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Nutrition-related knowledge, attitudes, and dietary behaviors among Head Start Teachers in Texas: A cross-sectional study

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Introduction

Head Start is the United States' largest, federally funded, early childhood education program that promotes school readiness of children from low-income families.¹ A recent report suggests that 25% of preschoolers who attend Head Start are obese (BMI 95th percentile), compared with only 9% of 2–5 year olds nationally.² The developmental domains outlined

in the Head Start program extend beyond cognitive and socioemotional development and specifically emphasize child health outcomes, including healthy nutrition.³ Head Start programs reach over 1 million low-income children annually,¹ and as such, present an ideal setting to implement healthy eating and obesity prevention programs.

Healthy eating efforts that target preschoolers are already underway in many of the nation's Head Start Centers.⁴ The success of these classroom-based obesity prevention programs typically rely on Head Start teachers, who are responsible for teaching the nutrition education curriculum and encouraging healthy eating behaviors among their students. Data have shown that teacher training is a key predictor for successful implementation and maintenance of elementary school-based healthy eating interventions.⁵ While the same is likely true for preschool teachers, it has yet to be examined.

Little information is available regarding nutrition-related knowledge, attitudes, and behaviors among Head Start teachers; however, understanding these behavioral constructs is the first step to establishing the foundation needed to tailor intervention strategies and programs for Head Start teachers.⁶ The purpose of this study is to describe the nutrition-related knowledge, attitudes, and behaviors among Head Start teachers in Harris County, Texas.

Methods

This study was a cross-sectional, secondary analysis of baseline data collected as part of the Head Start on Healthy Living (HSHL) project, a 3-year (2008–2011) project funded by the U.S. Department of Health and Human Services Administration for Children and Families. The HSHL project was designed to establish best practices for nutrition and physical activity among their Head Start preschoolers, families and teachers. It was a collaborative effort between Harris County Department of Education (HCDE) Head Start and the University of Texas School of Public Health. All data for the current study were collected by the HCDE Research and Evaluation division in spring of 2009. The study was approved by the University of Texas School of Public Health, Committee for Protection of Human Subjects and the Institutional Review Board of the Harris County Department of Education.

Data Collection

Teacher Health Behavior Survey—The HSHL teacher Health Behavior Survey was adapted from the School Physical Activity and Nutrition (SPAN) survey, which has been validated for use among low-income, minority children at the fourth grade reading level.^{7,8} The 96-item survey includes questions on dietary behaviors (34 items), dieting practices (4 items), knowledge and attitudes (13 items), anthropometrics, and demographics. Dietary behavior is assessed using a semi-quantitative food recall questionnaire that asks about intake frequency of various foods on the previous day (e.g., Yesterday, how many times did you eat hamburger meat, hot dogs, sausage (chorizo), steak, bacon or ribs?). Additionally, the survey asks about usual meal consumption behaviors for breakfast, lunch and dinner (e.g., How often do you eat lunch out?); time spent in physical and sedentary activity (e.g., On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight-lifting); dieting practices (e.g., Have you ever tried to lose or gain weight?); and knowledge of and attitudes toward nutrition and health (e.g., From which food groups should you eat most servings per day?). Finally, the survey asks height, weight and demographic characteristics including age, gender, ethnicity, and education level.

This self-administered survey was given to all HCDE Head Start teaching staff (i.e., teachers and teachers' aides) during regular work hours. Almost all HCDE Head Start teaching staff

(n= 213, 97% response rate) completed the survey. No monetary incentive was provided for participation. After correcting for discrepancies, such as missing data, the final sample size was 176.

Descriptive statistics including frequency and percent were calculated using IBM SPSS 19.0 software (Chicago, IL). Body mass index (BMI) was classified using cut points established by the U.S. Centers for Disease Control and Prevention.⁹ Obesity was subdivided into class I, II and III, based on cut points established by the World Health Organization.¹⁰

Results

Table 1 presents participant demographics. Most of the teachers were female (96.5%) and between the ages of 21 and 50 years (84%). The sample was predominately minority with 72% African American and 21% Hispanic. We found that 24% were overweight and 55% were obese. Seventeen percent were class II obese (BMI 35 but <40) and 16% were class III (BMI >40). Approximately half of the teachers (53%) had worked at Head Start for 4 or more years.

Nearly one-fourth of the teachers reported that they had not eaten fruits (26%) or vegetables (23%) the previous day, 28% had eaten fried meat at least once, and 52% had eaten French fries at least once (Table 2). One of three (32%) teachers consumed at least one fruit-flavored beverage (e.g., fruit punch, sports drinks), and 44% had at least one soda on the previous day.

Fifty-seven percent of the teachers reported that they eat breakfast, 75% lunch, and 79% dinner always or almost always. Sixty-five percent reported eating lunch out sometimes, and 18% reported eating lunch out always or almost always. Forty-four percent of the teachers had eaten restaurant food at least once on the previous day.

When assessing nutrition knowledge, only 10% correctly identified which food groups should be consumed most (grains), and 68% correctly identified groups that should be consumed least (fats and oils). Only 39% correctly identified the recommended daily servings of fruits and vegetables, 8% of the teachers knew the recommended percentage of daily calories from fats, and 48% knew which macronutrient contained the most calories. Only 4 teachers (3%) correctly answered at least four nutrition knowledge questions, and 27 (18%) correctly answered at least three.

When assessing nutrition attitudes, 54% of teachers agreed with the statement that it is hard to know which nutrition information to believe and 9% agreed that their nutrition habits are healthy. Most teachers (78%) agreed that being overweight increases health risks, and 93% agreed that learning the relationship between health and nutrition is important.

Of the teachers in this study, 88% reported ever having tried to lose weight, and 71% reported that they were currently trying to lose weight. Additionally, 81% stated that they would like to weigh less, and nearly three of four teachers (72%) stated that they weighed too much compared with other adults of the same height.

Discussion

While there has been emphasis on developing programs for obesity prevention in early childhood,¹¹ to our knowledge, no studies have investigated the nutrition-related knowledge, attitudes, and dietary behaviors of the teachers who would implement such programs.¹² Head Start teachers are responsible for providing nutrition education to young children from low-income populations who are at a disproportionately higher risk for obesity; however,

data from the current study indicate that these teachers may further training in nutrition and diet-related behaviors as well. If these teachers do not have an adequate nutrition background, it is unlikely that they can implement and support effective obesity prevention programs for preschool children.

Nutrition knowledge is often assumed among teachers, yet many may not have received formal training in the area.¹³ Overall, we found that the Head Start teachers in our study population valued nutrition education but none could correctly answer all five nutrition questions on the survey. Poor nutrition knowledge among non-Head Start early childhood caregivers has also been reported in a previous study, in which only 13% of early childhood caregivers (teachers) were familiar with recommended dietary guidelines or understood their application.¹³ Furthermore, only one-third of early childhood caregivers received workshop or in-service nutrition training.¹³ The participating Head Start organization in our study (HCDE Head Start) has a 1-week teacher training in the summer on content areas including lesson planning, classroom curriculum assignment checklist, individualized learning plans, parent/teacher conferences and home visits. However, there is no current, formal nutrition education provided (Personal Communication, Ms. Gulshan Rahman, HCDE Head Start Health and Family Services Manager, 2012).

The majority of Head Start teachers in our study acknowledged the connection between nutrition, weight, and health. Over 75% agreed that what one eats affects one's health, those who are overweight are more likely to have health problems, and it is important to learn the relationship between food and health. These attitudes are important because of their direct correlation with nutrition behaviors.¹³ Research has shown that early childhood teachers generally hold beliefs that positively influence food preferences and appropriate eating behaviors among children.¹³ However, studies have also found that while Head Start teachers believe they should play a role in obesity prevention among their preschoolers, they do not know how to implement the nutrition programs.¹⁴ Further, our study found that over half of the teachers had difficulty identifying which nutrition information to believe. Untangling truth from fiction has been challenging for teachers.¹⁵ Our results, along with those of other studies, suggest that greater emphasis on appropriate and adequate nutrition education and training, including providing teachers with credible resource materials for Head Start teachers, is needed.

When evaluating dietary behaviors, our study found relatively low fruit and vegetable and high fried food consumption among HCDE Head Start teachers. Evidence supports the notion that high intake of energy-dense foods and low intake of fruits and vegetables contribute to obesity.¹⁶ Furthermore, 18% of the teachers eat out at lunch regularly and 65% eat out at lunch sometimes, which are higher numbers than expected since teachers are encouraged to eat lunch with the children at school. We learned, though, that HCDE Head Start teachers have been allowed, until the 2012-2013 school year, to leave the school because they had non-duty break time which was likely used to eat out (Personal Communication, Ms. Gulshan Rahman, HCDE Head Start Health and Family Services Manager, 2012). In a national survey of 1,600 Head Start centers, 50% reported offering workshops or activities for staff to improve their own eating behaviors.¹⁷ However, this opportunity was not available to our teachers at the time or prior to this survey administration.

Furthermore, Head Start teachers in our study reportedly had a high prevalence of overweight and obesity (79% overweight or obese), a desire to lose weight and a high prevalence of weight-loss practices. Most reported that they would like to weigh less and perceived that they weighed too much, compared with others. This suggests that while they

may not possess the skills and self-efficacy to lose weight, the teachers may be open to obesity prevention strategies for themselves.

The annual average salary of the teachers in our study was \$31,000, indicating that they are likely a lower income population.¹⁸ The prevalence of overweight and obesity seen in this population is comparable with that seen in low-income groups in the U.S.¹⁹ One of the environmental factors associated with this obesity prevalence could be that schools are typically sedentary settings with easy access to energy-dense foods for the workforce (e.g., vending machines in the teacher break rooms). However, there have been few interventions that target individual and environmental approaches to promote nutrition education, healthy eating and physical activity habits in the Head Start teacher population.²⁰ Future research on promoting best practices for obesity prevention through health, nutrition, and physical activity among preschool teaching staff is needed.

This descriptive study is limited because it relies on self-reported data, which are subject to social desirability and may impact the extent to which teachers accurately report nutrition attitudes, beliefs, health behaviors and weight status. The survey was not validated in the Head Start teacher population. However, since it has been validated in low-income, minority populations at the fourth grade reading level,^{7,8} we do not anticipate the accuracy to vary for our population. Also, the 2004 version of the SPAN survey was used, which included the older guidelines for fat intake for the question regarding nutrition knowledge of recommended percent of calories from fat, with the correct response coded as upper limit 30%. Furthermore, since we focus on Head Start teachers in an inner city area in Harris County, Texas, our results may not be generalizable to Head Start teachers in rural or suburban areas. Nonetheless, this study is one of the first to describe the nutrition-related attitudes and behaviors of Head Start teachers, who are responsible for educating children at increased risk for obesity. Since early childhood has become the focal point of many obesity prevention programs, our findings demonstrate the need to focus not only on improving the health of preschoolers but also on the teachers who deliver these programs. Future research could focus on developing and incorporating nutrition education for Head Start teachers as part of their standard training requirements in order to ensure their health and productivity, as well as their ability to deliver efficacious programs to their students.

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Table 1

Demographic characteristics of Harris County Department of Education Head Start Teachers, Texas (n = 173)

	Total	
	N	%
Gender	173	–
Male	6	3.5
Female	167	96.5
Age	168	–
21-30	30	17.9
31-40	59	35.1
41-50	52	30.9
>50	27	16.1
Race/Ethnicity	176	–
White	10	5.8
African American	126	71.5
Hispanic	37	21.0
Asian	2	1.1
Other	1	0.6
Language Most Spoken at Home	169	–
English	157	92.9
Spanish	12	7.1
Weight Status ¹	165	–
Underweight (BMI ² <18.5)	3	2.0
Normal Weight (18.5 ≤ BMI ² <25)	33	20.0
Overweight (25 ≤ BMI ² <30)	39	23.5
Total Obese (BMI ² ≥ 30)	90	54.5
Obese Class I (30 ≤ BMI ² <35)	36	21.8
Obese Class II (35 ≤ BMI ² <40)	28	17.0
Obese Class III (BMI ² ≥40)	26	15.8
Years Worked at Head Start	175	–
0-1 years	41	22.7
2-3 years	44	24.3
4-5 years	23	12.7
>5 years	67	40.3

¹Parental weight status based upon BMI cut points for adults by the World Health Organization²¹²BMI or Body Mass Index defined as weight (in kilograms)/[height (in meters)]²

Table 2

Nutrition-related knowledge, attitudes, and behaviors of Harris County Department of Education Head Start Teachers, Texas

Question/Item	Possible Response		
	N (%)	N (%)	N (%)
Nutrition Knowledge Question *	Correct	Incorrect	Don't know
Which food group should be consumed most? (bread, cereal, rice, etc.)	17 (10.3)	135 (81.8)	13 (7.9)
Which food group should be consumed fewest? (fats, oils, sweets)	119 (67.6)	53 (30.2)	4 (2.2)
How many servings of F/V should you eat per day? (at least five)	69 (38.5)	98 (54.8)	12 (6.7)
What percent of your daily calories should come from fat? (30%)	13 (7.8)	154 (92.2)	—
What has the most calories: protein, carbohydrate or fat? (1 g fat)	83 (48.3)	89 (51.7)	—
Nutrition attitudes and beliefs	Agree/True	Disagree/False	Neither/Don't know
Learning the relationship between food and health is important	166 (92.7)	2 (1.1)	11 (6.2)
What you eat can affect your chances of getting heart disease	158 (88.2)	3 (1.7)	18 (10.1)
People who are overweight have a higher risk of health problems	140 (78.2)	27 (15.1)	12 (6.7)
It's hard to know which nutrition information to believe.	97 (53.9)	31 (17.2)	52 (28.9)
The foods I eat/drink are healthy so I do not need to change	16 (8.9)	102 (56.7)	62 (34.4)
Skipping meals affects my ability to do well in the day	130 (72.6)	32 (17.9)	17 (9.5)
Dietary Behaviors (# of times item was consumed yesterday)	0 times	1 time	2 times
Vegetables	41 (23.2)	75 (42.4)	61 (34.4)
Fruit	47 (26.1)	81 (45.0)	52 (28.9)
100% Fruit Juice	99 (55.9)	48 (27.1)	30 (17.0)
Wheat bread	89 (49.7)	78 (43.6)	12 (6.7)
Fried meat	130 (71.8)	45 (24.9)	6 (3.3)
French fries or chips	91 (50.8)	74 (41.3)	14 (7.8)
Frozen desert	140 (78.2)	34 (19.0)	5 (2.8)
Doughnut, cookie, brownie	110 (61.8)	55 (30.9)	13 (7.3)
Candy	142 (80.2)	29 (16.4)	6 (3.4)
Fruit flavored drink	121 (68.4)	42 (23.7)	14 (7.9)
Soda	100 (56.5)	58 (32.8)	19 (10.7)
Milk	94 (51.9)	55 (30.4)	32 (17.7)
Restaurant food	101 (56.1)	59 (32.8)	20 (11.1)
Weigh-related behaviors	Yes	No	
Have you ever tried to lose or gain weight?	158 (88.3)	21 (11.7)	
Are you trying to lose or gain weight now?	127 (70.6)	53 (29.4)	
	Weigh more	Weigh less	Stay the same
Would you like to...	6 (3.3)	146 (81.1)	28 (15.6)
	Too much	Too little	The right amount
Compared to other adults your height, do you think you weigh.	128 (72.3)	6 (3.4)	43 (24.3)

* Correct response options to knowledge questions are provided in parentheses.