

Self-Reported Health-Related Behaviors of Grade 9 Students: A Pre and Post Project Study

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The purpose of this research was threefold. The first purpose was to conduct a needs assessment for a local school district to obtain additional funding for the nutrition and healthy eating habits unit of the 9th grade Wellness curriculum. The Wellness program consisted of one semester of physical education and one semester of classroom instruction in lifetime wellness, a course formerly known as Health/PE. The second purpose was to encourage collaboration between students, parents, Wellness teachers, school administration, community health care partners, and cafeteria staff, all of whom directly or indirectly influence student attitudes and behaviors about healthy foods and healthy eating habits. Third and perhaps most importantly, students who completed the health behavior survey would be able to reflect on their responses over the course of the school year. During the project, students would be provided information that would enable them to make decisions about their nutrition and eating habits that could potentially affect their health throughout their adult lives. The dietary goals of the U.S.D.A. sponsored Nutrition Education Training program are:

1. Eat a variety of foods.
2. Balance the food you eat with physical activity. Maintain or improve weight.
3. Choose a diet with plenty of grain products, vegetables, and fruits.
4. Choose a diet low in fat, saturated fat, and cholesterol.
5. Choose a diet moderate in sugars.
6. Choose a diet moderate in salt and sodium.
7. If you drink alcoholic beverages, do so in moderation.

Research Questions

1. What data did pretest survey results provide about the eating habits of 9th grade students in the school district?
2. What teaching materials related to the nutrition and healthy eating unit of the 9th grade Wellness curriculum were available in the schools and at the Teachers' Center and what additional materials did teachers indicate were needed to support their teaching of the unit?
3. What did posttest results suggest about the nutrition and wellness of the district's 9th graders?

Review of Related Literature

The purpose of the review of literature was (a) to identify studies and reports that provided information about nutrition and wellness behaviors of 9th grade adolescents and (b) to identify materials and strategies that have been effective in teaching students in these age groups about nutrition and healthy eating. Data from the 1992 Youth Risk Behavior Survey (YRBS) indicated that older students were less likely than younger students to consume five or more servings of fruits and vegetables daily, with 17% of 12-13 year-olds doing so compared to 13.4% of 14-17-year olds and 10.9% of 18-21-year olds. The same source indicated that older respondents were less likely to limit consumption of foods high in fat than younger respondents, with 27.7% of 18-21-year olds doing so compared to 34.2% of 14-17-year olds and 32.9% of 12-13-year olds. Twenty-seven percent of 14-17-year olds reported engaging in moderate physical activity and approximately 25% of 12-13-year olds reported engaging in at least one health risk behavior (Division of Adolescent and School Health, CDC, 1994).

A study conducted in Michigan found that 33% of students reported eating too much high-fat food, only 13% indicated their diet was high in fiber (fruits and vegetables), 52%

indicated they consumed too much sugar, and 25% indicated their diet was too high in salt. Sixty-one percent of the 8th grade students in the Michigan study were trying to lose weight. Younger students indicated that they preferred to learn through games and experiments but were less interested in information presented by the teacher. Eighth graders preferred food preparation activities for learning about nutrition, but were less interested in videotapes and information presented by teachers. The Michigan study also found that passive methods of learning, individual projects, and teacher presentations were the least preferred methods of learning for students in all age groups (Murphy, Youatt, Hoerr, Sawyer, & Andrews, 1994). A study of instructional materials used by teachers to teach nutrition found that teachers used a variety of methods and materials, including food preparation, games, and manipulatives, particularly with students in elementary grades (Zemel, Brokaw, Huntsinger, & McMichael, 1993).

Some nutrition and eating habits appeared to be gender-related. Approximately 10% of females between the ages of 12-18 are anorectics, and as many as 18% of women have a history of bulimia by the time they are college freshmen (Farley, 1993). A study of high school female athletes found that although their knowledge about nutrition and healthy eating habits was high, their nutrition behaviors were not reflective of their level of scientific knowledge about nutrition (Chapman, Toma, Tuveson, & Jacob, 1997).

Finally, a group of researchers participating in the High 5 Alabama project reported that recruitment of teachers was unexpectedly difficult. Their report concluded that lack of time, pressure to cover the curriculum, paperwork, and scheduling were barriers for high school teachers who were asked to participate in this school-based nutrition project designed to encourage students to consume five servings of fruits and vegetables daily. The research team recommended additional incentives for participating teachers (Harrington et al., 1997).

Methodology

This project was approved by the superintendent of the school district, by the district's board of education, and was approved and funded by the state department of education under a Nutrition Education Training (N.E.T.) grant. The N.E.T. program follows a strategic planning model and objectives were set such that the project would measure outcomes based on results of the cohort surveys rather than comparisons to state or national data, although these were also of interest. Survey instruments for needs assessments and pre- and posttesting are provided as required components of the N.E.T. program. A preliminary needs assessment of a random sample of 8th grade students was conducted in spring of the year prior to beginning the project. The needs assessment was administered to a sample of students at each middle school in the county and at the city feeder schools. Results of the preliminary needs assessment are found in Table 1. The cohort of students included in the 8th grade sample would be a random sample of the 9th grade students who would participate in the N.E.T. Wellness project in the fall of the following year. The average age of the 8th grade respondents was 13 years, 10 months, including 64 males and 67 females.

A pretest survey was administered to a random sample of approximately 10% of 9th grade Wellness students in late September and October. The posttest survey was administered to another random sample of the same number of 9th grade Wellness students in late March and April. Surveys were conducted such that each of the five high schools was included and at least one class was surveyed from each class period of the day. Students did not identify themselves on the survey, but were asked to indicate their gender and age. Students were also instructed to omit questions they felt their parents would disapprove of, even though they would not be identified. Student responses were coded as dichotomous variables with zero indicating a

negative response and one indicating a positive response. The average age of the pretest sample was 14.5 years, with 68 females and 57 males; the average age of the posttest respondents was 15, with 29 males and 58 females. One school did not complete posttest surveys because the regular teacher was on medical leave, resulting in an unequal number of pre- and posttest responses.

A survey of county Wellness teachers and school librarians showed that there were few if any ancillary videos, nutrition books, games, manipulatives, recipe books, or other hands-on nutrition/wellness materials available for students and teachers other than textbooks. Wellness teachers and librarians were provided additional funds to purchase ancillary materials for their classrooms, the school libraries, and the county Teachers' Center. Unfortunately, most of the materials they requested were not shipped and delivered until after the completion of the project. Teachers attended two state-sponsored sharing sessions that specifically targeted the nutrition strand of the 9th grade Wellness curriculum. Wellness teachers also could request expert nutrition guest speakers and consultants from the medical community to speak to their classes on topics such as anorexia, bulimia, juvenile diabetes, and food allergies. Project funds were made available for district Wellness teachers to attend nutrition training sessions or conferences if they so requested.

Results

The results of the needs assessment of a random sample of 131 eighth graders is provided in Table 1. Pre- and posttest survey results are provided in Table 2. A comparison of pre- and posttest nutrition behaviors indicated an overall increase in the percentage of students who reported eating at least five servings of fruits and vegetables each day and an increase in the percentage of students who reported limiting their intake of salt. There was, however, a decrease

in the overall percentage of students who reported eating more fish and poultry than red meat. Although not shown in Table 2, there was a significant difference in nutrition and health-related behaviors according to the gender of the respondent, with females on the pretest generally having more positive responses than males. However, posttest results indicated a tendency to regression toward the mean, with scores of males higher for several responses than male responses on the pretest and scores of females lower for several responses than responses of females on the pretest. However, on the posttest 43% of females and 28% of males reported eating more fish and poultry than red meat, while a statistically significant 48% of males compared to 26% of females reported eating at least five servings of fruits and vegetables daily. Over twice as many females (28%) as males (10%) reported limiting sweets and snacks.

Conclusions

Results of this project generally supported the review of the literature. Female respondents were less likely to report that they were within the normal weight range for their age and body type than were male students, perhaps an indication that females had a poorer self-image than males (Chapman, Toma, Tuveson, & Jacob, 1997; Farley, 1993). However, females were also more likely than males to limit salt intake, perhaps also because females were concerned about “water weight.” The percent of district students who reported limiting salt intake was greater than state and national averages. A greater percentage of district students (22%) reported consuming at least five servings of fruits and vegetables daily than the national average (13.4%). Over twice as many 14-17-year old district students (73%) as the national average (27%) participated in regular physical activity. While this project had many positive results, there was little change in the overall percentage of students who reported limiting their intake of high-fat foods, red meat, and sweets, snacks, and sodas, although there was a positive

change in the overall percentage of students who reported limiting salt intake and eating at least five servings of fruits and vegetables daily.

According to the CDC report, health risk behaviors increase with age (Division of Adolescent and School Health, CDC, 1994). Thus there was an expected significant maturation effect that occurred for some behaviors when middle school students transitioned to high school. For example, at the end of the freshman year, only 48% of district 9th grade students reported getting at least eight hours of sleep per night, compared to 62% at the beginning of the year. Approximately half of beginning freshman reported engaging in health-risk behaviors, compared to a national average of approximately 25% for YRBS respondents 12-13- years of age.

Overall, the project's goals were accomplished. Ninth grade Wellness teachers received additional nutrition training and teaching materials for their classrooms. Each school's Wellness department received a set of materials including copies of each book, manipulatives/kits, and videos. Ancillary nutrition education training materials, including cookbooks and videos, were also placed in school libraries and in the Teachers' Center. Because 9th grade Wellness is a required course, materials were selected that were suitable for a range of ability and reading levels.

Outreach activities were accomplished in accordance with program goals and objectives. These included sharing information with all project partners, including 9th grade Wellness teachers, school administrators, food service personnel, community health care partners, and state-level project personnel.

References

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Table 1

Percent of Grade 8 Students Indicating Positive Responses to Grade 9 Wellness Survey

Survey question	All (n = 131)		Males (n = 64)		Females (n = 67)	
	Mean	SD	Mean	SD	Mean	SD
1. I limit my consumption of high-fat foods (eggs, dairy products, fatty meats, fried foods) to 2-3 times per week.	33	.47	23	.43	42	.50
2. I limit my consumption of salt and salty foods and do not salt my foods.	39	.49	25	.44	52	.50
3. I eat fish and poultry more often than I eat red meat.	34	.48	25	.44	43	.50
4. I eat 5 servings of fruits and vegetables a day.	22	.42	20	.41	24	.43
5. I limit my intake of sweets, sodas, and snack foods to 2-3 times per week.	29	.46	23	.43	34	.48
6. I drink several glasses of water a day.	64	.48	55	.50	73	.45

Survey question	All (n = 131)		Males (n = 64)		Females (n = 67)	
	Mean	SD	Mean	SD	Mean	SD
7. I am within the normal weight range for my gender, height, and age.	78	.42	77	.43	79	.41
8. I keep in shape by doing vigorous exercise (biking, swimming, running, sports, aerobics, etc.) for at least 30 minutes three times per week or doing moderate exercise (like walking) an hour a day.	70	.46	70	.46	69	.47
9. I stretch, do yoga, or move my body regularly in a variety of ways to keep it supple and flexible.	63	.49	53	.50	72	.45
10. I regularly engage in activities that develop over-all strength.	75	.43	86	.35	65	.48
11. I am pleased with the way I look and feel.	73	.44	86	.35	61	.49
12. I have enough energy to do the things I like to do.	95	.21	98	.13	93	.26

Table 2

Percent of 9th Grade Students Indicating Positive Responses to Grade 9 Wellness Survey Questions

Survey question	Pretest	Posttest	
	(n = 125)	(n = 100)	
	Mean	Mean	S.D.
1. I limit my consumption of high-fat foods (eggs, dairy products, fatty meats, fried foods) to 2-3 times per week.	33	32	.47
2. I limit my consumption of salt and salty foods and do not salt my foods.	30	33	.47
3. I eat fish and poultry more often than I eat red meat.	44	36	.48
4. I eat 5 servings of fruits and vegetables a day.	20	34	.48
5. I limit my intake of sweets, sodas, and snack foods to 2-3 times per week.	23	22	.42
6. I drink several glasses of water a day.	63	60	.49

Survey question	Pretest	Posttest	
	(n = 125)	(n = 100)	
	Mean	Mean	S.D.
7. I am within the normal weight range for my gender, height, and age.	79	64	.48
8. I keep in shape by doing vigorous exercise (biking, swimming, running, sports, aerobics, etc.) for at least 30 minutes three times per week or doing moderate exercise (like walking) an hour a day.	73	71	.46
9. I stretch, do yoga, or move my body regularly in a variety of ways to keep it supple and flexible.	60	36	.48
10. I regularly engage in activities that develop overall strength.	58	60	.49

Survey question	Pretest (n = 125)	Posttest (n = 100)	
	Mean	Mean	S.D.
			11. I am pleased with the way I look and feel.
12. I have enough energy to do the things I like to do.	92	74	.44
13. I have a family member who had a heart attack.	53	53	.50

Survey question	Pretest	Posttest	
	(n = 125)	(n = 100)	
	Mean	Mean	S.D.
14. I have a family member who had or has high blood pressure.	59	66	.48
15. I have a family member who developed diabetes as an adult.	33	37	.49
16. I have a family member who had or has breast cancer.	26	28	.45
17. I have a family member who had or has a drug or alcohol problem.	45	47	.50
18. I do not smoke cigarettes or chew tobacco.	73	74	.44
19. I do not use alcohol.	80	62	.49
20. I do not use marijuana or other drugs.	78	76	.43
21. I ask about side effects of any prescribed medications.	45	45	.50

Survey question	Pretest	Posttest	
	(n = 125)	(n = 100)	
	Mean	Mean	S.D.
22. I read and follow the instructions on all prescribed or over-the-counter medications.	78	80	.40
23. I ask about the effect of taking more than one medication at a time.	46	47	.50
24. I am aware of the dangers of alcohol, nicotine, and other drugs.	91	91	.29
25. I do not accept rides from drivers who have been drinking or taking drugs.	78	76	.43
26. I wear a seat belt whenever I am in an automobile.	61	69	.46

Survey question	Pretest (n = 125)	Posttest (n = 100)	
	Mean	Mean	S.D.
			27. I wear a helmet when I ride a bicycle or motorcycle.
28. I obey all traffic and safety rules.	61	66	.48
29. I take part in activities that challenge me intellectually.	62	68	.47

Survey question	Pretest	Posttest	
	(n = 125)	(n = 100)	
	Mean	Mean	S.D.
30. I participate in family, church, and/or community events.	73	80	.40
31. I stand by my values even when they are different from those of my friends.	87	84	.37
32. I use my thoughts and attitudes in positive ways.	75	77	.42
33. I accept other people's ideas and values even though they may be different from my own.	84	86	.35
34. I have yearly dental and medical check-ups.	90	87	.34
35. I get at least 8 hours of sleep a day or sufficient sleep for me to awaken feeling rested.	62	48	.50
36. I am aware of bodily changes that might indicate a health problem.	70	79	.41
37. I know how to do self-examinations.	40	47	.50

Survey question	Pretest	Posttest	
	(n = 125)	(n = 100)	
	Mean	Mean	S.D.
38. When I am ill, I rest and follow the doctor's treatment.	76	72	.45
39. I know what to do in case of illness or injury.	83	78	.42
40. I do not participate in behavior that could be dangerous to my health.	56	51	.50
41. I know how to prevent the transmission of STD and HIV/AIDS.	93	92	.27

APPENDIX

Partial List of Resource Materials Funded by N.E.T. Project

Eating Healthy for Sports	
Eating Disorders	VHS
Food Guide Handouts	
Food Pyramid: Diabetes	VHS
Food Allergy News Cookbook	
Food for Fifty Cookbooks	
Give Yourself Five	VHS
Intuitive Eating	
New Soul Food Cookbook	
Nutrition Handouts	
Nutrition Facts: The New Food Label	
Nutrition	
Nutrition Teacher's Guide	
Pyramid Handouts	
The Black Family Dinner Quilt Cookbook	
Winning Sports Nutrition II	VHS
Winning Sports Nutrition Kit	