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Exploring Strategies to Promote Middle School Student Participation in the School Breakfast Program

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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

Purpose/Objective
Providing a school breakfast to students may be a practical intervention that improves energy balance, nutrient intake, and school academic achievement variables. This purpose of this pilot study was to identify the ecological factors influencing middle school student school breakfast participation and possible strategies to promote school breakfast, and to evaluate a pilot intervention to improve school breakfast participation.
Methods
Formative research with middle school students, their parents, teachers, and child nutrition managers were conducted to identify barriers to school breakfast participation and possible promotional strategies. Based on the results, a free school breakfast intervention was developed and pilot tested in low income schools. School breakfast participation was compared for the intervention semester (Spring, 2008) and 3 previous semesters for 3 intervention schools and 2 control schools.
Results
Interviews with 47 sixth- to eighth-grade students and 41 parents were conducted, in addition to four focus groups with teachers and one with child nutrition managers. The information was used to develop the free school breakfast intervention that included school staff support and promotion to students and parents. During the intervention semester, there was a 242% increase in total school breakfast participation rate in the intervention schools, compared to the average of the previous three semesters (17.1% to 58.8%). The control school increase was about 20% (from 29.9% to 34.5%).
Applications to Child Nutrition Professionals
A free SBP, with encouragement from school staff, dramatically increased school breakfast participation by students in low-income middle schools, by 242%. Future research should employ larger samples of middle schools, carefully document costs, and assess important school-related outcomes such as discipline and nurse referrals, attendance, tardiness, and school achievement.

INTRODUCTION

A goal to serve healthful school foods is one of the priority areas in the 2010 report *Solving the Problem of Childhood Obesity Within a Generation* ((White House Task Force on Childhood Obesity, 2010). The USDA School Breakfast Program (SBP) is often overlooked, but data indicate that school breakfast consumption has a positive impact on student dietary quality, specifically fruit and milk (Basiotis, Lino, & Anand, 1999; Rampersaud, Pereira, Girard, Adams, & Metzl, 2005), compared with those not eating a school breakfast (Basiotis et al., 1999). Breakfast consumption is also related to

lower serum cholesterol levels and lower body weights (Bellisle, Rolland-Cachera, Deheeger, & Guilloud-Bataille, 1988; Gleason & Dodd, 2009; Ortega et al., 1998; Resnicow, 1991; Szajewska & Ruszczynski, 2010). School variables that improved with eating school breakfast included school attendance (Murphy, Pagano, et al., 1998), tardiness (Meyers, Sampson, Weitzman, Rogers, & Kayne, 1989; Murphy, Wehler, et al., 1998), academic performance (Wahlström & Begalle, 1999), nurse visits, and discipline referrals (Hoyland, Dye, & Lawton, 2009).

Unfortunately, SBP participation is low. In the 2007-2008 school year, only 45.9 eligible children ate a school breakfast for every 100 eligible children who ate the National School Lunch Program meal (Cooper, Levin, & Adach, 2009). Breakfast consumption also declines from childhood through adolescence (Gordon et al., 2007; Lytle, Seifert, Greenstein, & McGovern, 2000; Siega-Riz, Popkin, & Carson, 1998). Barriers to SBP participation include late buses, costs, the stigma associated with eating school breakfast, and sacrificing instructional time for breakfast (Maurer, 1984; McDonnell, Probart, Weirich, Hartman, & Birkenshaw, 2004; McLaughlin, Bernstein, Crepinsek, Daft, & Murphy, 2002; Reddan, Wahlstrom, & Reicks, 2002; Woo et al., 2003).

However, providing breakfast to school children may be a practical, cost-effective approach that improves energy balance, nutrient intake, and school-related variables such as discipline and nurse referrals, attendance, tardiness, and school achievement. Therefore, identifying strategies to promote SBP participation is needed. A pilot study that provided universal free breakfast in elementary schools found that participation rates nearly doubled (from 19 to 36%) (McLaughlin, Bernstein, Crepinsek, & Daft, 2004). School administrators, teachers, and school nutrition staff were all supportive of the program (McLaughlin et al., 2004). A second SBP study in one middle school, that included a “grab ’n’ go” breakfast meal from a cart in the main hallway, resulted in a significant increase from 35 to 81 school breakfasts served per day (Conklin, Bordi, & Schaper, 2004).

This manuscript presents the results of an exploratory study to enhance SBP participation by middle school students. First, the ecological factors influencing middle school student SBP participation and potential SBP promotional strategies were investigated using individual interviews and focus groups. Based on these results, an intervention to improve SBP participation rates was developed and pilot tested.

METHODOLOGY

Subjects
This study was conducted in six middle schools in one Houston area school district between 2006 and 2008. The district had about 47,000 students (approximately 70% eligible for free/reduced price meals; 69% Hispanic, 21% white, 6% African-American, and 3% Asian/other) in 54 schools, including 10 middle schools.

The study was approved by the Institutional Review Board at Baylor College of Medicine, Houston, Texas. For the formative research, all adult participants signed consent forms. Parents signed consent forms for their children, and all children provided verbal assent. All participants received a small gift for participating ($10). The data on SBP participation rates were provided by the Child Nutrition Department.

Procedures
For the formative research in the 2006-2007 school year, two middle schools were selected by the child nutrition director and research staff to represent a low and a middle income school out of the 10 middle schools (75% and 49%, respectively, of students were eligible for free/reduced price meals). The two principals agreed to participate in the study. Recruitment packets, with information sheets and the consent forms (in English and Spanish), were made available to students in the middle schools during lunch periods. Interested students could take the consent packets home, and return the signed forms, if they and their parents wanted to participate. No data were available on the number of consent packets distributed to students. Individual interviews were conducted with

the sixth- to eighth-grade students during lunch at school; their parents were interviewed via telephone.

All the teachers from the two middle schools and the child nutrition managers from the ten district middle schools were invited to take part in focus groups. Study information was made available to the teachers and managers. Interested participants returned their signed consent forms to the main office. The focus groups were scheduled at the teachers' convenience. The child nutrition managers group was held in the Child Nutrition Department at a convenient time for all interested managers to attend.

The major questions for the interviews and focus groups queried barriers to eating breakfast and strategies to promote SBP participation. The questions and probes were tested with two middle school parents and students. The interviews were conducted by trained interviewers and all answers recorded on interview forms (Kreuger, 1994). After each interview, the interviewer summarized the results. The focus groups were conducted by a trained moderator and an assistant moderator was present to take notes. After each focus group, the moderator and assistant moderator discussed the findings and generated a report that summarized the important findings from that group. Responses for the major questions were also summarized. The interviews/focus group notes were then coded according to the major questions, and summarized by the investigators using accepted qualitative procedures (Kreuger, 1994). The results from the formative research were used in discussions with the child nutrition staff.

To test the pilot intervention, three low income middle schools were selected with free/reduced price eligibility rates of 75%, 81%, and 91%. Two middle schools with similar free/reduced price eligibility rates (81% and 86%) were selected to serve as control schools. During the fall of 2007, the intervention schools' average SBP participation rate was 17%; the rate for the control schools was 28%. To assess change in participation rates during the pilot intervention study, the number of free, reduced price, and paid meals served each day for the spring, 2008 intervention semester, and for fall, 2007, and the 2006-07 school year for all five schools were obtained from the child nutrition director. These were entered into a database for analyses.

Data Analyses
Two-factor analyses of variance were used to detect significant differences in mean percentages of breakfast consumers by intervention group and semester, beginning with the intervention semester, spring, 2008. Semester was considered an independent effect because the days and the mix of students were different. Significant interactions by semester were investigated by examining differences in previous semesters by each group separately. The level of significance was set at 0.004 for post hoc analyses to control for inflated type I error.

RESULTS AND DISCUSSION

Interviews and Focus Groups
In the first year, individual interviews were conducted with 47 sixth- to eighth-grade grade students during lunch at school, and 41 parents via telephone. Four focus groups with teachers (n=26) and one with child nutrition managers (n=10) were also conducted.

Student-perceived barriers to eating the school breakfast were related to cafeteria issues, cost, and social concerns. The students did not like long lines and felt pressed for time in the morning. Students also did not want to eat the school breakfast if their friends were not participating, would rather spend time socializing, and believed it was not "cool" to eat the school breakfast. Preferences for some of the food items were low. Even the reduced price for a SBP meal was considered a financial barrier. Promotional ideas included: marketing the SBP to school staff, parents, and the students; making breakfast free to all students; offering coupons to teachers and parents; and obtaining support from all the school staff.

Parent-perceived barriers included time issues in the morning, students not liking the food, and students not being hungry. They also noted that not being able to socialize with friends in the morning was a barrier, and a few noted the issue of stigma. Teachers reported these same issues, but also suggested that some students skip breakfast to lose weight, save money for other purchases, and that parents were not role models for healthful eating at breakfast. The child nutrition managers acknowledged the time and food barriers. All adult groups provided similar input on promotional ideas, and also suggested nutrition education was needed for students and parents.

Intervention Development

Based on these results and with consultation from the three intervention school principals, the child nutrition management staff decided to offer free breakfasts to all students in two intervention middle schools with 80% free/reduced price meal eligibility for the spring, 2008 semester. The principals would enlist school staff support to encourage students to eat the school breakfast. Reduced-price students in a third intervention middle school with 73% free/reduced price meal eligibility would be able to receive free SBP meals. The additional reimbursement for the increased number of free- and reduced-price meals served was believed to be enough to offset the increased food and labor costs. However, for this study, research funds were used to reimburse the district for the costs of the free meals for reduced-price and paid breakfasts in the intervention schools. One part-time child nutrition worker was added in each intervention school to expedite the breakfast meal service.

Promotional flyers, based on the formative research results, were produced for teachers, parents, and students in the three intervention schools. These were reviewed and critiqued by the child nutrition director and the principals from the three intervention schools. The English/Spanish flyers for parents and students were distributed to the students in early January, 2008. The flyers were placed in the teachers' school mailboxes. All the principals and teachers in the schools were supportive of the program and encouraged students to eat breakfast. For example, one principal met with all students during the month before the intervention began. The students received a free SBP meal and the principal unveiled the new program and asked for their input about foods and promotions.

The number of free, reduced price and paid meals served per semester for the intervention and control schools are presented in Table 1. There were significant main effects and interactions for all outcomes ($P<0.001$).

Table 1. *Percentage of Breakfast Consumers by Semester, Overall and By Meal Pay Status for Intervention and Control Schools*[a]

Group Semester	%Free M (SD)	%Reduced M (SD)	%Full Pay M (SD)	% of Enrolled M (SD)
Intervention Schools				
Fall-06	15.65 (5.07)	1.67 (0.40)	1.02 (0.43)	18.34 (5.36)
Spring-07	13.43 (3.19)	1.80 (0.56)	0.92 (0.62)	16.14 (3.70)
Fall-07	14.00 (2.01)	1.64 (0.45)	1.29 (0.59)	16.93 (2.71)
Spring-08	40.31 (6.56)	7.39 (1.65)	11.07 (2.35)	58.76 (10.38)
Control Schools				
Fall-06	25.09 (2.28)	3.01 (0.67)	1.79 (0.97)	29.89 (2.35)
Spring-07	23.53 (2.46)	3.24 (0.56)	1.65 (0.93)	28.43 (3.11)

Group Semester	%Free M (SD)	%Reduced M (SD)	%Full Pay M (SD)	% of Enrolled M (SD)
Fall-07	23.15 (2.51)	3.22 (0.68)	1.56 (1.17)	27.93 (3.71)
Spring-08	27.84 (8.89)	3.85 (1.59)	2.83 (1.82)	34.53 (12.16)

Note. M= mean; SD= standard deviation
[a] All main and interaction effects are significant at p<0.001.

Post hoc analyses yielded significant differences in the intervention semester when compared to the first three semesters for both groups (Figure 1). Overall, there was a 242% increase in total SBP meals served in the intervention schools during the intervention semester, compared to the average of the previous three semesters (17.1% to 58.8%). The increase for the control schools was about 20% (from 29.9% to 34.5%). No budget issues were identified.

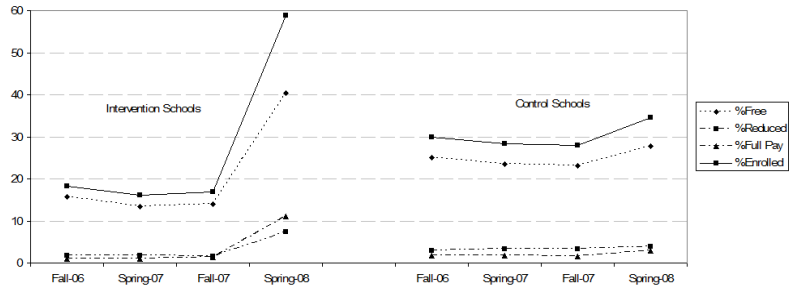

Figure 1. *Percentage of breakfast consumers for intervention and control condition schools by pay status and semester.*

This pilot study identified that a free SBP meal, with encouragement from school staff and promotion to students and their parents, dramatically increased SBP participation by students in low-income middle schools, by 242%.

Only one other published study was found that focused on improving SBP participation in middle schools. It was conducted in one school where only 15% of the students were eligible for free- or reduced-price meals, and was successful in increasing the participation of students with a “grab n go” meal (Conklin et al., 2004). Future research should employ larger samples of middle schools, with varying levels of students eligible for free- and reduced-price meals. Costs need to be carefully documented. In this study, over 75% of the students were low income and the child nutrition director reported that the increased participation revenue was sufficient to meet the costs incurred to serve more SBP meals.

CONCLUSIONS AND APPLICATION

Few studies have been conducted to improve participation rates among middle school students; most previously published interventions have only included elementary schools. A national three-year pilot study provided universal free breakfast in 79 treatment schools during the 2000-2003 school years (McLaughlin et al., 2004). This study resulted in a substantial increase in SBP participation in treatment schools in the first year (from 19 to 36 %), which was maintained for the next two years, compared to little change in 74 control schools during the same time period. Participation by students eligible for free- and reduced- priced meals in treatment schools doubled (from 25 to 48 %), and increased from 8 to 31% for other students.

Two state studies have also documented positive results. A Minnesota universal breakfast pilot study with six schools increased SBP participation rates from 12% before the program to rates ranging from 75 to 93% (Minnesota Department of Children, Families & Learning, Food and Nutrition

Service, 1998). Teachers reported that students were more alert, had improved behavior, and made fewer visits to the nurse. School staff supported the program.

A New York State study provided free breakfasts to all students in 20 schools, selected based on size, geographic location and socio-economic level (The Nutrition Consortium of New York State, Inc., 2005). SBP participation increased from 23 to 58%, but details by grade level were not available. Results included a significant decrease in tardiness and disciplinary office referrals.

A recent government report identified 5 states and an additional 35 school districts in 19 other states that eliminated the reduced-price fee for school meals and reported increased participation rates among eligible students (U. S. Department of Agriculture [USDA], 2009). During the 2007–2008 school year, the average increase in the participation rate among reduced-price eligible students in 14 districts was 9%, ranging from 0 to 32% (USDA, 2009). Eliminating the reduced-price meal charge appears to increase SBP participation and can be used a step to universal breakfast delivery.

Several limitations should be noted. Participants in this study were students in southeast Texas in five schools. As a result, the findings obtained may not be generalizable to all middle school students. The unit of analysis was considered the percentage participation per day; analyses utilizing the school as the unit of analysis would account for changes within the school. However, the small sample size precluded such analyses.

The USDA and many private organizations support efforts to increase SBP participation (USDA, 2012; Food Research and Action Center, 2010). Improvements in academic markers like absenteeism, tardiness, nurse visits, and discipline referrals from providing free breakfast, are important outcomes related to student learning and school revenue. Additional SBP studies need to document these important variables, of importance to education professionals.

The health outcomes related to breakfast consumption are significant, particularly the apparent inverse relationship between eating breakfast and obesity. SBP participation provides two set of outcomes that are important to both education and health professionals. However, rigorous studies that assess SBP participation and school outcomes are needed to provide the incentive for the school community to fully endorse the SBP as an important component to successful education.

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