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Administrative and School Nutrition Perspectives of Salad Bar Operations in Public Schools

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ABSTRACT

Purposes/Objectives

Fruit and vegetable (F/V) consumption may aid in childhood obesity prevention. F/V consumption in youth is low. School-based salad bars (SBs) may improve F/V access in youth. The purpose of this study was to explore administrative and school nutrition personnel perspectives related to adoption and continued implementation of SBs.

Methods

In Orleans Parish schools with SBs (n= 19), self-report questionnaires were administered to school administrators and school nutrition directors (SNDs) and staff. Modified surveys were used in schools not currently operating SBs (n=7).

Results

Administrators of SB schools perceived they had more facilitators for SB operation than administrators from non-SB schools. SNDs from SB schools perceived they had staff capacity, more facilitators, and more barriers for SB operations than SNDs s from non-SB schools.

Applications to Child Nutrition Professionals

Findings contribute to understanding factors related to continued use of school-based SBs. Facilitators identified by SNDs and administrators, such as strong support from staff and adequate equipment, may contribute to the successful implementation of SBs.

Keywords: schools, nutrition, food service, salad bar

INTRODUCTION

Overweight and obesity in the United States are public health issues with negative health consequences including, but not limited to, premature death, heart disease, type II diabetes, and some cancers (U.S. Department of Health and Human Services, 2001). Childhood obesity is also associated with negative health outcomes including type II diabetes, hypertension, and stigmatization (Daniels, 2006). Because of negative health consequences associated with childhood obesity, prevention and reduction of overweight and obesity in children are high priorities.

Unhealthy diets contribute to the high overweight and obesity prevalence in youth. To promote less energy dense foods in children's diets, experts suggest increasing fruit and vegetable (F/V) consumption (Dietary Guidelines Advisory Committee, 2015). Despite these recommendations, F/V consumption levels remain low for children and adolescents (Kim et al., 2014). Increased access to F/V may facilitate increased consumption of these foods by children and adolescents (Terry-McElrath, O'Malley, & Johnston, 2014). Providing salad bars (SBs) in school cafeterias

is one method for increasing access to F/V in school-aged youth, and this strategy has gained popularity in recent years (Harris et al., 2012).

Research suggests that SBs can increase F/V consumption. Several studies found self-reported vegetable intake was higher among high school and middle school students attending schools with SBs compared to those without (Gosliner, 2014; Terry-McElrath, et al., 2014). Evidence suggests that F/V intake was also higher among elementary school students with access to SBs compared to those without (Slusser, Cumberland, Browdy, Lange & Neumann, 2007).

To facilitate the number of SBs across schools in the U.S., the Let's Move Salad Bars to Schools (LMSB2S) was formed. LMSB2S is a sub-initiative to Michelle Obama's Let's Move! initiative to off-set the equipment costs for SBs (Harris et al., 2012). As of March 2016, almost 4,500 SB units had been donated (Let's Move Salad Bars to Schools, 2016). Schools and/or school districts can apply for a SB through a simple online application.

Although SBs in schools have increased and have potential for increasing F/V consumption, few studies have explored the administrative and food service personnel perspectives that contribute to successful initiation and continued implementation of school-based SBs. This study was designed to examine administrative and food service personnel perspectives that influence adoption and continued implementation of school-based SBs, and thus improve understanding of SB use in school lunch.

METHODS

The LMSB2S initiative facilitated donations of SB structures to 43 Orleans Parish Schools in Louisiana. Applications were completed by schools independent of this research project. All 43 schools were approached for participation in the study by contacting administrators from each school. Of the 43 schools that received SB units, 19 schools agreed to participate. Of those 19, seven were not operating the SB at the time of the study, but they were included to gain information about factors related to non-implementation. All data were collected in Spring 2012 by trained research assistants. Each school's food service director (FSD) and staff plus the administrator (principal or designee) completed self-administered surveys after study protocol and materials were approved by the Tulane University Institutional Review Board.

Administrator Survey and Variables

Two self-reported surveys for administrators were developed from previously published studies (Dority, McGarvey, & Kennedy, 2010; Gordon, Crepinsek, Nogales, & Condon, 2007; National Farm to School Network, 2011; San Francisco Department of Public Health, 2009). Survey questions were reviewed and approved by a panel of experts. The first survey was distributed to administrators in SB schools. The modified survey was distributed to administrators in non-SB schools. Questions pertinent to only SB schools were eliminated from the modified survey. Variables examined were facilitators, barriers, decision to apply for SB, monetary support, and support from teachers, administrators, food service staff, parents, and students.

Facilitators that were identified with a checklist included sponsorship from an outside organization, potential high use by students, and support from staff and parents. Barriers included: keeping food fresh, maintenance, financial support, low use by students, and resistance by foodservice staff. The decision to apply for a SB was based on a question with the following response options: school-initiated request, organization above the school request (e.g. school district or charter association), or encouragement from an outside agency.

Administrators identified how the SB was/would be supported financially, such as supported by sales, donations, PTA funds, sponsored by an outside organization, and/or included in regular school food budget. A 5-point Likert scale was obtained to assess support from teachers, administrators, food service staff, parents, and students. “Never” and “rarely supportive” responses were collapsed into “poor support” (poor support=0); “somewhat supportive” was renamed “neutral support’ (neutral support=1); “very supportive” and “always supportive” responses became “good support” (good support=2).

School Nutrition Director/Staff Survey and Variables

The FSD surveys were developed from previously published studies (Dority, McGarvey, & Kennedy, 2010; Joshi & Azuma, 2009; Gordon, Crepinsek, Nogales, & Condon, 2007; National Farm to School Network, 2011; Rhode Island Healthy Schools Coalition, 2011; San Francisco Department of Public Health, 2009). Survey questions were reviewed and approved by a panel of experts. The first survey was distributed to SNDs in SB schools. A modified survey was distributed to SNDs in non-SB schools. Questions pertinent to only SB schools were eliminated from the modified survey. Variables were training, infrastructure for SB, additional staff needed for SB, facilitators, and barriers.

Training was identified from a checklist that included no training, procurement of SB food items, seasonal local produce, receiving SB food items, storing SB food items, SB safety, SB preparation, SB menus and displays, SB implementation, and SB maintenance. Infrastructure for SB was from a question assessing if the food service director perceived he or she currently was equipped with the kitchen infrastructure to store SB items. Additional staff needed for SB was from a survey question asking if additional staff was needed to maintain the SB.

Facilitators were identified from a checklist that included sponsorship from an outside organization, high use by students, strong support from staff, strong support from parents, having adequate equipment, training of staff, having enough staff, costs being manageable, and having proper storage space. Barriers were identified from a checklist that included keeping food fresh, cost, equipment, financial support, contractual limits, low use by students, storage space, lack of staff, time devoted to upkeep, lack of training for staff, food delivery schedule not being flexible, and inability to accommodate demand for the SB.

Nine statements questions about salad bars in schools were used to assess food service staff and director attitudes towards the SB. Surveys were distributed to food service staff in SB schools. Descriptive frequencies were calculated for all variables and were performed using SAS version 9.3 (SAS Institute, Cary, NC).

RESULTS AND DISCUSSION

The total sample size was 19. Twelve schools were operating SBs (SB schools), and seven schools were not operating SBs (non-SB schools) at the time of the study. Schools ranged in percent free/reduced lunch status from 55% to 100%. Nineteen administrators (12 SB school administrators, 7 non-SB school administrators), 19 FSDs (12 SB school FSDs, 7 non-SB school FSDs), and 37 food service staff completed surveys for the study. Of the schools operating SBs, the majority had their SB as a stand-alone unit, and not part of the main food line.

Administrator Survey Results

Overall response rate for the administrator survey was 100%, although some participants did not answer every question. Table 1 displays administrator results on SB initiation/implementation. Half of the administrators at both SB and non-SB schools reported having multiple partnerships supporting the decision to request an SB structure. All administrators at SB schools and the majority of administrators (n=4) at non-SB schools reported having good communication between administrators and food service personnel.

The majority of administrators (n=10) at SB schools and non-SB schools (n=3) reported that monetary support for the SB came from or would come from the inclusion of the SB in the regular school budget. Two administrators from non-SB schools reported that monetary support would have to come from different sources, such as donations and support by sales.

The majority of administrators from SB schools (n=9) and non-SB schools (n=6) reported having good support for the SB from teachers. Almost all administrators from SB schools (n=11) and most administrators from non-SB schools (n=6) reported having good support from school administration. Most administrators from SB schools (n=11) and non-SB schools (n=4) reported good support from food service staff, and over half of the administrators from SB schools (n=7) and most administrators from non-SB schools (n=5) reported good support from students. Almost three-fourths of administrators from SB schools (n=7) reported good support for the SB from parents, and half of the administrators from non-SB schools (n=3) stated they had neutral support from parents for a SB.

Two administrators of non-SB schools identified reasons why their SB programs were not operating. One administrator reported that the SB was delivered and taken away; the other administrator identified a change in school leadership from the time the SB application was completed and the time it was delivered. No further details were provided regarding these circumstances.

School Nutrition Director Survey Results

Overall response rate for the SND survey was 100%, although some participants did not answer every question. Table 1 displays the SND results on SB initiation/continued implementation.

Two SNDs from non-SB schools provided insight into the lack of implementation. One SND reported needing a menu for the SB from the central office. Another reported that the school did not have the space for a SB.

Table 1. ***School Administrator and School Nutrition Director Perspectives on Salad Bar (SB) Initiation/Implementation***

Variable	SB School	Non-SB School
Administrators	*n* = 12	*n* = 7
Decision made to apply for SB		
School-initiated	2	3
Organization above school	2	0
Encouragement from outside organization	2	0
Multiple partnerships facilitated request	6	3
Administrator & school nutrition staff communication		
Poor	0	1
Neutral	0	1
Good	12	4
Monetary support for SB		
Included in regular school budget	10	3
Donations	0	1
Supported by sales	2	1
Support from…		
Teachers		
Poor	0	0
Neutral	3	1
Good	9	6
Administrators		
Poor	0	0
Neutral	1	1
Good	11	6
FSS		
Poor	0	1
Neutral	1	2
Good	11	4
Parents		
Poor	3	1
Neutral	0	3
Good	7	2
Students		
Poor	0	0
Neutral	5	2
Good	7	5
School Nutrition Directors	*n* = 12	*n* = 7
Training	*Median= 2.5*	*Median= 1*
No training	0	2
1-3 areas of training	3	3
4 or more areas of training	5	0
Infrastructure for SB		
Yes	12	4
No	0	3
Additional staff needed for SB		
Yes	2	4
No	9	2

*Some administrators and school nutrition directors did not respond to some questions; therefore, there are missing responses in these results.

Facilitators and Barriers

Table 2 reports administrator and school nutrition director perceptions of the facilitators and barriers faced for salad bar operations. Administrators in SB schools had more facilitators and fewer barriers than administrators in non-SB schools. School administrators at both SB Schools and Non-SB Schools most often chose high use by students and strong support from staff as facilitators for salad bar implementation. SNDs at Non-SB Schools most frequently selected high use by students, strong support from staff, adequate equipment, storage space, adequate training, and enough staff as facilitators. Those SNDs at Non-SB Schools most often mentioned high use by students and enough staff as facilitators. Very few respondents selected strong support from parents or sponsorship from outside organization as facilitators.

Table 2. ***School Administrator and School Nutrition Director Perceptions of Facilitators and Barriers for Salad Bar Operations***

Variable	Salad Bar Schools	Non-Salad Bar Schools
Administrators	n= 12	n = 7
Facilitators	*(Median = 2)*	*(Median = 1)*
High use by students	8	6
Strong support from staff	8	4
Sponsorship from an outside organization	2	2
Strong support from parents	1	1
Other	2	0
Barriers	*(Median = 1)*	*(Median = 2)*
Keeping food fresh	4	6
Maintenance	2	3
Financial support	0	5
Low use by students	2	1
Resistance by foodservice staff	2	3
Other	3	1
School Nutrition Directors	n = 12	n = 7
Facilitators	*(Median = 3)*	*(Median = 2)*
High use by students	8	3
Strong support from staff	6	2
Adequate equipment	6	1
Storage space	6	1
Adequate training	5	0
Lack of staff	5	3
Manageable costs	2	0
Sponsorship from an outside organization	1	0
Strong support from parents	0	1
Barriers	*(Median = 2.5)*	*(Median = 2)*
Keeping food fresh	10	1
Cost	6	1
Storage space	5	1
Time for upkeep	4	4
Equipment	2	1
Lack of staff	2	4
Low use by students	2	0
Food delivery schedule	1	1
Inability to accommodate demand	1	0
Financial support	0	1
Contractual limits	0	1
Lack of training for staff	0	1

*Respondents could select more than one response; therefore, responses do not equal the reported n.

Keeping food fresh was the barrier most often selected by school administrators at both SB Schools and Non-SB Schools. Administrators at Non-SB Schools also frequently mentioned financial support, maintenance, and resistance by food service staff as barriers. Barriers for salad bar operations most often mentioned by SNDs at SB Schools included keeping food fresh, cost, and storage space. Time for upkeep and lack of staff were the barriers most often selected by SNDs at Non-SB Schools.

Combined School Nutrition Staff/Director Attitudes

Both SND and staff were surveyed about their attitudes toward the SB. Responses were combined for staff and directors. The response rate for the school nutrition directors and staff (SNS) survey was 92%. Table 3 displays the SNS attitudes from SB schools. The majority of SNS felt the SB had changed the lunchroom atmosphere for the better for students (89%) and for the SNS (75%). Almost all SNS reported that their schools had the proper equipment to maintain the SB (95%). Most SNS felt the time they spent preparing and maintaining the SB was worthwhile (77%); yet many did not feel the SB improved the way they felt about their job (63%). The majority of SNS reported that they had been eating more F/V since the implementation of the SB (86%), but did not feel the students were eating more F/V (76%). Finally, most SNS felt the students had a positive attitude toward the SB (84%) and that the reception of the SB to the food service staff had been positive (71%).

Table 3. ***School Nutrition Staff/Director Attitudes in Schools with Salad Bars (SBs)****

Statement	Participant Positive Attitude *n* (%)	Participant Negative or Neutral Attitude *n* (%)	Number of Schools with 100% Positive Agreement *N*=12
The food service staff has the proper equipment to maintain the SB	40 (95)	2 (5)	11
The SB has changed the lunchroom atmosphere for the better for the students	40 (89)	5 (11	9
Since the SB was put in the school, I have been eating more fresh F/V	36 (86)	6 (14)	7
I believe that the students have a positive attitude toward the SB	36 (84)	7 (16)	6
The amount of time and work spent on preparing and maintaining the SB is worthwhile	36 (77)	11 (23)	5
The SB has changed the lunchroom atmosphere for the better for the foodservice staff	33 (75)	11 (25)	2
Since the SB was put in the school, I think the students are eating more F/V	10 (26)	31 (76)	1
Overall, the reception of the food service staff to the SB has been positive	31 (70)	13 (30)	1
The SB has changed the way I feel about my job for the better	17 (37)	29 (63)	0

*Respondents included 37 school nutrition staff and 12 school nutrition directors. Since some responses were missing, frequencies for each statement do not add up to 49.

CONCLUSIONS AND APPLICATION

Results of the current study advance the idea that school-based environmental interventions, such as the use of the SB, could have beneficial implications for increasing youth consumption of F/V. Results also have the potential for highlighting future strategies which administrators and SNDs might use to initiate or improve the sustainability of their own SB programs.

While this study examined perspectives of administrators related to SB initiation/ implementation, previously published literature has provided information on administrative perspectives regarding priorities in schools. Many administrators value health, but with competing priorities such as academics, discipline, and school safety, it is difficult to strike a balance (Nollen, et al., 2007). Some administrators felt that they were unable to add more health programs in their schools that require staff to take on extra responsibilities without taking resources away from current programs (Nollen, et al., 2007). The research from this project broadens our knowledge about the competing priorities administrators face and how challenging the adoption of a school-based SB might be for administrators. Additionally, with several of the SBs not in operation, the need for administrator support with food service initiatives is essential. When a change in administration occurs, the need for the SB to be re-marketed to the new administration is necessary.

SNDs in SB schools reported a higher number of facilitators and also a higher number of barriers related to SB initiation and implementation. SNDs operating SB programs, compared to schools without SB programs, may be acutely aware of the barriers associated with SB implementation due to the daily challenges and stressors they face in their operation. The majority of SNDs in SB schools reported that keeping food fresh was the biggest barrier related to operating an SB; this finding is consistent with other research examining barriers from the food service perspective regarding service of fresh F/V (Nollen, et al., 2007; Brouse, Wolf, & Basch, 2009). Another barrier of SB initiation and implementation that emerged from the research was the need for proper storage space, including refrigeration space, which is supported by previous work (Izumi, Alaimo, & Hamm, 2010).

SNDs operating SBs should also consider the emerging research about SB placement in the cafeteria. Huyhn, Pirie, Klein, Kaye and Moore (2015) found that the mean cups of F/V selected from the SB were higher in stand-alone units compared to SBs that were incorporated into the lunch line. A secondary finding from this study identified that more F/V were selected from SBs when the unit was first visible when entering the cafeteria compared to where the hot lunch line was first visible. However, Adams, Bruenig, Ohri-Vachaspati, and Hurley (2016) suggest that the actual consumption of F/V is higher when the SB is placed inside the lunch line compared to those that were outside the lunch line. Other considerations for SB operations should include the number of SB items offered. Several studies support an association between variety and selection of F/V (Adams, Pelletier, Zive, & Sallis, 2005; Jeffrey, French, Raether, & Baxter, 1994; Huynh et al.,2015). Huynh et al. (2015) found no difference in F/V consumption between 12-14 items and 15 or more items offered, suggesting that variety is important, but there may be a ceiling effect for the number of F/V offered. FSDs can utilize this information, in conjunction with our study as they make decisions about SB implementation.

SNS demonstrated favorable attitudes toward their additional role in operating the SB. Despite their favorable attitudes, the majority of SNS members did not believe that the SB had increased F/V consumption of students, but more objective measures would be needed to determine if F/V consumption has not increased. SNS may be a crucial component to the initiation/ implementation of new programming.

One limitation to the study is the small sample size; some schools may have declined the invitation to participate because there was no monetary incentive offered for participation. Additionally, because this was a descriptive non-randomized study, hypothesis testing was not appropriate.

No study to date has examined the perspectives of administrators and SNDs regarding the initiation and implementation of an SB program. The information gathered from this study can help provide insight to school administrators and SNDs interested in adopting an SB program and help guide their decisions toward successful implementation of a program. In turn, this could potentially increase F/V consumption in children and reduce health consequences associated with childhood obesity.

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