

Perceptions of Elementary School Nutrition Education Practices by School Foodservice Directors, Teachers, and Principals

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Please note that this study was published before the implementation of Healthy, Hunger-Free Kids Act of 2010, which went into effect during the 2012-13 school year, and its provision for Smart Snacks Nutrition Standards for Competitive Food in Schools, implemented during the 2014-15 school year. As such, certain research may not be relevant today.

ABSTRACT

Objectives

The purpose of this study is to determine the perceptions and practices of foodservice directors, teachers, and principals in regards to providing nutrition education to elementary students.

Methods

Foodservice directors, teachers, and principals completed a survey designed to obtain information concerning their perceptions and practices of providing nutrition education to elementary school students in Arkansas and Idaho. Respondents indicated their level of agreement to 28 statements using a Likert-type rating scale (1 = strongly disagree to 4 = strongly agree). A fifth category of "don't know" was provided for respondents who felt they were not qualified to answer a statement. Cumulative frequencies were determined for all survey statements. Factor analysis also was performed.

Results

Useable surveys were completed and returned by 96 (69%) foodservice directors, 482 (52%) teachers, and 91 (65%) principals. All three groups agreed that nutrition education is valued at their schools, but inadequate funds are allocated to support nutrition education. They also agreed that parents should be involved in lessons and activities when nutrition education is taught at school. Principals believed that teachers and foodservice staff need training to provide nutrition education, while foodservice directors and teachers felt that they are adequately trained. Fifty-six percent of teachers and 78% of directors agreed that menu items served in the National School Lunch Program (NSLP) reinforce nutrition education provided in the classroom.

Application to Child Nutrition Professionals

A supportive and knowledgeable school staff and an encouraging school environment must be in place if nutrition education is to be successfully incorporated into elementary schools' wellness policies. Although foodservice directors are not directly responsible for the delivery of nutrition education to elementary students, they are in a position to play a vital role in contributing to a supportive school nutrition environment.

INTRODUCTION

An expanding national epidemic of childhood obesity has intensified the need to promote healthy lifestyles among children (Weshler et al., 2001). In order for children to embrace a healthy lifestyle, their environment must support and reinforce principles of healthy eating and physical activity (Harris et al., 1997; U.S. Department of Agriculture [USDA], 2000). Schools are ideal

and appropriate settings for creating an environment in which to promote healthy eating and physical activity behaviors of children (McBean, 2003). Nutrition education in schools has been shown to be valuable in increasing students' knowledge of nutrition and healthful eating (Contento et al., 1992; Lytle & Achterberg, 1995). Within elementary school settings, the prevailing goals of those individuals providing nutrition education as a part of the curriculum are to develop students' understanding of basic nutrition concepts, provide a foundation for selecting healthy foods, and enhance students' general education (Johnson & Johnson, 1985).

Research conducted by Auld et al. (1999) showed that schools do not typically incorporate an adequate amount of nutrition education into the curriculum to influence eating behaviors. Additionally, the majority of schools do not have a policy that supports nutrition education in the classroom (Meyer et al., 2001). There are many factors influencing the presence or absence of nutrition education in the school setting. One factor is the decision to use classroom time preparing students for standardized tests rather than for nutrition education (Dollahite et al., 1998). Other factors facing teachers are a lack of support from school administrators, limited teaching resources, and a lack of necessary training to teach nutrition lessons (Auld et al., 1999). Many teachers, on their own initiative, receive nutrition training through self-directed reading and professional development experiences (Celebuski & Farris, 2000).

How nutrition education is perceived and incorporated into the curriculum in schools will be changing due to the passage of *Public Law 108-265, § 204* of the Child Nutrition Act (Child Nutrition and WIC Reauthorization Act, 2004). This act requires local education agencies (LEAs) participating in federal school meal programs to develop comprehensive school wellness policies for implementation beginning in the 2006-07 school year. School foodservice directors managing federally assisted nutrition programs, such as the National School Lunch Program (NSLP) and School Breakfast Program (SBP), are positioned to play a vital role in developing and implementing wellness policies through the provision of nutritious meals and healthy lifestyle messages to the children they serve.

In addition to providing nutritious meals, school foodservice directors who manage school-based nutrition programs are encouraged to take an active role in providing nutrition education to students (Celebuski & Farris, 2000; Healthy People 2010, 2000; USDA, 1999). The School Nutrition Association (SNA) and USDA Food and Nutrition Service (FNS) have a common goal of supporting and encouraging directors to provide and support nutrition education (Briggs et al., 2003).

School foodservice directors, however, often work in environments that do not promote or support their efforts in providing or contributing to the nutrition education of students. Additionally, directors may believe they do not have adequate training or knowledge to provide nutrition education. School foodservice directors have identified "training in promoting nutrition awareness/education" as one of their highest needs for professional development (Sullivan et al., 2001).

Whether school foodservice directors play a lead or supporting role in providing nutrition education, a team approach that includes teachers, school administrators, and parents within a school environment that supports nutrition education must exist for success to occur (Contento et

al., 1995). Previous studies on the provision of nutrition education have concentrated on teachers' and principals' perceptions and practices. Only one study could be found where directors' perceptions regarding nutrition education were obtained (Cho & Nadow, 2004). The purpose of this study was to expand the knowledge base regarding perceptions and practices of school foodservice directors, teachers, and principals in providing nutrition education to students in kindergarten through Sixth Grade.

METHODOLOGY

Instrument Development

Based on a review of literature and discussions with school foodservice directors and elementary school teachers, two draft surveys were developed, one for directors and teachers, and one for principals. Both surveys were designed to obtain perceptions and practices of providing nutrition education to elementary students. The surveys were reviewed for content validity by a panel of three nutrition professionals and two teachers, and then pilot tested by a sample (n = 53) of directors, teachers, and principals. Respondents were asked to assess the clarity of questions, readability, and ease of completion, and provide suggestions for changes. Minor revisions were made accordingly. Individuals who participated in the pilot tests were excluded from the final survey study.

Instruments

The first survey, Nutrition Education Practices (NEP) Survey for Teachers and Foodservice Directors, contained 28 statements and 14 questions. The 28 statements were designed to measure perceptions and practices of directors and teachers related to providing nutrition education to elementary school students. Respondents indicated their level of agreement to each statement using a Likert-type rating scale (1 = strongly disagree to 4 = strongly agree). A fifth point, "don't know," was provided for respondents who felt they were not qualified to respond to a statement. Six of the 14 questions obtained information on how nutrition education was presently being incorporated into the elementary classroom, the number of hours teaching nutrition education each year, and nutrition education resources utilized. Seven questions obtained demographic information that included job title, number of years experience in the elementary school, education level, and certifications. One open-ended question allowed respondents to provide comments on issues related to providing nutrition education to elementary school students.

The second survey, NEP Survey for Principals, contained the same 28 statements used in the first survey. However, statements were worded to reflect the principal's position in responding to perceptions and practices of directors and teachers providing nutrition education to elementary school students. Three questions obtained demographic information that included job title, number of years experience in present position, and which elementary grades at their school included nutrition education in their curriculum. One open-ended question allowed respondents to provide additional comments on issues related to providing nutrition education to elementary school students. The University of Idaho Human Subjects Committee approved the study protocol and surveys prior to data collection.

Selection of Subjects

The study was conducted in Arkansas and Idaho during the spring semester of the 2002-03 academic year. These two states were selected because they represented different USDA and geographical regions. Additionally, the Arkansas and Idaho state directors of Child Nutrition Programs were supportive of the research. They assisted by providing contact information for school foodservice directors in their respective states. Using a random number table, a sample of 70 elementary schools was selected from 308 school districts in Arkansas and 70 elementary schools from 114 school districts in Idaho for inclusion in the study. Each elementary school included kindergarten through Fifth Grade or kindergarten through Sixth Grade. The elementary schools were classified further into large (351 or greater students) and small (350 or less students) enrollment.

A packet of surveys was mailed to directors responsible for the school nutrition program at each selected elementary school. Included in the packet was a survey for the director, a survey for one teacher in each grade that participated, and a survey for the principal. It was requested that the director hand-deliver surveys to each participant in their school. A total of 926 teacher surveys, 140 director surveys, and 140 principal surveys were delivered.

Surveys were addressed and stamped for respondents to mail to researchers when completed. Each survey included a confidentiality statement informing respondents that each survey was coded to identify the school district for the purpose of analysis. Four weeks after the first mailing, reminder letters and surveys were mailed to non-responders.

Data Analysis

Analysis of the surveys was conducted using SPSS v9.0. Cumulative frequencies were determined for all survey statements. Factor analysis was performed using responses to the 28 statements to determine if the statements could be grouped into a smaller number of factors that would capture the underlying dimensions of providing nutrition education to elementary students. The resulting matrix was rotated using the Varimax procedure. Statements loading at 0.40 or greater were retained and produced six factors. To determine if differences in perceptions and practices existed, the six factors were analyzed using a general linear model for regression with the dependent variables of state, school size, and group (directors, teachers, and principals).

RESULTS AND DISCUSSION

Useable surveys were completed and returned from 96 (69%) directors, 482 (52%) teachers, and 91 (65%) principals. Demographic data showed that 53% of directors had over ten years experience in the elementary school system and 60% reported education levels above the high school level. The majority (79%) of teachers had ten years or more teaching experience and 64% reported having received education beyond a Bachelor's degree. Fifty-eight percent of principals had six years or more experience in their present position.

Nutrition Education Practices

Results of this study indicated a majority (66%) of teachers provide one to ten hours of nutrition education per school year, which is consistent with the results of other studies (Brenowitz &

Tuttle, 2003; Norton et al., 1997; Stang et al., 1998; Woodson et al., 1995). The majority of foodservice directors (69%) reported providing one hour or less of nutrition education to students during a school year.

On the open-ended question, there were many comments from teachers and principals regarding a lack of time to provide nutrition education, and it was indicated that other core curriculum subjects, such as reading, math, and language, were higher priorities. However, teachers were able to provide some nutrition education, with 27% providing nutrition education as a separate subject and 66% providing nutrition education as an integrated subject.

When asked to select from a list of resources used in providing nutrition education, the top three resources used by teachers were National Dairy Council education materials (55%), the school lunch menu (38%), and health texts (34%). School foodservice directors identified their top three resources as the school lunch menu (62%), National Dairy Council education materials (56%), and USDA Team Nutrition Scholastic materials (31%). In a national survey of elementary teachers, National Dairy Council education materials and health texts were reported as the two main sources of nutrition information used (Thomas et al., 1994).

Factors

Factor analysis of the 28 survey statements produced six factors that were identified by researchers as: 1) parents; 2) nutrition education; 3) administration; 4) self (director, teacher, or principal); 5) NSLP; and 6) funding. Table 1 shows the six factors in descending order by mean level of agreement and percent of agreement by group.

Table 1. NEP Survey Statements by Factor and Percentages of Agreement with Each Statement by Group

Parent Factor Statements (3.3 : 0.0, a = 0.8)	Agree			Disagree			Don't know		
	D	T	p	D	T	p	D	T	p
Parents reinforcing at home the nutrition education being provided to our elementary student is important.	100%	95%	91%	0%	2%	6%	0%	3%	3%
Parents should be involved in lessons and activities when nutrition education is provided to our elementary students.	96%	88%	89%	1%	7%	7%	3%	5%	4%
Nutrition education for our elementary students is more effective when parents are involved in lessons and activities.	83%	84%	86%	2%	5%	3%	15%	11%	11%
Nutrition Education Factor Statements^a (2.9 : 0.0, a = 0.8)	Agree			Disagree			Don't know		
	D	T	p	D	T	p	D	T	p
Nutrition education should be part of our elementary students' curriculum.	93%	93%	98%	6%	5%	1%	1%	2%	1%
Nutrition education should be incorporated into our elementary school lunch program by foodservice staff.	77%	82%	81%	19%	11%	15%	4%	7%	4%
I provide nutrition education to my elementary students.	49%	76%		27%	24%		24%	0%	
Nutrition education is part of our elementary students' curriculum.	47%	71%	90%	17%	20%	9%	36%	9%	1%
Time is allocated for providing nutrition education to our elementary students.	33%	53%	75%	28%	39%	21%	39%	8%	4%
I follow formal lesson plans when providing nutrition to my elementary students.	29%	53%		35%	45%		36%	2%	
Providing nutrition education to my elementary students is written into our state school standards/job descriptions.	28%	42%		17%	21%		55%	37%	
Teachers and/or staff provide nutrition education to our elementary students.			84%			7%			9%
It is teachers' and/or staff's role to provide nutrition education to our elementary students.			79%			18%			3%
Providing nutrition education to our elementary students is written into our state school standards/job descriptions.			61%			22%			17%

Teachers and/or staff follow formal lesson plans when providing nutrition education to our elementary students.			50%			40%			10%
Administration Factor Statements_a (2.8 :: 0.0, a= 0.9)	Agree			Disagree			Don't know		
	D	T	p	D	T	p	D	T	p
Nutrition education is valued at our elementary school.	55%	64%	83%	19%	24%	10%	26%	12%	7%
Our school superintendent encourages providing nutrition education to our elementary students.	52%	40%	66%	16%	22%	16%	32%	38%	18%
Our school principal encourages providing nutrition to our elementary students.	48%	55%		12%	22%		40%	23%	
Our school board encourages providing nutrition education to our elementary students.	42%	36%	59%	17%	21%	16%	41%	43%	25%
Adequate school funds are allocated to support nutrition education for our elementary students.	22%	26%	53%	34%	34%	33%	44%	40%	14%
I encourage providing nutrition education to our elementary students.			93%			6%			1%
Self Factor Statements_a (2.8 :: 0.0, a = 0.9)	Agree			Disagree			Don't know		
	D	T	p	D	T	p	D	T	p
I have access to resources that allow me to provide nutrition education to my elementary students.	73%	63%		17%	29%		10%	8%	
I feel confident in providing nutrition education to my elementary students.	71%	73%		18%	23%		11%	4%	
I have adequate training to provide nutrition education to my elementary students.	70%	63%		20%	32%		10%	5%	
It is my role to provide nutrition education to my elementary students.	65%	72%		18%	23%		17%	5%	
I have support from teachers, staff, and/or outside nutrition experts in providing nutrition education to my elementary students.	48%	46%		34%	48%		18%	6%	
I collaborate with teachers, other school staff, and/or outside nutrition experts in providing nutrition education to my elementary students.	47%	39%		30%	60%		23%	1%	

Teachers and/or staff have access to resources that allows them to provide nutrition education to our elementary students.			74%			22%			4%
Teachers and/or staff feel confident in providing nutrition education to our elementary students.			45%			43%			12%
Teachers, staff, and/or outside nutrition experts support each other in providing nutrition education to our elementary students.			48%			41%			11%
Teachers, staff, and/or outside nutrition experts collaborate in providing nutrition education to our elementary students.			44%			45%			11%
Teachers and/or staff have adequate training to provide nutrition education to our elementary students.			43%			51%			6%
NSLP Factor Statements (2.7 :! 0.0, a = 0.8)	Agree			Disagree			Don't know		
	D	T	p	D	T	p	D	T	p
The foodservice staff is supportive and helpful in providing nutrition education to our elementary students.	80%	45%	70%	15%	36%	22%	5%	19%	8%
Menu items served in the school lunch program reinforce nutrition education provided in the classroom to our elementary students.	78%	56%	72%	6%	37%	26%	16%	7%	2%
Nutrition education in the classroom is reinforced through our elementary school lunch program.	72%	59%	81%	18%	32%	17%	10%	9%	2%
The foodservice staff team-teach nutrition to our elementary students	35%	15%	23%	55%	72%	75%	10%	13%	2%
Funding Factor Statements (2.6 :! 0.0, a = 0.8)	Agree			Disagree			Don't know		
	D	T	p	D	T	p	D	T	p
Nutrition education resources (materials such as books/purchased curriculum) are available for providing nutrition education to our elementary students.	42%	48%	61%	14%	35%	38%	44%	17%	1%
Nutrition education at our elementary school, is partially funded through the school lunch program.	36%	9%	33%	34%	17%	23%	30%	74%	44%
Our elementary school receives federal monies to fund nutrition education.	22%	13%	33%	22%	14%	23%	56%	73%	44%

Note: Values enclosed in parentheses represent factor mean, standard error, and alpha level.
D = School foodservice director. T = Teachers. P = Principal.
Scale: 1=strongly disagree to 4=strongly agree.
Factors listed in descending order by mean. Statements listed in descending order of percentage
^a Principal statements worded to reflect the principal's position in responding to perceptions and

Factor means, along with group and state means for each factor, are found in Table 2. A mean of 2.5 or higher indicates a level of agreement while a mean of less than 2.5 indicates a level of disagreement. No significant differences were found for any of the six factors based on school size. However, there was a significant difference between the states. Arkansas had a higher mean rating (2.7 ± 0.7 , $p < .01$) than Idaho (2.5 ± 0.7) in the funding factor (Table 2).

Group	Directors	Teachers	Principals	Arkansas	Idaho
Factor	(M ± SD)	(M ± SD)	(M ± SD)	(M ± SD)	(M ± SD)
Parents	3.4 ^a ± 0.5	3.3 ± 0.5	3.2 ± 0.5	3.3 ± 0.5	3.3 ± 0.5
Nutrition education	3.0 ± 0.5	2.9 ± 0.5	2.9 ± 0.4	3.0 ± 0.4	2.9 ± 0.4
NSLP	2.9 ^a ± 0.5	2.5 ^b ± 0.7	2.7 ^b ± 0.5	2.7 ± 0.6	2.5 ± 0.6
Self	2.9 ^a ± 0.5	2.8 ^a ± 0.5	2.6 ^b ± 0.5	2.8 ± 0.5	2.7 ± 0.5
Administration	2.7 ± 0.7	2.8 ± 0.6	2.9 ± 0.5	2.8 ± 0.6	2.7 ± 0.6
Funding	2.6 ± 0.7	2.6 ± 0.7	2.6 ± 0.6	2.7 ^a ± 0.7	2.5 ^b ± 0.7

Note. Scale = 1, strongly disagree, to 4, strongly agree.
^{a,b}Means within a row with different superscripts are significantly different ($p \leq .05$).

Parents

The parents factor contains statements reflecting the role parents should play in their child's nutrition education and showed the highest mean level of agreement among directors (3.4 ± 0.5), teachers (3.3 ± 0.5), and principals (3.2 ± 0.5). Other studies have also shown that involving parents in nutrition education lessons and obtaining their support for school-based nutrition education programs are critical factors that influence a child's dietary behavior (Cho & Nadow, 2004; Weiss & Kien, 1987). Frongillo et al. (1990) reported that school administrators believed more cooperation from parents would increase the positive impact of nutrition education on students in their schools. Additionally, other studies have identified a lack of parental involvement and a need to increase their influence in their children's nutrition education (Stang et al., 1998; Weiss & Kien, 1987).

Nutrition Education

The nutrition education factor includes statements that reflect the value and practice of providing nutrition education in elementary schools. In response to statements, mean levels for directors (3.0 ± 0.5), teachers (2.9 ± 0.5), and principals (2.9 ± 0.4) showed they agreed that nutrition education is valued at their schools. The statement "nutrition education should be part of our elementary students' curriculum" revealed agreement among school foodservice directors (93%), teachers (93%), and principals (98%). However, the statement "nutrition education is part of our elementary students' curriculum" revealed a lower percentage of agreement among school foodservice directors (47%), teachers (71%), and principals (90%). Forty-nine percent of directors and 76% of teachers indicated that they provide nutrition education to students. These

results for teachers are similar to those of Stang et al. (1998), who reported that teachers in Minnesota supported classroom nutrition education, with 69% providing it.

Fifty-five percent of school foodservice directors responded "don't know" to the statement "providing nutrition education to my elementary students is written into our state school standards/job descriptions." Teacher response to the same questions was 37% "don't know" and 21% disagreed. Arkansas Department of Education (2002) and Idaho School Board of Education (2005) state school achievement standards include standards for healthy eating and diet for kindergarten through Sixth Grade. However, these standards do not use the term "nutrition education."

Administration

Statements regarding school administration support for nutrition education are included in the administration factor. Principals agreed (83%) that nutrition education is valued at their schools, whereas fewer directors (55%) and teachers (64%) agreed. Forty-eight percent of directors and 55% of teachers concurred that principals encourage providing nutrition education to students. However, 93% of principals reported that they provide encouragement for nutrition education to be taught in their school. In regard to receiving support from school boards to provide nutrition education, a lower percentage of school foodservice directors (42%) and teachers (36%) agreed or reported that they "don't know" (41% and 43%, respectively). District administrators' and school principals' support is necessary to effectively implement and sustain nutrition education programs (Frongillo et al., 1990). In a study of middle school principals, it was reported that many would like to be involved and support the development of nutrition policies for their schools, but had little or no training in the promotion of nutrition education (Shahid, 2003). Brown et al. (2004) reported that 77% of school board members considered the concept of school nutrition issues as not being a priority. One director in this study responded, "I don't feel that the Child Nutrition [Program] is recognized by the administration for the role it plays in a child's education. I actually have a very supportive superintendent and school board, but nutrition in the school is not seen as a responsibility for schools."

The statement "adequate school funds are allocated to support nutrition education for our elementary students" garnered a low percentage of agreement among school foodservice directors (22%) and teachers (26%), with principals (53%) having a higher percentage of agreement. Falciiglia et al. (1997) reported that teachers want additional funding for nutrition education in order to purchase teaching supplies, such as food items and equipment.

Self

How nutrition education is provided and the confidence in which it is made available is reflected in statements from the self factor. The self factor mean levels showed school foodservice directors (2.9 ± 0.5) and teachers (2.8 ± 0.5) had a higher level of agreement ($p < .01$, and $p = .03$, respectively) when compared to principals (2.6 ± 0.5) with statements regarding training and confidence in providing nutrition education to elementary students. Less than half (43%) of principals agreed with the statement that "teachers and staff have adequate training to provide nutrition education" and less than half (45%) agreed that teachers and staff feel confident providing nutrition education. However, school foodservice directors and teachers believed that they were adequately trained (70% and 63%, respectively) and confident (71% and 73%,

respectively) to provide nutrition education. Brenowitz and Tuttle (2003) reported that higher nutrition teaching self-efficacy is correlated with spending more time providing nutrition education. They suggest that efforts toward increasing nutrition training for elementary school teachers should focus on increasing the effectiveness of nutrition education, rather than merely providing nutrition information.

In regards to a school foodservice director's role in providing nutrition education, 65% agreed with the statement that "it is my role to provide nutrition education." Conklin et al. (1995) found that directors believed the use of educational materials to help increase children's knowledge and consumption of nutritious food is an important part of their job as school foodservice directors. Directors should play an essential and proactive role in leading the development of policies for programs and services that incorporate nutrition services into the educational setting as an element of a Comprehensive School Health Program (Briggs et al., 2003).

National School Lunch Program (NSLP)

The NSLP factor includes statements reflecting the involvement of school foodservice program staff in regards to nutrition education. Mean levels showed that directors (2.9 ± 0.5 , $p < .01$) had a higher level of agreement overall with NSLP statements compared to teachers (2.5 ± 0.7). Directors also had a higher level (2.9 ± 0.5 , $p = .03$) of agreement overall with NSLP statements, as compared to principals (2.7 ± 0.5). This difference is reflected in statements such as "the foodservice staff is supportive and helpful in providing nutrition education to our elementary students" with 80% agreement by school foodservice directors, 45% agreement by teachers, and 70% agreement by principals. Additionally, findings suggest that school foodservice staff is not highly involved in team-teaching nutrition education, with 35% of directors, 15% of teachers, and 23% of principals agreeing.

Stang et al. (1998) reported teachers are interested in collaborating with foodservice staff to provide nutrition education; however, less than one-fourth (22%) thought foodservice staff were interested in collaborating with them. A survey of Tennessee teachers showed that one-third did include school foodservice personnel in nutrition education activities (Zemel et al., 1993).

Funding

The funding factor included statements on how nutrition education was funded and identified directors, teachers, and principals in Arkansas as having mean levels significantly higher (2.7 ± 0.7 , $p < .01$) than directors, teachers and principals in Idaho (2.5 ± 0.7). This difference suggests greater funding support (or at least the perception of greater funding support) for nutrition education in Arkansas than in Idaho. Fifty-six percent of directors, 73% of teachers, and 44% of principals reported they "don't know" to the statement "our elementary school receives federal monies to fund nutrition education." In order to develop and maintain an effective nutrition education program, consistent and sufficient funding is necessary (Levine et al., 2002).

CONCLUSIONS AND APPLICATIONS

The school environment is fertile ground for providing nutrition education, as well as healthy lifestyle instruction to students. However, for nutrition education to be successful in the school

setting, the environment must foster approaches that involve cooperation of all stakeholders, including school foodservice directors, teachers, school administrators, parents, and students (Hancock et al., 1996).

As school personnel work toward developing and implementing their school wellness policies consistent with the mandate for the 2006-07 school year, an emphasis on collaboration by all stakeholders in nutrition education should be addressed. One area needing attention is teachers' responses to the open-ended survey question in which a concern for the low nutritional value of school meals was expressed. Comments such as "I am concerned about school lunch. It seems it is high in sugar, starch, and fat. I am also concerned about the abundance of pre-cooked foods filled with preservatives and artificial flavorings," should be addressed so that school foodservice directors are able to effectively partner with members of the school community to promote healthy eating and establish school wellness policies that contribute to an overall wellness environment for students served.

To effectively address nutrition education as part of a school wellness policy, it must first be viewed a worthy component of state curriculum standards and incorporated into guidelines at all grade levels. Additionally, continuing education opportunities that allow school foodservice directors and teachers to increase their nutrition education knowledge must be available and supported by school administrators, including principals, superintendents, and school boards. Training should be geared toward increasing the effectiveness of nutrition education, rather than just providing nutrition information to participants (Brenowitz & Tuttle, 2003; Weiss & Kien, 1987). But training alone will not ensure the effective provision of nutrition education. Time to provide nutrition education in the classroom must be secured, and educating students on healthy eating practices must be valued and viewed as a necessary part of students' education.

In playing a supportive role, school foodservice directors can take a proactive approach by earning the School Food and Nutrition Specialist (SFNS) credential offered by the School Nutrition Association. The goal of the SFNS credentialing program is to enhance the professional image of school foodservice professionals and provide them with the tools needed to provide healthy nutrition environments (Briggs et al., 2003; Rigby, 1999). School officials would be wise to hire district-level individuals who have a recognized professional credential, such as the registered dietitian (RD), SFNS, or Certified Dietary Manager designation as a way to ensure a qualified individual is overseeing nutrition education efforts, as well as implementation of wellness policies.

Since the SBP and NSLP will play significant roles in local school wellness policies, school meal menu items offered must support healthy eating concepts taught in the classroom (Meyer et al., 2002). Teachers need to have a better understanding of the federal nutrition regulations guiding school meals and how different foods fit into a healthy meal plan. School foodservice directors would be prudent to include teachers, students, parents, and other stakeholders in the menu-planning process. This will allow directors to educate participants on the nutritional content of menus, obtain input from stakeholders and, most importantly, secure support for the menu items offered at breakfast and lunch.

Finally, federal and state funding and resources available to support nutrition education must be accessed, and stakeholders should be aware of all available resources. School foodservice directors, teachers, and other stakeholders are advised to seek such resources by working with local, state, and federal agencies to solicit funds or grants to promote an effective nutrition education environment, thereby making a positive difference for students served.

Limitations

The study was conducted in two states and the applicability of the findings may be limited. In addition, since a single survey was developed to apply to both directors and teachers, the information obtained is a broad understanding of the two groups' perceptions and practices. Respondents may have answered questions differently if statements had been placed on the survey in categories of perceptions and practices. Lastly, school foodservice directors had been asked to hand-deliver surveys to each participant in their schools. This could lead to bias (favorable or unfavorable) in teachers' and principals' responses.

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