

Parents in a Rural Area Favor School Lunch Over School Breakfast

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KEYWORDS: School Meals; Parents; Children; National School Lunch Program; School Breakfast Program.

ABSTRACT

PURPOSE/OBJECTIVES

Individuals in rural areas experience higher food insecurity. The School Breakfast Program (SBP) and the National School Lunch Program (NSLP) reduce food insecurity. Yet, SBP participation remains lower than NSLP participation. This study aimed to examine differences in parental perception relative to the NSLP and the SBP in rural areas.

METHODS

An electronic survey was sent to parents in rural areas across Utah in school year 2016-2017. Parents (N=282) were asked about the importance of children eating healthy foods, what foods children should eat, their understanding of school meal requirements, and what they would change about school meals. Two multilevel models were built in the analysis—one model predicted perceptions of school lunch and the other predicted school breakfast perceptions.

RESULTS

Most parents (59.9%) perceived school lunch more positively than school breakfast. Higher perceptions of the SBP were significantly predicted by child breakfast non-participation ($p=.018$), parent understanding of child breakfast preference ($p<.001$), and parent perception of important breakfast components ($p=.002$).

APPLICATION TO CHILD NUTRITION PROFESSIONALS

Because parents viewed the SBP less positively than the NSLP, school nutrition staff may consider improvements and further promotion of the SBP. This may increase participation rates and benefit children and programs.

INTRODUCTION: Food insecurity is highest in rural communities in the United States. Map the Meal found that nine out of ten counties with the highest rates of food insecurity are rural (Hake et al., 2022). Household



food insecurity in children is associated with poor general health, heightened emergency department use, depression symptoms, and lifetime asthma diagnosis (Thomas et al., 2019)

The National School Lunch Program (NSLP) and the School Breakfast Program (SBP) are important among food insecure children because they help meet the energy and diet quality needs of these students (Forrestal et al., 2021). Approximately 12 million children who qualify for free or reduced-price meals (FRM) across the U.S. participate in the NSLP (Carson, 2015). Children living in homes with a household income of less than 185% of the federal poverty level qualify for free or reduced-price meals (USDA, 2016), which helps assist children in poverty obtain healthy meals. Rural Americans tend to have lower median household incomes compared to urban households (Bishaw & Posey, 2016).

Perceptions of school meals are important and influence participation rates. In one study, students were more likely to participate in the NSLP if parents perceived the meals to be healthy (Ohri-Vachaspati, 2014). Students also report participating in the NSLP because they were hungry, there were no other options, or it was convenient (Kjosen et al., 2015). Dhillon and Arendt (2021) discovered that parents were motivated to purchase school meals because of convenience, lack of time to pack a child's lunch, and the preference or request of their child. Relative to the SBP, qualitative research indicates that food quality, poor taste, and low nutritional quality are reasons parents believe SBP participation is low (Askelson et al., 2017). Another study discovered that only 10% of parents believe that school breakfast is healthier than home breakfast (Spruance et al., 2018), despite that results from the USDA School Nutrition & Meal Cost study indicate a higher Healthy Eating Index score among children who ate school breakfast compared to children who ate breakfast elsewhere (Fox et al., 2019).

While perceptions influence participation rates (Ohri-Vachaspati, 2014), the question remains unanswered why the NSLP participation rates remain significantly higher than the SBP participation rates since both programs face challenges related to perceptions and are operated by the same staff and vendors. Thus, the purpose of this study was to compare parent perceptions of the NSLP and the SBP in rural areas.

METHODS:

Procedure and Participants

A cross-sectional survey was distributed in the spring of 2017 to parents of children attending schools in rural Utah. Each of the rural schools in Utah (n=177) was asked to distribute an online survey link to parents. The parents were asked to complete the survey based on their experiences with their oldest child attending grades K-12. The sample (n=282) represented 25 of the 177 town/rural schools throughout Utah (14.1%).



Instruments

The survey was developed by the research team using questions adapted from previous studies (Askelson et al., 2013; Carlson, 2014). The survey was reviewed by experts and pilot tested with 17 parents from states outside of Utah. Modifications were based on expert suggestion and pilot testing. Survey reliability was not assessed.

The survey contained 62 items. Questions asked parents their opinions about school breakfast and lunch, how important it is that their child eat healthy foods, what children should eat to be healthy, their knowledge of school meal requirements, and what they would change about school meals. All study instruments and protocols were reviewed and approved by the sponsoring university's Institutional Review Board.

Data Analysis

Two outcome variables were used—a perception score for school lunch and a perception score for school breakfast. Two questions were used to create the outcome variables. The first question asked parents to rate their agreement (5-point Likert scale) on ten variables relative to school breakfast. The second question asked parents to rate their agreement on the same ten variables relative to school lunch. Higher scores indicated higher perceptions of the school meal.

Questions for both variables can be seen in Table 1.

Table 1. *Questions Used for Scale Variables*

Questions Included in Outcome Variable

I prefer that my child eat breakfast at home because it is healthier than school breakfast/I prefer my child in school pack a lunch from home because it is healthier than school lunch.

There is not a variety of healthy foods served at school breakfast/lunch.

School breakfast/lunch does not offer enough food for my child.

School breakfast/lunch does not offer sustainable food choices, such as organic or farm-to-school options.

My child does not like the food offered for school breakfast/lunch.

I want my child to eat school breakfast/lunch because it is healthy.

My child has a restricted diet (e.g., allergies, celiac, diabetes, vegetarian, etc.) and school breakfast/lunch offers options for him or her.

School breakfast/lunch is convenient.

School breakfast/lunch provides more variety than breakfast/lunch at home.

School breakfast/lunch helps my child meet his/her nutrient needs.

Knowledge Requirement Questions

Schools must offer 1 cup of fruit per day.

Vegetables can be substituted in place of fruit.

Fruit juice can be substituted in place of whole fruit.

Children must be offered fruit, milk, and grain daily.

Flavored milk must be fat-free.

Grains offered must be whole-grain rich which means they have to contain at least 51% of whole grain.

Table 1. *Questions Used for Scale Variables*

Importance of Breakfast/Lunch Questions

It is important that my child has a variety of choices for breakfast/lunch.

It is important that breakfast/lunch choices are not packaged.

It is important that breakfast/lunch choices are locally grown.

It is important that protein rich foods (e.g., eggs, meat, milk, cheese, etc.) are available for my child's breakfast/lunch.

It is important that whole grain products are part of my child's breakfast/lunch.

It is important that only low-fat or non-fat milk products are available for my child's breakfast/lunch.

It is important that fruit is available for my child's breakfast/lunch.

It is important that vegetables are part of my child's breakfast/lunch.

Child Breakfast/Lunch Preferences

Unhealthy breakfast/lunch foods are most appealing to my child.

My child likes to eat fruit for breakfast/lunch.

My child likes to eat vegetables for breakfast/lunch.

My child likes to eat whole grains for breakfast/lunch.

My child likes to eat protein foods (e.g., eggs, meat, milk, cheese, etc.) for breakfast/lunch.

My child likes to eat dairy (e.g., milk, yogurt, cheese, etc.) foods for breakfast/lunch.

My child is picky about breakfast/lunch foods.

My child likes the food offered as part of the school breakfast/school lunch program.

Note: All were measured on a 5-point Likert scale, reversed coded when needed, summed; sometimes scores were then averaged.

Other variables included in the analysis were parent age, parent gender, parent education, total household income, child grade, parent race/ethnicity, parent perception of the important breakfast components (e.g. fruit, vegetables, whole grains) and lunch components (e.g. fruit, vegetables, whole grains) to include in meals, parent understanding of child’s breakfast and lunch preferences, parent knowledge of school meal requirements, percent of children in district who qualify for free or reduced price meals, child participation in SBP, and frequency of discussion of school meals between parent and child. Several variables were created from scales. Questions used to create these variables can be seen in Table 2.

Table 2. Characteristics of Participant Sample and Bivariate Comparisons between Those Who Eat School Breakfast and Those Who Do Not.

Variable	Responses		Eat School Breakfast	Do Not Eat School Breakfast	p value
	n	%			
Parent Age					0.401
26–34 years old	42	18.58	20 (22.99)	22 (15.83)	
35–49 years old	160	70.80	58 (66.67)	102 (73.38)	
50–64 years old	24	10.62	9 (10.34)	15 (10.79)	
Parent Gender					0.770
Female	192	86.88	74 (86.05)	118 (87.41)	
Male	29	13.12	12 (13.95)	17 (12.59)	
Total Household Income					<0.001
<= \$50,000	69	32.55	40 (48.19)	29 (22.48)	
\$50,001–\$100,000	104	49.06	33 (39.76)	71 (55.04)	
> \$100,000	39	18.40	10 (12.05)	29 (22.48)	
Parent Education					0.343
High school grad/GED or less	22	9.82	10 (11.49)	12 (8.76)	
Some college or 2-year degree	101	45.09	43 (49.43)	58 (42.34)	
4-year college grad or greater	101	45.09	34 (39.08)	67 (48.91)	
Parent Race/Ethnicity					0.072
Non-Hispanic white	206	91.56	76 (87.36)	130 (94.20)	
All other races/ethnicities	19	8.44	11 (12.64)	8 (5.80)	
Child Grade					0.009
Elementary school			69 (73.40)		
Middle school			19 (20.21)		
High school			6 (6.38)		

Table 2. Characteristics of Participant Sample and Bivariate Comparisons between Those Who Eat School Breakfast and Those Who Do Not.

Variable	Responses		Eat School Breakfast	Do Not Eat School Breakfast	p value
	n	%			
District Percent of Children Who Qualify for Free or Reduced Price Meals					0.169
Below 45%	89	37.55	38 (43.18)	51 (34.23)	
Above 45%	148	62.45	50 (56.82)	98 (65.77)	
Frequency of Discussion of School Meals					0.020
Never	12	4.84	0 (0.00)	12 (7.79)	
Sometimes	186	75.00	73 (77.66)	113 (73.38)	
Often	50	20.16	21 (22.34)	29 (18.83)	
Child Participation in School Breakfast					
Never eats school breakfast	154	62.10	---	---	---
Sometimes/Always eats school breakfast	94	37.90	---	---	---
Parent Perceptions of School Meals			Mean	SD	
Perception of lunch	30.89	7.91	32.84 (9.05)	31.38 (8.51)	0.276
Perception of breakfast	31.95	8.73	32.76 (8.41)	29.51 (7.25)	0.005
Parent Knowledge, Child Preferences, and Important Meal Components			Mean	SD	
Knowledge about meal requirements ^a	3.01	3.07	4.12 (2.96)	2.95 (3.04)	0.004
Understanding of child's lunch Preference ^b	34.86	4.41	35.65 (4.11)	34.39 (4.53)	0.028
Importance of breakfast components ^b	34.45	5.09	35.01 (4.57)	34.11 (5.37)	0.187

^aMeasured on a 5-point Likert scale, summed and averaged; higher scores indicate higher knowledge.

^bMeasured on a 5-point Likert scale, summed and averaged; higher scores indicate higher understanding/perceptions.

All analyses were conducted in SAS version 9.4 (SAS Institute, Cary, NC). Two multivariable regression models were developed to predict factors associated with school breakfast *and* school lunch perception scores. Both models used mixed linear methods to account for clustering at the district level for both outcome variables. Unadjusted variables with a p-value < .20 were considered for inclusion into the adjusted models. Forward stepwise modeling strategies were used. Only significant predictors were retained in the final models ($p < .05$).

RESULTS: Most of participants were female (86.9%), White (91.6%) and between the ages of 35-49 years old (70.8%). The almost half of participants had some college or a two-year degree (44.3%) and almost a quarter had a total annual household income of \$50,001-75,000 (24.9%) (Table 2).

Over half the sample (59.9%) had more favorable perceptions of school lunch compared to school breakfast, whereas only 31.8% of parents had more favorable perceptions of school breakfast compared to lunch; 8.3% of parents had neutral perspectives between school lunch and school breakfast (data not shown).

More parents preferred for their child to eat breakfast at home because they believed it is healthier than school breakfast ($p < .001$). Parents also had significantly lower scores for breakfast perceptions compared to lunch when assessing their perceptions of the variety of healthy foods served ($p = .003$) (data not shown). This is interesting given that both school lunch and school breakfast must adhere to similar nutritional requirements and research has demonstrated that food eaten at school (for either breakfast or lunch) has higher nutritional quality than food eaten or brought from home (Au et al., 2018; Fox et al., 2019). Studies have also indicated that if students perceive school lunches to be healthy, they are more likely to participate, yet data suggest that more than 60% of the sample perceive the healthiness of school meals as only sometimes, rarely, or never healthy (Tsai et al., 2019).

Multivariable Model

Three predictors were related to increased perceptions of school breakfast: child's participation in the SBP ($p = .018$), parent perception of important breakfast components ($p = .002$), and parent understanding of child's breakfast preferences ($p < .001$). When respondents indicated that their child never participated in school breakfast, the perceptions of school breakfast decreased by almost three points. When respondents had higher perceptions of important breakfast components, such as fruit, whole grains, etc., perceptions of school breakfast also decreased. Yet, as parent understanding of their child's breakfast preferences increased, so did perceptions of school breakfast. While the present study did not find that age of child was a significant predictor of breakfast perceptions, research does substantiate that breakfast consumption often decreases as children get older (Demissie et al., 2018; Lillico et al., 2014).

While the relationship observed in the present study is not causal, it may be important for future research to examine a potential causal relationship between perceptions and participation to determine if increasing perceptions is the place to intervene or creating programming to increase participation. Alternative breakfast models, including second chance breakfast, have demonstrated effects for increasing school breakfast participation (Grannon et al., 2020).

Two predictors were related to increased perceptions of school lunch: parent understanding of child's lunch preferences ($p < .001$) and parent perception of important lunch components ($p < .001$). As parents' understanding of their child's lunch preferences increased, so did perceptions of school lunch; but as parents' views of important lunch components (e.g. fruit, whole-grains, etc.) decreased perceptions of school lunch decreased.

Previous studies have demonstrated the importance of parent perceptions of school meals. The results from one study indicated that students whose parents perceived school lunches as very unhealthy or unhealthy had lower odds of eating lunch at school than students whose parents perceived school lunches as very healthy (Ohri-Vachaspati, 2014). Likewise, another study found that parents who thought school breakfast is healthier than home breakfast had greater odds of supporting breakfast after the bell programs (Haines & Spruance, 2018), an alternative breakfast model that has demonstrated increases to breakfast participation (Grannon et al., 2020). These results indicate the importance of parent perceptions surrounding school meals relative to participation.

CONCLUSIONS & APPLICATIONS: Because parental perception of school meals may influence participation rates, this study sought to understand differences in perceptions between school breakfast to lunch. A few findings from the present study may explain the gap in participation between SBP participation and NSLP participation due to parent perceptions. More than half of the respondents had more positive perceptions of school lunch compared to school breakfast. There were two aspects of school breakfast that parents in the present study rated significantly less positively than school lunch: overall healthiness and the variety of healthy foods offered. Some of these perceptions could be due to the different meal pattern requirements that exist for breakfast and lunch.

When respondents indicated that their child never participated in school breakfast, parent perceptions of school breakfast decreased. This may demonstrate potential unfamiliarity of the programs' benefits among parents, including increased dietary quality (Fox et al., 2019). One potential strategy to familiarize parents and/or children with the SBP is through taste testing or highlighting menu items through social media or newsletters. While there is limited research on breakfast taste testing, a preliminary study on vegetable taste



testing during school found that the testing improved children's perceptions and familiarity with the vegetables (Lederer et al., 2016). When other researchers conducted vegetable taste testing with elementary school students, students were 2 to 7.2 times more likely to eat the vegetable at a later serving (Snelling et al., 2017). At back-to-school nights, child nutrition professionals could highlight some of the foods served at breakfast, as well as the benefits of school breakfast on academic performance (Bartfeld et al., 2019), nutrition (Fox et al., 2019), as well as the added convenience that school breakfast can bring to busy families (Dhillon & Arendt, 2021). Additionally, receiving frequent feedback and parent involvement on school meals may aim to increase perceptions as well.

Parents' understanding of child's preference for breakfast foods and parent perception of important breakfast components were also tied to higher SBP perceptions. Interestingly, when parents had higher perceptions of the important breakfast components, perceptions of school breakfast decreased. Perhaps parents with a strong belief in the important breakfast components have more specific ideas about what a breakfast should entail and are less likely to be satisfied with the menu items in school breakfast. In one study, parents in an urban setting preferred for their children to eat at home because it gave them assurance that their child had eaten and children's preferences could be met (Bailey-Davis et al., 2013). Yet, nationally representative data from the USDA School Meal Cost & Nutrition Study indicate that consumption of school breakfast had higher Healthy Eating Index scores than breakfast consumed at home or other locations (Fox et al., 2019).

By understanding that parents perceive school lunch more favorably than school breakfast, child nutrition professionals can spend time and resources improving the quality of school breakfast, as well as the perception of the quality of school breakfast. This has the potential to increase participation in the SBP, as well as deliver benefits of healthful meals to children. Alternatively, offering meals as part of the school day, like breakfast in the classroom, has demonstrated effects on increased participation (Anzman-Frasca et al., 2015). Schools may consider offering alternative breakfast models to increase participation and potentially increase perceptions. Additionally, universal school meals may affect participation rates. Thus, more research should be conducted to examine participation rates where universal meals are offered to determine if offering universal meals reduces low participation rates in breakfast and/or perceptions of school meals.

Limitations

The findings of this study should be interpreted considering its limitations. Given the lower response rate and a regional sample, these results may not be generalizable to larger population. Additionally, this was a cross-sectional study, thus causation may not be able to be established. Lastly, given that the survey was distributed electronically, there may be individuals in rural areas who may not have access to the internet, thus their perspectives may not be captured in this study. Yet, despite these limitations, the results from the study may provide some insight into differences in perceptions among school meal programs.

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