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Parent Support for Breakfast After the Bell Programs in a State with Very Low Breakfast Participation

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ABSTRACT

Purpose/Objectives
The study aim was to evaluate parent support for breakfast after the bell programs (BABPs).

Methods
Data were collected through an online survey from parents (n=488) of school-aged children enrolled in public schools in Utah. Data were analyzed using generalized estimating equation (GEE) regression methods.

Results
Parents who perceived benefits to the SBP had higher odds of support for BABPs strategies compared those seeing no benefits (OR: 3.17; CI: 1.69-5.94). Parents who perceived school breakfast as healthier than home breakfast also had higher odds of support for BABPs compared to parents who see home breakfast as healthier (OR 6.04; CI 2.15-16.95).

Application to Child Nutrition Professionals
Child Nutrition professionals should target perceptions of nutritional quality and highlight benefits of school breakfast participation in order to increase participation in BABPs and consequently, breakfast participation in general.

Keywords: school breakfast, obesity, nutrition, breakfast after the bell.

INTRODUCTION

Daily breakfast consumption is a healthy dietary practice (Rampersaud, Pereira, Girard, Adams, & Metzl, 2005). Yet, approximately 20% of children and 31.5% adolescents skip breakfast (Deshmukh-Taskar et al., 2010). Children and adolescents who skip breakfast are at a higher risk of becoming obese, developing mental and emotional issues, and chronic diseases such as hypertension, hypercholesterolemia, insulin resistance/type 2 diabetes, asthma, and fatty liver disease (Centers for Disease Control and Prevention, 2017; Sutherland, 2008; Whitlock, Williams, Gold, Smith & Shipman, 2005). Children who eat breakfast show improved diet quality, lower Body Mass Index (BMI), decreased hunger, and improved academic performance and psychosocial functioning compared to those who do not eat breakfast (Rampersaud et al., 2005).

Many children and adolescents can access breakfast at school, as part of the School Breakfast Program (SBP). Students whose families have a household income of less than 185% of the federal poverty level qualify for free or reduced-priced meals (U.S. Department of Agriculture, 2016). The SBP serves as a way for children from economically challenged homes to get a

nutritious meal in the morning; it also aims to reduce food insecurity, improve nutrition, and facilitate learning (Cocoran, Elbel & Schwartz, 2016). Federal standards require that the SBP meet nutritional guidelines (Healthy, Hunger-Free Kids Act, 2016). The guidelines require that children and adolescents have access to fruits, whole grain-rich foods, and low-fat or fat-free milk as part of their daily offerings (Healthy, Hunger-Free Kids Act, 2016).

Participation in the SBP falls well below participation in the National School Lunch Program (NSLP) (U.S. Department of Agriculture Food and Nutrition Services (USDA FNS), 2018). For every 100 children enrolled in free and/or reduced price lunch (FRL), only 53 participate in the SBP (Food Research & Action Center, 2015). Utah has the lowest participation rate in the United States, with less than 35% of students enrolled in FRL participate in the SBP (Food Research & Action Center, 2015).

The Social Ecological Model (SEM) guided the development of this study. The SEM is a framework that encompasses multiple levels of influences on behaviors including individual, family/interpersonal, proximal and larger community environment, and societal influences (McLeory, Bibeau, Steckler & Glanz, 1988). Using the SEM to understand SBP participation, previous research identifies several factors influencing SBP participation. These factors include a socioeconomic stigma associated with eating breakfast at school, logistical issues in transportation, and negative perceptions among key stakeholders, such as school breakfast being for children whose parents do not care enough to serve breakfast at home, especially family members or friends (Askelson et al., 2017; Bartfield, Ryu & Ahn, 2009; Lambert & Carr, 2005).

Increased participation in the SBP may be an advantageous strategy to combat the increasing prevalence of childhood obesity, especially among food insecure households. Innovative strategies, including breakfast in the classroom (BIC), grab-and-go, or second chance breakfast which are cumulatively referred to as breakfast after the bell programs (BABPs), are successful at improving breakfast participation, particularly because they reduce logistical issues with transportation and stigma associated with the traditional breakfast model (Centers for Disease Control and Prevention, 2017; Food Research & Action Center, 2015).

BABPs reduce the stigma associated with school breakfast and increase student accessibility to breakfast (Cocoran et al., 2016). They also decrease absenteeism and tardiness, improve student behavior and mental performance, and provide an opportunity for teachers to incorporate healthy eating habits into their daily curriculum (Cocoran et al., 2016). Additionally, the BIC program has been associated with an increase in overall dietary quality without increasing calorie intake at any point during the day (Ritchie et al., 2016).

While some states have mandated BABPs for districts and/or schools with a high percentage of student on FRL (No Kid Hungry Center for Best Practices, 2017), others are voluntarily selecting to participate in these alternate methods. Knowledge of the parent support of BABPs is important. This study sought to evaluate parent support for BABPs in a state with the lowest breakfast participation rates in the country.

METHODOLOGY

Study Design

It was important to distribute the survey in Utah because Utah has the lowest school breakfast participation rate in the nation with a rate of participate in FRL at 34.0%, with little

understanding of the factors contributing to the low participation rates; additionally, these data are part of a large multi-state project examining low breakfast participation. Cross-sectional survey data were collected in Spring 2016. Using a list of public schools generated by the Utah State Office of Education, random numbers were assigned to each school and 100 schools (65.5% elementary school, 20.0% middle school, 10.5% high school) out of 800 schools were selected to participate in the study. Some school districts required a separate research application and some would not allow their schools to be contacted about the study; thus these were not included in the 800 randomized schools. Selected schools were distributed across rural, suburban, and urban districts and elementary, middle, and high schools. Given the research protocol, several districts declined participation in their district. School principals and administrative assistants distributed an online survey link, administered through Qualtrics® (2016, Provo, Utah, USA) to the parents of their students. The parents could complete the survey in either Spanish or English. Participants received no remuneration for participation in the study.

Instrumentation

The online survey was developed by experts at the University of Iowa Public Policy Center, the Iowa Department of Education, and Iowa Team Nutrition (Askelson et al., 2017). The development of the survey tool was guided by several studies, organizations, and toolkits (Bailey-Davis et al., 2013; Lambert & Carr, 2005; McDonnell, Probart, Weirich, Hartman, & Birksenshaw, 2004; Reddan, Wahlstrom, & Reicks, 2002; USDA FNS, 2014). The initial survey was part of a large statewide project examining breakfast participation (Askelson et al., 2017). Modifications were made to the original survey including changing open-ended questions into closed-ended questions, based on recommendations from researchers (Askelson et al., 2017).

The survey contained 30 items. Basic demographic information was collected (age range of parent, income of parent, education level of parent, gender of parent, gender of child, grade of child, school district child attends), as well as information specific to breakfast consumption (location child eats breakfast, number of days child eats breakfast, who is responsible for child eating breakfast, foods and beverages child usually consumes for breakfast), and information specific to school breakfast (child participation in FRL, why or why not child participates in school breakfast, benefits of the SBP, encouragement for breakfast after the bell, comparison of healthiness between school breakfast and home breakfast, support for child participation in SBP).

The outcome variable for the study was created from the question, “Would you be more likely to encourage your child to eat breakfast at school if it were served after the school day started?” Response options included “yes”, “no”, and “I don’t know”. Because the study sought to examine relationships between those who support BABPs, the responses “no” and “I don’t know” were collapsed into one category. Other variables used in the analysis included demographic information, child breakfast consumption of fruit/vegetable (F/V), child participation in FRL program, parent perception of the importance of school breakfast, parent perception of the nutritional quality of school breakfast, and parent perception of the healthfulness of school breakfast compared to home breakfast, and child support for participating in SBP. Child breakfast consumption of F/V was created from a question asking parents to report what their child eats for breakfast on an average school day, whether at home or at school. Parents could select multiple items from a large list, including fruit and vegetables as separate items. If parents selected fruit or vegetable, they were included as an affirmative response in the F/V consumption variable. Similarly, parents were asked to report on the benefits of school breakfast for their family. From a large list of benefits, parents were asked to select all the

benefits for school breakfast. If they selected at least one benefit, they were included as "yes" in the variable. Response options for this variable can be seen in Table 3.

District level variables. District classification was identified as rural, urban, and suburban. District level percent FRL was also analyzed.

Participants

Participants were parents (n=488) of school-aged children (K-12) enrolled in public schools across the state of Utah. The parents were instructed to complete the online survey based on their experiences with their oldest child attending grades K-12. The sample represented 14 of the 41 school districts in the state of Utah.

Data Analysis

Data were analyzed using SAS version 9.4. Frequencies and percentages were calculated for all variables. Generalized estimating equation (GEE) regression methods, using proc glimmix, were used to develop a model with both individual-level and district-level effects. All individual-level variables (child race, child grade level, parent gender, income, participation in FRL, support for child participating in SBP, perceived benefits of SBP, importance of breakfast, healthiness of school breakfast, and F/V consumption) and district-level variables (district FRL percentage and district classification) were considered for modeling. A chi-square analysis was conducted to test each unadjusted independent variable with the dependent variable. Unadjusted variables with a p-value <0.20 were considered for inclusion in the adjusted model. Variables that were considered for the adjusted model included F/V consumption, income, perceived benefits of SBP, support for child participating in SBP, healthiness of school breakfast and district FRL percentage. A forward selection modeling strategy was used to assess significance of main effects and any two-way interaction effects. Variables that had a p-value of less than 0.05 were retained in the final model. Perceived benefits of SBP entered the model first, then support for child participating in SBP; no other variables or interactions were retained in the final model.

RESULTS AND DISCUSSION

Sample Characteristics

Most school districts in the sample were large school districts, with enrollments of 2,500 students or more (78.5%) and with 25-50% of the student population eligible for FRL (72.8%). (Table 1) Most of the respondents were female (84.7%) and most of the respondents' children did not participate in FRL (84.1%). Income and child grade was evenly distributed among respondents (Table 2).

Table 1: ***District Characteristics***

School District	FRL[a] Rate	District Enrollment Size	District Classification
District A	23%	71,908	Suburban
District B	37%	11,671	Suburban
District C	21%	53,519	Suburban
District D	34%	2,510	Rural
District E	18%	1,650	Rural
District F	47%	66,024	Suburban
District G	40%	30,015	Suburban
District H	44%	15,991	Urban
District I	33%	32,809	Suburban
District J	68%	274	Rural
District K	28%	17,895	Suburban
District L	33%	31,957	Suburban
District M	74%	11,736	Urban
District N	23%	78,853	Suburban

a- Free or Reduced price lunch

The majority of respondents stated they would *not* be more likely to encourage their child to participate in school breakfast if it was served after the school day started (70.9%). Most children did not consume F/V for breakfast (66.4%). Almost 50% of parents perceive school breakfast and home breakfast as equally healthy, but very few perceive school breakfast as healthier than home breakfast (5.7%). Yet, over 40% of the sample was unsure if school breakfast is healthy. The majority of respondents believe that "breakfast is an important meal" (54.2%), and over 40% of respondents believe "breakfast is the most important meal" (Table 2).

Table 2: ***Demographic Characteristics and Perception of School Breakfast from Parent Survey Respondents***

	Would encourage their child to eat breakfast after the bell (n=130)		Would not encourage child to eat breakfast after the bell (n=316)		Total (N=446)	
Variable	**n**	**%**	**n**	**%**	**n**	**%**
Child Race						
Hispanic, all races	16	12.3	25	7.9	43	9.2
White	105	80.8	268	85.1	392	84.1
Other	9	6.9	22	7.00	31	6.7
Child Grade Level						
K-6th	55	42.3	112	35.4	176	37.5
7th-9th	36	27.7	106	33.5	151	32.2
10th-12th	39	30.0	98	31.0	142	30.3
Parent Gender						
Male	18	14.1	49	15.9	67	15.3
Female	110	85.9	260	84.1	370	84.7

	Would encourage their child to eat breakfast after the bell (n=130)		Would not encourage child to eat breakfast after the bell (n=316)		Total (N=446)	
Variable	**n**	**%**	**n**	**%**	**n**	**%**
Income						
50,000 or less	29	22.3	59	18.9	88	19.9
50,001-75,000	29	22.3	69	22.1	98	22.2
75,001-100,000	21	16.1	75	24.0	96	21.7
100,001-150,000	37	28.5	56	17.0	93	21.0
More than 150,001	7	5.4	31	9.9	38	8.6
Prefer not to answer	7	5.4	22	7.1	29	6.6
Participate in Free and Reduced Lunch						
No	96	73.8	245	78.0	341	76.5
Yes	34	26.2	69	22.0	103	23.5
Support for Child Participating in School Breakfast						
	3	2.3	229	72.7	89	20.00
No	127	97.7	86	27.3	357	80.0
Yes						
Perceived Benefits						
No	22	17.3	136	44.2	158	36.2
Yes	105	82.7	172	55.8	278	63.8
Importance of Breakfast						
Most important meal	53	41.1	141	44.8	195	43.8
An important meal	75	57.1	166	52.7	241	54.2
A meal that can be skipped	1	0.8	8	2.5	9	2.0
Healthiness of School Breakfast						
	62	48.1	117	37.0	179	40.2
Yes	14	10.8	59	18.7	73	16.4
No	53	41.1	140	44.3	193	43.4
I don’t know						
F/V[a] Consumption						
No	93	71.54	190	60.13	324	66.39
Yes	37	28.46	126	39.87	164	33.61

a- Fruit and vegetable

Many respondents believe that there are benefits to school breakfast (63.8%). The most common perceived benefit of school breakfast by both parents that encourage BABPs and parents who do not is convenience. Sixty percent of parents who encourage BABPS see convenience as the top benefit, whereas only 43% of parents who do not encourage BABPs see school breakfast as convenient. Convenience was the top benefit for parents who indicated they would encourage their child to participate in breakfast after the bell. When comparing parents who would encourage their child to eat breakfast after the bell to those that would not, there were significant differences in every perceived benefit variable, except for “school breakfast serves food my child likes” (Table 3).

Table 3: ***Survey Responses to Perceived Benefits of School Breakfast by Parents Who Do and Do Not Encourage Breakfast After the Bell***

	Would encourage their child to eat breakfast after the bell (n=130)		Would not encourage their child to eat breakfast after the bell (n=316)		Total (N=446)		p-value
Variable	**n**	**%**	**n**	**%**	**n**	**%**	
Convenient	78	60.0	130	41.1	208	46.6	<.001
Make mornings less stressful	55	42.3	78	24.7	134	30.0	<.001
Give parents more time in the morning	43	33.1	52	16.5	95	21.3	<.001
Reduces morning hunger	46	35.4	54	17.1	100	22.4	<.001
Serves food my child likes	29	22.3	51	16.1	80	17.9	0.12
Child would not eat unhealthy food for breakfast	44	33.9	55	17.4	99	22.2	<.001
Save my family money	37	28.5	39	12.3	76	17.0	<.001
No benefits	22	16.9	136	43.0	158	35.4	<.001

* Participants could select more than one response, thus total percentages will not equal 100%

Correlates of Breakfast Served after the Bell

In a multilevel model, perception of benefits of school breakfast and perception of healthfulness of breakfast (home breakfast versus school breakfast or equally healthy) were all significantly related to parent support for BABPs (Table 4). Parents who perceived there were benefits to school breakfast had higher odds of support for BABPs compared to those who did not perceive benefits to school breakfast (Odds Ratio [OR]: 3.17; Confidence Interval [CI]: 1.69-5.94). The parents who perceived school breakfast as healthier than home breakfast had higher odds of supporting BABPs than parents who saw home breakfast as healthier (OR: 6.04; CI: 2.15-16.95). District classification was a variable considered for the final model, but did not meet criteria for inclusion, yet there were no significant differences between district classification and encouragement in a preliminary analysis. There were no significant interactions.

Table 4: ***Correlates of Parental Support for Breakfast after the Bell with Perceptions of Benefits and Healthfulness***

Variable	Odds Ratio	Confidence Interval	p-value
Individual Level Variables			
Perceived Benefits			
No	Ref.		0.0025
Yes	7.93	3.09-20.42	
Perception of Healthfulness			
Home breakfast healthier	Ref.		0.0068
School breakfast healthier	6.04	2.15-16.95	
Equally healthy	0.72	0.43-1.23	

Ref. indicates reference group, a group used as the baseline for comparisons

CONCLUSIONS AND APPLICATION

This study identified several interpersonal variables that may influence SBP participation and parent support for BABPs. The SEM suggests there are multiple levels of influence on behavior. This particular study focuses on the interpersonal level of influence, specifically focusing on parent encouragement for BABPs.

The results from the study identified that parents who encourage their child to eat breakfast after the bell are more likely to perceive school breakfast as healthful and see benefits in the SBP compared with those who would not encourage their child to eat breakfast after the bell. These findings indicate a relationship between parent support for BABPs and their perception of the healthfulness and benefits of school breakfast.

Federal standards require that all school meals meet minimum standards for nutritional quality. For school breakfast, the nutritional requirements include 5 cups per week or a minimum of 1 cup per day of fruit, seven to 10 ounces of grains per week, and five cups of low-fat or fat-free milk per week (USDA FNS, 2012). The majority of schools report meeting these recommendations (Woodward-Lopez et al., 2011). Regardless of these nutritional standards, many parents (48%) perceived home breakfast as healthier than school breakfast. Little research has examined parent perceptions of nutritional quality of school breakfast. Yet previous research examining the differences in nutritional quality of lunch brought from home and school lunch, suggests that school lunch has a higher nutritional quality than lunch brought from home (Au, Rosen, Fenton, Hecht & Ritchie, 2016; Farris et al., 2014). While no evidence exists indicating parental perceptions of SBP nutritional quality, there may be a potential disconnect between these perceptions and participation in the SBP.

While little research has directly explored parent perceptions of the healthfulness of school breakfast, research has identified a direct relationship between parent perception of lunch served at school and student participation (Ohri-Vachaspati, 2014). Consistent research demonstrates that students who participate in school meals consume more fruit, vegetables, and milk. This was prior to the improvements in nutritional guidelines in 2010 (Condon, Crepinsek & Fox, 2009; Krebs-Smith, Guenther, Subar, Kirkpatrick & Dodd, 2010). Informing parents of these improved nutritional guidelines may be crucial for helping children and adolescents take advantage of healthier school meals (Ohri-Vachaspati, 2014). But because some parents believe that the

nutritional quality of school meals is sub-par to what is offered at home, as demonstrated by the results from this study, it is important to involve parents in the decision-making process about the types of food offered for school breakfast to foster support and improve familiarity with the food that their children are eating at school.

Lack of support for BABPs may also come from criticisms of these alternative models. Some believe that offering BABPs may encourage some children and adolescents to consume multiple breakfasts, thus increasing their calorie intake and risk for obesity. However, findings from a BABP evaluation in New York City found that students were more likely to be overweight or obese if they were breakfast skippers or inconsistent breakfast eaters compared to those who ate multiple breakfasts (Condon, Crepinsek & Fox, 2009); another study identified that only 14% of children consumed multiple breakfasts (Ritchie et al., 2016). Others believe that BABPs cut into classroom instruction time, thus negatively affecting academic study; yet a recent study found no effect on BABPs and academic performance, indicating that breakfast after the bell does not negatively affect academic productivity. In fact, two studies found small improvements in math and reading achievement (Corcoran et al., 2016; Imberman & Kugler, 2012).

There are important limitations to the current study. Data were based on self-reported information from parents and may not accurately reflect the participation rate in school breakfast at the child level. Selection bias may exist as well. Parents self-selected into the study; therefore, those with strong positive or negative opinions about the SBP may have been more likely to participate. Another limitation is that most of the respondents' children did not participate in FRL, were mostly parents of Caucasian children, and the majority of the sample's children attended school in a suburban district, thus limiting the potential generalizability of the study results. The cross-sectional study design does not allow researchers to identify directionality of findings. In addition, because we sent the survey to schools to distribute to their parent populations, but did not request the schools to report whether they distributed the survey, we are unable to calculate a definitive response rate. However, no research to date has examined parent support for breakfast in the classroom programs, so this study is an important step toward understanding factors related to support for BABPs.

BABPs have been shown to increase participation rates in the SBP (Wong & Emerson, 2006) and to improve behavior and academic performance (Imberman & Kugler, 2012) without increasing students' BMI. BABPs also reduce the inconvenience for parents, because they do not need to complete meal applications and submit payments (Wong & Emerson, 2006).

In conclusion, the SBP, and particularly BABPs, offer both academic and health benefits. These programs provide a way to increase food security among low-income children, yet participation remains low. This study, conducted in a state with the lowest school breakfast participation rates in the nation, identified factors related to parent support for BABPs. Stakeholders, including child nutrition professionals, may consider a social media campaign to address the concerns about BABPs and promote the benefits of BABPs to garner support from parents. Future research should examine support by stakeholders for the various types of BABPs, investigate the directionality of parent support, and parent perception of the nutritional and benefits of school breakfast.

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BIOGRAPHY

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