. The number of dieters among 10th-grade boys (28.7%) was essentially the same as among 8th-grade boys (28.1%).

Dieting Methods.

The dieting methods used "most of the time" and "some of the time" by dieters are presented in Table 1. In general, the most common dieting practices were eating less, exercising more, and avoiding sweets—the dieting practices most promoted by nutrition education.

As Table 1 shows, less desirable dieting methods were also reported. Female dieters reported severe restrictive dieting, such as fasting (54.5%), eating fruits only (65.2%) or high protein foods only (47.3%), or drinking

TABLE 2
Knowledge Items Answered Correctly

(Percent Correct)	Females		Males	
	Dieters %	Non-dieters %	Dieters %	Non-dieters %
Salt associated with high blood pressure	80.0	75.9	69.3	67.9
Cooking in fat increases the amount of fat in food	77.8	69.6	69.3	67.9
Saturated fat causes heart problems	74.9	68.8	63.8	71.1
Sugar related to dental caries	68.8	66.6	62.1	67.3
Frozen yogurt has less fat than ice cream	69.7	56.7	55.6	57.6
Ham sandwich has more salt than turkey sandwich	55.1	52.8	59.7	52.3
Cornflakes have less fiber than bran flakes	54.9	51.1	47.8	48.9
Canned vegetables have more salt than frozen vegetables	43.6	34.3	34.0	37.6
Boiling vegetables reduces vitamins	43.3	31.6	38.9	38.9
Lose weight at 1 to 2 lbs. per week	52.0	64.4	35.9	34.5
Peanut butter jelly sandwiches has less fat than hot dog	32.4	30.6	30.9	34.6
Too little fiber associated with colon cancer	16.2	12.9	19.7	15.2
Baked beans have more fiber than potatoes	13.2	13.9	20.1	15.0
Total Number	1192	749	629	1411

only liquids (41.5%). Similarly, male dieters reported fasting (43.1%), restricting food intake to fruit (65.6%) or high protein foods (57.9%), or drinking only liquids (47.4%).

Other high-risk dieting methods practiced "some of the time" or "most of the time" among female dieters included using diet pills (18.9%), vomiting (12.7%), and using laxatives (7.0%). Similarly, among the male dieters, high-risk dieting methods included using diet pills (11.0%), using laxatives (9.2%), and vomiting after meals (9.0%).

Exposure to Future Risk of Nutrition-Related Health Problems

Four items on the questionnaire allowed for the comparison of dieters and nondieters on eating behaviors designed to lower risk of nutrition-related health problems. These items asked about restricting sodium intake, avoiding butter, cutting fat from meat, and not eating the skin of chicken. The majority of dieters and nondieters, regardless of gender, reported using little or no salt and removing fat from meats. Fifty-eight percent of the female dieters and 53.2% of the female nondieters reported avoiding butter. In addition, 54.8% of male dieters and 48.2% of male nondieters reported avoiding butter.

Skipping Meals

Skipping meals, especially breakfast, was a common practice among dieters and nondieters, but more frequent among dieters. Among females, 48.5% of the dieters and 41.2% of the nondieters reported skipping breakfast five or more times in the last week. In addition, 20.9% of the female dieters and 12.4% of the female nondieters

TABLE 3
Means and T-test Results of Dieters' Nutrition Knowledge and Exposure to Health Education and Nutrition Education

	M	SD	t	p
Gender				
Male Dieters (n = 629)	6.0	3.05	NA*	
Male Nondieters (n = 1411)	6.2	2.72		
Female Dieters (n = 1192)	6.8	2.62		
Female Nondieters (n = 749)	6.1	2.57		
Female Dieters				
health education (n = 947)	6.9	2.61	.995	.319
no health education (n = 218)	6.7	2.57		
nutrition education (n = 878)	7.3	2.37	39.654	.000**
no nutrition education (n = 261)	6.2	2.54		
Male Dieters				
health education (n = 492)	6.2	2.94	3.97	.047**
no health education (n = 122)	5.6	3.25		
nutrition education (n = 388)	7.1	2.44	65.379	.000**
no nutrition education (n = 181)	5.2	2.71		

* not applicable
** $p < .05$

reported skipping lunch. Thirteen percent of the male dieters and 10.8% of the male nondieters reported skipping lunch. Dinner was the least likely meal skipped by any group.

Snacking Practices

Thirteen items assessed snack consumption of students. The most frequently reported snacks among females were candy, soda, and donuts/cookies, with female dieters reporting less frequency for each when compared to female nondieters. Among the males, the most frequent snack reported was soda, with male dieters reporting 34.9% and male nondieters 41.6%. Less than one-quarter of the sample reported snacking on nutritional snacks, such as fruit/vegetables, juice, and milk.

Nutrition-Knowledge Scores

Thirteen items measured nutrition knowledge (Table 2). When individual knowledge items were analyzed for both males and females, regardless of their dieting, most students knew that salt was associated with high blood pressure (79.4%), sugar with dental caries (69.4%), and saturated fats with heart disease (72.9%). On the low end of the knowledge scale, only 16.3% knew that too little fiber was associated with colon cancer, and less than half knew that weight loss should not exceed more than one to two pounds per week. In general, scores for individual knowledge items were frequently below 50% correct.

Perhaps the most striking finding concerning knowledge was the low mean scores achieved by the sample of students (Table 3). Knowledge scores ranged from 0 to 13 points. Knowledge mean scores were computed by awarding a point for each correct answer and dividing the sum by the total number of items. The nutrition-knowledge mean scores for dieters and nondieters by gender are shown in Table 3.

Knowledge and Exposure to Health or Nutrition Instruction

Table 3 shows the comparison of nutrition-knowledge scores of dieters who had at least one health course since the seventh grade with dieters who reported having had none. The same comparison was made for

nutrition instruction. No significant difference existed between female dieters who had a health course (M = 6.9) and female dieters who did not (M = 6.7, t [1164] = .995, $p < .05$). A significant difference was indicated between male dieters who had a health course (M = 6.2) and male dieters without a health course (M = 5.6, t [613] = 3.974, $p < .05$).

Dieters who reported having had nutrition instruction scored significantly higher on the knowledge items than did those dieters who had had no nutrition instruction. (Table 3)

DISCUSSION

The incidence of dieting among adolescents in this sample was more frequent among female 10th graders. For males and females repeated efforts to control weight are relatively common. Although the most frequent dieting method practiced among female dieters was "eating less" and among male dieters was "exercise," a substantial number of dieters chose severe restrictive methods to control their weight. These methods include fasting, eating only high protein foods or fruits, and drinking only liquids. Although other high-risk dieting methods, such as the use of laxatives, diet pills, and vomiting, were the least commonly reported, these data suggest a need to educate about healthy methods of weight control and the risk of the unhealthy methods for weight loss as well as about general good nutrition. The data regarding meal skipping, snacking, and fiber knowledge scores also emphasize this need for nutrition education.

Chronic skipping of breakfast among dieters and the low percentages reported for consumption of nutritious snacks among adolescents suggest the presence of potentially dangerous eating practices. The high percentage of breakfast skippers among dieters may reflect their beliefs and attitudes toward the benefits and practice of breakfast consumption. Several studies have documented that children and adults who skip breakfast have a significantly lower daily intake of fiber and serum total cholesterol levels.[10,11] It is also well documented that dietary patterns have been linked to six of the leading causes of death and contribute significantly to the development of heart disease and cancer.[12]

Most students were knowledgeable about disease linkages associated with certain foods, such as heart disease and saturated fat, dental caries and sugar, or high blood pressure and sodium. The lowest percent correct responses among all students were items related to fiber. Less than 20% of the sample knew that fiber was associated with colon cancer, and many did not know good sources of dietary fiber. These findings have implications for cancer prevention programs targeted to adolescents. Dieters who had a health or nutrition course achieved higher knowledge scores than did their counterparts. In each of these comparisons, female dieters scored the highest. The overall knowledge scores demonstrate that adolescents in this sample do not possess the requisite knowledge to make informed dietary choices.

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The pervasive social concern with body weight and shape may be somewhat reflected in the knowledge and eating practices of these 8th- and 10th-grade students who diet, particularly females. The unspoken reason for this body shape/size preoccupation may be sex and social appeal that is reinforced by social pressure and fueled to a large degree by media advertising from the fashion, cosmetic, and food (especially diet food) industries. Preventive strategies are needed to help adolescents balance the social pressure for thinness and their own desires for attractiveness within the larger context of overall good health. To accomplish this, educational interventions need to appeal to the existing motives and interests of students. Unwise dieting practices among people who are still maturing physically may threaten their growth and development.

CONCLUSION

Limitations to this study are that the data are based on student self-reported behaviors and may not accurately represent their actual behaviors and attitudes. Also, only

8th- and 10th-grade students were surveyed, which may limit the accuracy with which the sample represents adolescent students nationwide. Moreover, "dieters" were defined as those who indicated they had "changed their eating habits or gone on a diet at least once for more than one week to control their weight during the last year."

The NASHS is the first major national study of adolescent students' knowledge, attitudes, and behaviors related to health in more then 20 years. These findings on nutrition knowledge and severe restrictive dieting practices of adolescents indicate a need for educational strategies designed to improve the nutrition knowledge and skills necessary for students to make healthy dietary choices. Moreover, repeated efforts to control weight, frequent among females (particularly 10th graders), may put them at risk for malnutrition, eating disorders, and other related illnesses.

Since schools represent the most efficient educational vehicle to children and adolescents, it is imperative that all states and school districts require nutrition education for students K-12 within the framework of comprehensive health education. Effective nutrition education includes a curriculum that is designed to provide all students with accurate information and skill development opportunities to enable healthy dietary choices; the provision of healthy school meals, including food offerings from onsite vending machines and concession stands that are consistent with the principles of sound nutrition; and the formation of partnerships between parents, community groups, and schools.[13] ■

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