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Elementary Parent Perceptions of Packing Lunches and the National School Lunch Program

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ABSTRACT

Purpose/Objectives
In 2010, the Healthy, Hunger-Free Kids Act updated the nutrition standards for the National School Lunch Program (NSLP). The improved standards impact children who participate in the NSLP, but not the children who are bringing a packed lunch from home. Recent research suggests packed lunches are lower in nutritional quality than NSLP lunches. The purpose of this study was to explore parental factors influencing child participation in the NSLP and/or packing lunches from home and to examine if differences exist by school level free and reduced lunch (FRL) eligibility.

Methods
Parents from four elementary schools representing the two highest (65.5% and 51.9%) and lowest (19.2% and 18.8%) FRL eligibility rates for a rural county of Virginia were provided a questionnaire assessing perceptions of NSLP and packed lunches. Mann-Whitney-Wilcoxon tests, t-tests, and descriptive statistics were used to evaluate differences. Written comments were coded by two researchers, common themes identified, and the frequency of themes calculated.

Results
A total of 516 surveys were collected, 55.2% from schools with higher FRL eligibility (n = 285); 44.8% from schools with lower FRL eligibility. The two most frequent motivational factors for NSLP participation across all schools were convenience and saving time through participation. Motivational factors for packing lunch differed by FRL eligibility. The most frequent motivators were variety of foods, nutritional quality, and providing organic or sustainable foods (lower FRL eligibility schools), while factors for higher FRL schools were child pickiness, variety of foods, and nutritional quality.

Applications to Child Nutrition Professionals
These results can be used to develop nutrition education intervention or policies highlighting the nutritional benefits of participating in the NSLP, improve the nutrition quality of packed lunches, and/or improve school wellness policies related to school meals.

Keywords: NSLP; packed lunch; school lunch; children; perception

INTRODUCTION

In 2010, the Healthy, Hunger-Free Kids Act (HHFKA) updated the nutrition standards for the National School Lunch Program (NSLP), requiring schools to increase the availability of fruits,

vegetables, whole grains, and fat-free and low-fat fluid milk in school meals; reduce the level of sodium, saturated fat and *trans* fat; and meet the nutrition needs of school children within their calorie requirements (Healthy, Hunger-Free Kids Act, 2010).

In elementary schools located in southwest Virginia, the improved standards have the potential to impact the approximately 60% of children who participate in the NSLP, but not the remaining 40% of children who are bringing a packed lunch from home (Farris et al., 2014). Recent research suggests packed lunches, which are not subjected to nutrition standards and are lower in nutritional quality than NSLP lunches, may be contributing to poor dietary profiles and higher risk of childhood obesity (Farris et al., 2014; Hubbard, Must, Elaisziw, Folta, & Goldberg, 2014; Johnson, Bednar, Kwon, & Gustof, 2010; Johnston, Moreno, El-Mubasgerm, & Woehler, 2012). Any child can purchase an NSLP lunch at participating schools, although children are eligible for a free or reduced price meal if they are from a family with an income below 130% or between 130-185% of the federal poverty level, respectively (U.S. Department of Agriculture [USDA], Food and Nutrition Service [FNS], 2014).

To design effective nutrition education interventions or improve school wellness policies related to school meals, school nutrition professionals need to understand parent motivations on NSLP participation or sending packed lunches. A small number of studies have measured student and parent perceptions of NSLP and packed lunches (Carlson, 2014; Lambert, Conklin, & Johnson, 2002; Ohri-Vachaspati, 2014; Steinmetz, 2012; USDA- FNS, 2007). These studies utilized questionnaires and focus groups with students attending public school (kindergarten through twelfth grade) or parents (Carlson, 2014; Griffin & Barker, 2008; Hudson & Walley, 2009; Nelson, 2011). Despite young ages being a valuable time to promote food acceptance, few studies have reported data from parents of pre-kindergarten (pre-K) through fifth grade students since the implementation of the HHFKA (Birch & Fisher, 1998; Gregory, Paxton, & Brozovic, 2011; Skinner, Carruth, Bounds, & Ziegler, 2012). The purpose of this study was to explore parental factors influencing child participation in the NSLP and/or packing lunches from home and to examine if differences exist by school level free and reduced lunch (FRL) eligibility.

METHODS

Questionnaire Design

The Institutional Review Board for Virginia Tech University approved methods used in the study. The anonymous, self-completion questionnaire used a five-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) to measure motivating factors and barriers to NSLP participation and packing lunches. Questions were developed and adapted from previous research (Griffin & Barker, 2008; Lambert et al., 2002), input from a focus group of parents of children in elementary schools, and the school nutrition director for the school district. It was then reviewed by university nutrition faculty and the school nutrition director. The questionnaire was initially pilot tested on-line with a web address link listed on the monthly school lunch menu. Due to a low response rate, the questionnaire was changed to print form.

The questionnaire was comprised of three sections with questions pertaining to: 1) frequency of NSLP or packing participation; 2) motivating factors for NSLP participation; and 3) motivating factors for packing lunches. The survey provided two additional areas for open-ended written comment with the following question prompt: “If you would like to explain your reasons, please

explain here". These questions were optional and followed a series of Likert- scale questions on motivations for participating in the NSLP or packing lunches.

Participants

Out of 11 elementary schools located in the same school district in a small city (as defined by the U.S. Department of Education [USDE], National Center for Education Statistics [NCES], 2013a), four were contacted and agreed to participate in this study. These four were selected because they represented the two highest (65.5% and 51.9%) and lowest (19.2% and 18.8%) FRL eligibility rates for the school district. Eligibility for FRL is determined by federal poverty guidelines (USDA-FNS, 2014). The four schools were very similar in type of food offered by the NSLP and operated under the same school nutrition director, but varied in size and ethnicity. For lower FRL eligibility schools: School 1 had a student population of 292, with white (83.9%), black (5.8%), Hispanic (6.2%), and Asian (2.1%) individuals, while School 2 had a student population of 504, with white (91.5%), black (0.2%), Hispanic (6.3%), and Asian (0.2%) individuals. For higher FRL eligibility schools: School 1 had a student population of 372, with white (73.4%), black (1.2%), Hispanic (3.0%), and Asian (18.0%) individuals, while School 2 had a student population of 279, with white (77.8%), black (3.9%), Hispanic (3.9%), and Asian (9.0%) individuals (USDE-NCES, 2013b).

Data Collection and Analysis

Paper questionnaires were sent home with elementary school children in the selected schools via folders or binders which went home daily and were meant for communication purposes from the school to the parent. Parents were given two weeks to return the optional questionnaire. No follow-up messages or reminders were sent home. At the end of the questionnaire, parents were given the option to be entered into a drawing for a $50 gift card by providing their contact information on a separate sheet attached to the questionnaire. When questionnaires were returned, contact information was entered into a randomization program. Parents were instructed to complete only one questionnaire per family.

Analyses for quantitative data were carried out in JMP ® (Version 11, SAS Institute Inc., Cary, NC, 2013) using descriptive statistics, the Mann-Whitney-Wilcoxon test for significance and t-tests for significant differences in proportion of agreement on Likert scale questions ($p < 0.01$). The Shapiro-Wilk test was used to determine whether data were parametric. Responses for motivating factors were combined and reduced to three categories: agreement ("strongly agree" and "agree"), neutral, and disagreement ("disagree" and "strongly disagree"). Written comments were coded by two researchers, common themes identified, and the frequency of themes calculated.

RESULTS AND DISCUSSION

NSLP Participation

Of the 1,447 distributed questionnaires, 516 (35.7% overall response rate;) were returned, with 55.2% from elementary schools with higher FRL eligibility rates (n = 285) and 44.8% from elementary schools with lower rates (n = 231). Response rates for lower FRL schools ranged from 29.1% to 38.0%; higher schools from 32.4% to 36.5%. Concerning school lunch participation, 17.5% of parents reported their child never participated while 55.0% participated four to five days per week ($M = 3.2$ days). Parents of children who attended higher FRL eligibility schools were significantly more likely to perceive the NSLP as "nutritious" (62.9% vs

41.2%) (Table 1). These findings mirror previous research where perceived nutritional quality of the NSLP was identified as both a barrier and motivating factor for NSLP participation depending on the perception of the NSLP as "nutritious" or "not nutritious" (Griffin & Barker, 2008; Hudson & Walley, 2009; Ohri-Vachaspati, 2014). However, current research suggests NSLP lunches are more nutritious than packed lunches (Briefel, Wilson, & Gleason, 2009; Farris et al., 2014; Hubbard et al., 2014; Hur, Burgess-Champoux, & Reicks, 2011; Johnson et al., 2010; Johnston et al., 2012; Stevens, Nicholas, Wood, & Nelson, 2013), with students participating in the NSLP consuming more fruits, vegetables, and milk (Condon, Crepinsek, & Fox, 2009; Guenther, Dodd, Reedy, & Krebs-Smith, 2006).

Factors Affecting NSLP Participation

While 48.3% reported the HHFKA standards had no effect on their child's NSLP participation, 10.3% reported choosing school lunch more because of the HHFKA standards, and 14.4% were not aware of the revised standards. The two most frequent motivational factors for NSLP participation across all schools were convenience and saving time through participation (Table 1). Parents whose children attended higher FRL eligibility schools were more likely to perceive participating in the NSLP as a way to show school support.

Motivational factors for packing lunch differed by FRL eligibility. Parents whose children attended lower FRL eligibility schools perceived packed lunches to be more nutritious, provide a variety of foods, and also provide opportunities for more organic and sustainable food options. Frequent factors for higher FRL schools were child pickiness, and in agreeance with lower FRL eligibility schools, variety of foods and nutritional quality (Table 1).

There were 138 written responses (26.7% of total respondents) concerning NSLP or packing lunch participation. Emergent barriers and supporting comments are presented in Table 2. The majority of comments (83.3%) addressed barriers to NSLP participation. The most prominent barrier (41.3%) was taste/food preferences. Many comments centered on school-aged children's dislike of menu options or preference for other foods. The second most commonly cited barrier (31.2%) was nutritional or food quality, with parental concerns about processed foods, additives/preservatives, and expressed concern over lack of organic options. The third barrier (10.9%) was quantity of food. Some parents were concerned the NSLP did not provide enough food while others felt it was too much, contributing to food waste. Processed foods, preservatives, and additives were significant barriers to NSLP participation in lower FRL eligibility schools along with nutrition.

Barriers to NSLP participation included taste/food preferences and variety for higher FRL eligibility schools, and variety was also identified for lower FRL schools. Conversely, food quantity was identified as a barrier in higher FRL schools, but a motivating factor for NSLP participation in lower FRL schools. At study sites, students were required to take a minimum of three meal components for the NSLP, though they were offered more (Healthy, Hunger-Free Kids Act, 2010). The perception that children are not getting enough quantity or variety of food from the NSLP may stem from confusion between the minimum foods students must take compared to the total they are offered.

Table 1. ***Motivating Factors in NSLP Participation or Packing Lunches for Elementary School Children by Free and Reduced Lunch Eligibility***

	Median[1]		Frequency of Agreement[2] (%)	
	Lower Free and Reduced Lunch Eligibility[3] (*n* = 231)	**Higher Free and Reduced Lunch** Eligibility[3] (*n* = 285)	**Lower Free and Reduced Lunch** Eligibility[3] (*n* = 231)	**Higher Free and Reduced Lunch** Eligibility[3] (*n* = 285)
Motivations for National School Lunch Participation (NSLP) Participation				
I save time when my child eats school lunch	5.0	4.0*	79.7	66.6**
NSLP is more convenient	4.0	4.0*	79.6	67.6**
NSLP offers enough food for my child	4.0	4.0	57.5	55.0
NSLP is nutritious	3.0	4.0*	41.2	62.9**
I want to support NSLP because it's an important part of school culture	3.0	4.0*	39.6	52.9**
NSLP offers more variety of choices	3.0	3.0	39.6	48.9
I want to support a program that my tax dollars support	3.0	4.0*	34.4	50.9**
I save money with the NSLP	3.0	3.0*	26.7	46.6**
My child wants to eat school lunch because friends eat school lunch	3.0	3.0	26.1	34.1
Motivations for Packing Lunches (PL)				
PL is more nutritious	4.0	3.0*	61.9	28.2**
PL offers more variety of choices	3.0	3.0	48.8	39.0
NSLP is not organic or sustainable	3.0	3.0*	47.7	22.9**
My child is a picky eater	3.0	3.0	35.9	45.1
I save money with PL	3.0	3.0*	33.3	26.9
My child wants to pack because friends pack	3.0	2.0	16.4	20.4
NSLP does not offer enough food	2.0	3.0*	14.2	31.1**
My child does not like waiting in line for NSLP	1.0	1.0	12.3	14.6
I pack because my child is on a restrictive diet (i.e. allergies, religious restrictions, etc.)	1.0	1.0	9.6	6.0
PL is more convenient	2.0	2.0	8.7	13.5
I do not want to support government sponsored program	2.0	2.0	4.7	7.1
I save time with PL	2.0	2.0*	4.6	9.4

[1]Median calculated from Likert Scale responses (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree).
[2]Frequency of Agreement determined by combining responses from "agree" and "strongly agree" for each indicator.
[3]Lower free and reduced lunch eligibility (18.8% and 19.2%); Higher free and reduced lunch eligibility (51.9% and 65.5%).
*$p<0.01$, Mann-Whitney-Wilcoxon test, calculations based on responses of agreement, disagreement or neutral; **p<0.01 t-test, calculations based on proportions of agreement.

Table 2. ***Emergent Barriers to Participating in the National School Lunch from Parents of Elementary School Children*** (n = 138).

Barrier	Response	Supporting Comments
Taste and Preference	(41.3%, 57 responses)	• My children prefer packing because they can guarantee what they like in their lunch. • My child says the food tastes different this year. Not in a good way. • My child doesn't like some of the [school] lunch choices, thus his desire for a packed lunch.
Nutritional and Food Quality	(31.2%, 43 responses)	• …things like fried cheese sticks or corn dogs as main courses just don't meet our nutritional expectations. I let my daughter buy lunch a few times a month but….have to veto items which shouldn't be an option on a school lunch menu. • I view highly processed foods (shrimp poppers, chicken nuggets, etc.) as not nutritious because of food additive/preservative content.
Quantity	(10.9%, 15 responses)	• School lunches are very expensive compared to the servings given. My child throws away more than she eats. • My kids beg me to pack so they will get full.

The convenience of school lunch and time required to prepare packed lunches were the two highest motivating factors for NSLP participation in both higher and lower FRL eligibility schools. This is consistent with other studies showing convenience and time are important to parents (Carlson, 2014; Lambert et al., 2002; Steinmetz, 2012; USDA FNS, 2007). The majority of parents were neutral on which lunch option (school or packed) resulted in cost savings, unless the child attended a higher FRL eligibility school. This is not consistent with previous research identifying cost as a motivating factor for NSLP participation (Carlson, 2014; Steinmetz, 2012; USDA Economic Research Service, 2007).

CONCLUSIONS AND APPLICATIONS

This study assessed the motivations and barriers related to NSLP participation and packing lunches by FRL school eligibility among parents of pre-K through fifth grade students after implementation of the updated HHFKA standards. The results suggest that HHFKA standards may not be a contributing factor in NSLP participation and suggest instead that saving time, convenience, variety of food, nutritional and food quality, and taste and food preferences are the most significant contributors.

Limitations
Several factors may limit the generalizability of this study. Data are from parents of elementary school-aged children in a rural area and may be not applicable to older, urban, or diverse populations. Self-selection for questionnaire completion may also limit the generalizability of the results. To protect the privacy of parents and children, no demographic or individual FRL eligibility information was collected which would have allowed for individual socio-economic analyses. Finally, data reflect parent perceptions, not actual NSLP participation or consumption patterns.

Applications
Lunches, regardless of the source, are opportunities for parents and schools to reinforce healthy habits and food preferences to carry into adulthood (Briley et al., 2012; Gregory et al., 2011). As prior research indicates NSLP lunches may be healthier than packed lunch, these results combined with prior research can be used to develop interventions to improve the nutritional value of packed lunches and/or promote NSLP participation. Past initiatives have successfully altered taste and food preferences for children and should be considered as potential strategies for encouraging NSLP participation. Such initiatives are farm-to-school and garden initiatives, taste tests of menu items, student and parent involvement in menu development, rewards for trying food items, and using media to influence participation and consumption (Burgess-Champoux, Marquat, Vickers, & Reicks, 2006; Horne, et al., 2009; Lakkakula et al., 2011; Martin, 2008; Perlman et al., 2012; USDA- ERS, 2007). In line with these data highlighting the importance of convenience, time and nutrition to parents, parents have shown interest in nutrition information, easy menu suggestions, social support, and nutrition workshops (Sweitzer et al., 2011).

Recommendations
This information could be used to develop nutrition education interventions or policies highlighting the nutritional benefits of participating in the NSLP and/or how to improve the nutrition quality of packed lunches. School health professionals and researchers could begin by addressing the biggest barriers to NSLP participation and appealing to parents' expressed desire for an adequate amount of healthy food adapted for children's taste preferences. Finally, school wellness policies could provide an opportunity for collaboration between the home and school to support the adoption of packed lunch policies or recommendations. More research is warranted on which of these strategies would be the most effective.

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