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Facilitators to Promoting Health in Schools: Is School Health Climate the Key?*

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Abstract

BACKGROUND—Schools can promote healthy eating in adolescents. This study used a qualitative approach to examine barriers and facilitators to healthy eating in schools.

METHODS—Case studies were conducted with 8 low-income Michigan middle schools. Interviews were conducted with 1 administrator, the food service director, and 1 member of the coordinated school health team at each school.

RESULTS—Barriers included budgetary constraints leading to low prioritization of health initiatives; availability of unhealthy competitive foods; and perceptions that students would not eat healthy foods. Schools had made improvements to foods and increased nutrition education. Support from administrators, teamwork among staff, and acknowledging student preferences

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facilitated positive changes. Schools with a key set of characteristics, (presence of a coordinated school health team, nutrition policies, and a school health champion) made more improvements.

CONCLUSIONS—The set of key characteristics identified in successful schools may represent a school's health climate. While models of school climate have been utilized in the educational field in relation to academic outcomes, a health-specific model of school climate would be useful in guiding school health practitioners and researchers and may improve the effectiveness of interventions aimed at improving student dietary intake and other health behaviors.

Keywords

wellness policies; nutrition; school policy

Healthy eating during childhood and adolescence is critical to ensuring proper growth and development, and preventing chronic diseases such as cardiovascular disease, cancer, diabetes, and obesity.¹ Research consensus shows children and adolescents generally fail to meet some of the dietary guideline recommendations, including the number and variety of fruits and vegetables, calcium, whole grains, total and saturated fat, sodium, and added sugars.¹ Research shows that on a typical school day, 25% of the calories American children consume come from low-nutrient, energy-dense food or beverage.² Foods and beverages consumed at school contribute an average of 35% and up to 51% of the total dietary intake of children and adolescents.² Efforts to improve children's diets have focused on improving nutrition education and the healthfulness of foods offered at school through policy and environmental changes. Many interventions have shown improvements in a variety of nutrition-related indicators;³ however, not every well-designed, multicomponent intervention produces the desired improvements.⁴ It is clear that schools are a complex system and there are components of healthy eating promotion in this setting that are not yet clearly understood.

Qualitative research studies have the potential to deepen understanding of what will work in the realm of school interventions in that they explore the questions of "why" and "how" desired outcomes do or do not occur.⁵ The effectiveness of school nutrition interventions could likely be improved if there were a more thorough understanding of decision-making processes and other influences on children's eating at school. The current study was undertaken to explore the perspectives of individuals directly involved in a project to improve school nutrition policies and environments as well as students' perceptions regarding nutrition education and the school nutrition environment. These topics were explored in a sample of 8 low-income middle schools. The goals of this study were to (1) describe challenges to promoting healthy eating in schools; (2) identify accomplishments schools had made that promote healthy eating; and (3) understand factors that facilitate school change to promote healthy eating.

METHODS

Participants

Data were collected as part of the School Nutrition Advances Kids (SNAK) project, which aimed to improve school nutrition policies and environments through school self-

assessment, action planning, and adoption and implementation of a Michigan State Board of Education nutrition policy.⁶ SNAK-eligible schools had 50% of students qualified for free/reduced-price school meals and also had 7th and 8th grades within the same building. Recruitment methods included direct mailings, e-mails, and phone calls to eligible schools and a posting on the Michigan Team Nutrition website. Eight of the 65 schools enrolled in the SNAK project were invited to participate in the qualitative case study. Purposive sampling ensured that the demographics of the schools selected would reflect the widest range of experiences in low-income middle schools, not intended to be representative of the entire sample or of the general population (Table 1). Schools were selected to ensure diversity of community settings, a range of socioeconomic status (percent of students eligible for free/reduced school meals), charter schools, and types of food service operations.

Instruments and Procedure

At each school, interviews were conducted with 1 administrator, the food service director (FSD), and 1 member of the coordinated school health team (CSHT) (N = 24) at the end of the 2007–2008 school year (the end of the first year of intervention). School personnel received \$25 gift cards as an incentive for participation. Interview guides were developed based on review of the existing school nutrition literature and the research team's experience working with low-income middle schools. Sample questions are shown in Table 2. Four common questions were asked to all participants regarding accomplishments and challenges to promoting healthy eating, as well as position-specific questions for each participant. Each question was followed by appropriate probe questions to elicit participant responses. In addition, administrators were asked 13 questions regarding school food and nutrition policies, use of food as a reward, and foods used in classrooms, school events, and concessions; FSDs were asked 26 questions focusing on school food service operations including school meals and competitive food venues; and CSHT members were asked 30 questions about CSHT formation and initiatives and SNAK intervention activities. Interviews typically lasted 30–60 minutes. They were digitally recorded and transcribed verbatim (N = 23). One interview participant declined recording, and extensive notes were taken during the interview, and were immediately typed and expanded following the interview to enhance accuracy.

Data Analysis

Thematic analysis was used to establish a comprehensive list of pertinent ideas or “codes.”⁵ A list of codes, or important concepts (eg, accomplishments—food; accomplishments—information; influence meals—cost; influence meals—health), were initially developed to correspond to specific questions in the interview guide and other anticipated topics of discussion. Additional codes were developed during preliminary analysis when new unique ideas were identified in the transcripts. Once the list of codes was determined to be comprehensive, each transcript was analyzed using the complete set of codes. Codes were attached to any relevant quotations in the transcripts using Atlas.ti (version 5.0.66, 2005; Berlin, Germany). Six interview transcripts were independently coded by 2 researchers and the results were compared until agreement was >85%. The remaining 18 transcripts were coded by 1 researcher and reviewed by the second researcher to further enhance accuracy. For each code, all relevant quotations were reviewed, and a summary statement for each

participant that summarized their views on the topic was created. These summary statements for each code were then compared for all participants, by participant type (administrator, FSD, CSHT member), and across all 8 schools. Codes also were compared in relation to each other to characterize schools and draw final conclusions. Nutrition-related initiatives were categorized and summed to determine number of accomplishments schools had made. Codes were explored further to determine any characteristics that may be related to quantity of nutrition initiatives.

RESULTS

Results of the qualitative analysis are summarized around 4 major themes influencing healthy eating: *challenges, accomplishments, factors that facilitate change, and characteristics of successful schools/school health climate.*

Theme 1: Challenges to Promoting Healthy Eating

Financial challenges—In all schools, budget cuts had led to reductions in the number of teachers and food service staff, requiring remaining staff to pick up additional responsibilities. School personnel felt their resulting lack of time led to health initiatives receiving low priority compared to day-to-day operational requirements or activities viewed as directly related to academic achievement and test scores.

Economic influences—School personnel were often troubled by the increased economic stress in Michigan, citing high rates of unemployment and family reliance on government food assistance and food banks. Nine school personnel in 5 schools were worried that students were not getting adequate meals outside of school, especially when school was not in session. Seven FSDs expressed a desire to serve meals students enjoyed to ensure that they would eat “at least 1 good meal.”

Family influences—School personnel expressed frustration with the perceived societal pressure on schools to get students to eat healthy when the home environment and broader community did not support these efforts. Two thirds of the school personnel felt parents were not providing healthy choices at home, and were relying on fast foods and prepackaged foods for cost and convenience.

School foods—school meals—Half of the FSDs acknowledged the food service budget influenced items served for school meals, and 2 FSDs directly stated healthier meal components (eg, whole grains, fresh fruits, and fresh vegetables) were more expensive and thus were more difficult to integrate into meals. One FSD described trying to balance nutrition with food costs:

The only thing I hadn't on a consistent basis changed to was the [whole grain] hot dog and hamburger buns. We offer wheat a couple of times a month, but . . . because they are double the costs, I don't offer them on a regular basis.

The increasing cost of food made balancing food service budgets more difficult, partially owing to increased fuel/transportation costs which had impacted food costs at the time of the interview.

Relocating foods to showcase healthful options was not an option for 5 schools because of the physical layout of the serving lines (eg, location of floor drains). In 2 schools, outdated facilities were a limiting factor. The 3 charter schools in this sample had limited ability to prepare fresh meals on-site; whereas 2 charter schools without kitchens utilized food companies (vendors) that delivered precooked meals to the school, 1 charter school had a heat-and-serve kitchen where staff warmed frozen foods items.

School foods—competitive foods—School personnel in 7 schools reported availability of primarily unhealthy competitive foods (eg, à la carte, vending). In 5 schools, FSDs stated à la carte sales helped balance the budget, and 1 additional school had recently started selling à la carte foods to supplement their budget. In 2 charter schools not selling à la carte, FSDs believed they had a deficit in their budget. In 3 schools, profits from concession stands were used for student activities. Preferences for less healthy items were often accommodated because those items were “big sellers.”

Perceptions about students—Personnel in 7 schools reported student preferences influenced which foods were offered. Common perceptions included students preferred unhealthy foods they were exposed to at home, students were unfamiliar with some healthy foods, and they were not willing to try new foods.

Peer influences—Three FSDs thought peer influence encouraged unhealthy eating. Two FSDs thought stigmatization of students receiving free/reduced-price school meals occurred, but only in reference to breakfast.

Theme 2: Accomplishments in Promoting Healthy Eating

School food improvements—Several schools were making improvements to the nutrition environment including offering universally free breakfast, hosting an all-school breakfast event, adding occasional hot breakfast items, building renovations to improve the food service area, and adding mobile serving stations for made-to-order salads and sandwiches.

Provision of healthy foods in schools was mentioned as a priority by at least 1 participant in each of 7 schools, and personnel at 4 schools reported using a variety of nutrition information and recommendations in the selection of foods and beverages (eg, resources from the School Nutrition Association, state-level authorities, or the School Beverage Guidelines from the Alliance for a Healthier Generation and the American Beverage Association). Six schools had made improvements to the foods available in school meals (such as more variety of fruits and vegetables, substituting whole grain and low-fat products); the other 2 schools (charter schools that used vendors) discussed using different vendors to improve school meals in the future.

Seven schools had made some improvements to competitive foods including switching to healthier options, removing vending machines, prohibiting sales of unhealthy foods in fundraising activities, or regulating the foods available for class parties. This was discussed more often for vending machines and à la carte (typically controlled by FSDs), whereas

event concessions (typically controlled by administrators rather than FSDs) were described as having primarily unhealthy options available because the healthier items did not sell well.

School personnel in 7 schools reported utilizing student opinions. In 4 schools, student input was limited to informally asking students what they think of the meal or listening to the vocal students. In 3 schools, input was gathered through surveys, taste-tests, student committees, and taking students to food shows to help select new items.

Nutrition education—Personnel in all schools described nutrition education efforts. At a minimum, teachers emphasized the nutrition portion of the health education curriculum. School personnel also reported integrating nutrition topics into the physical education curriculum, life skills classes, or homeroom, sometimes to replace health education classes cut from the curriculum. Four schools hosted health fairs, 2 held a nutrition week/month, and 1 was preparing to implement a semester-long nutrition class. Other efforts included reaching out to parents and community members through newsletters, local radio stations, and hosting events for parents; however, school personnel were frustrated by low parent participation.

Theme 3: Factors That Facilitated School Change

FSDs indicated support from their staff and administration, teamwork, and listening to student preferences helped them to accomplish their food service goals. Four FSDs (including those at all 3 schools with food service management companies) stated education and information helped them, and 3 FSDs stated that manufacturer development of healthier products that students enjoyed helped them improve school foods.

Type of food service operation likely influenced schools' abilities to make changes. The 3 public school FSDs utilizing a food service management company were provided with education, marketing resources, and healthy recipes, thus enabling them to make their own decisions. In contrast, the 3 FSDs in schools utilizing outside vendors were provided with a predetermined menu with little room for changes.

When asked what would help schools overcome the challenges to promoting healthy eating, individuals at 5 schools felt increased funding (both in general, and for kitchen improvements) would be necessary. One FSD discussed US Department of Agriculture (USDA) foods available to schools, and suggested: "*Go directly to USDA and say, 'Stop subsidizing meat and start subsidizing fruits and vegetables.'*" In 3 schools, individuals expressed frustration at the lack of a "consistent nutrition environment" (the degree to which the *entire* school environment supports the messages of health promotion), and suggested integrating food service and health classes with the core curriculum to enhance consistency. Eleven personnel thought that not only educating students was important, but also educating food service staff, teachers, parents, and the community.

Theme 4: Characteristics of Successful Schools/School Health Climate

The number of nutrition accomplishments a school had made (including improvements to school meals or competitive foods, improving the nutrition environment, applying for grants, providing nutrition education or information, or other initiatives) reported by participants

were summed. As shown in Table 3, there was considerable variability in the number of nutrition accomplishments these low-income schools had achieved in the previous few years (from as few as 2 to as many as 8). The data were reexamined to identify patterns that might explain a school's accomplishments. A key set of characteristics emerged which tended to correspond with a school's degree of success in promoting nutrition. These included presence of school health champions (1 or more individuals passionate about health promotion who understood the relationship between health and academic success) determined based upon statements made and overall attitude toward health promotion efforts during their interview; a high degree of support from staff and administrators; the presence of health-related policies, awareness of those policies, and enforcement of them; refraining from use of food to reward students and utilization of non-food rewards; and an active CSHT.

The 8 schools fell into 3 fairly distinct tiers in terms of overall willingness to prioritize health initiatives, which we refer to as positive, moderate, and unsupportive "school health climate." Table 3 summarizes characteristics of the 8 schools related to recent nutrition accomplishments and "school health climate." Three of the schools with the best records for nutrition accomplishment (6–8 accomplishments) all had nutrition champions and high levels of administrative support for nutrition improvements. They all had CSHTs that had been meeting on a regular basis for several years, and had applied for outside grants to support nutrition initiatives. They had a higher awareness and enforcement of health-related policies than other schools. Food was used as reward to a lesser extent than in the other 5 schools. In 2 schools with moderate levels of nutrition accomplishments (5–6 accomplishments) there was some awareness of the importance of health and nutrition; however, health was clearly a low priority. A potential health champion existed, but that person had not taken a leadership role in promoting health and was not highly supported by other staff.

The 3 schools with the fewest changes to promote health (2–4 accomplishments) lacked some of these characteristics. Interviews with potential health champions at 2 of these schools revealed that they felt isolated and that their health-promotion efforts would not make a difference because they had little administrative support. There was little awareness of any health policies in the schools. The CHST was typically formed only as a grant requirement, and only met when required to do so by the grant. In all 8 schools, food was being used as a reward for academic achievement or good behavior, but the frequency varied. Many school personnel reported trying to reduce this practice and encourage more educational or activity-based rewards; however, they also acknowledged students were easily motivated by food rewards.

DISCUSSION

Qualitative analysis of interviews with teachers, administrators, and food service professionals identified several barriers to promoting nutrition in middle schools including budgetary constraints that led to low priority for health initiatives, unhealthy foods available outside of school, availability of unhealthy competitive foods at school, and perceptions that students would not eat healthy foods. Previous studies have also found barriers to school

health initiatives that included low priority for health initiatives, inadequate funding, lack of administrative and parental support,^{4,6–8} widespread availability of unhealthy competitive foods, low-quality school meals, and peer pressure.^{7,9,10}

Despite these challenges, many of these low-income schools had made improvements to school meals and competitive foods, and were increasing nutrition education efforts. Support from school administrators, teamwork among staff members, and acknowledging student preferences seemed to facilitate positive changes. The limited research on administrative support has shown that administrative attitude, motivations, and support are important determinants of school nutrition practices.^{11–13}

A striking finding in our study was the correspondence between recent nutrition accomplishments and a specific set of school characteristics. This set of characteristics is similar to the concept of school climate, which has been used extensively in education research. School climate is defined by the National School Climate Council as “the quality and character of school life. It is based on patterns of people’s experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures.”¹⁴ There are 4 commonly accepted dimensions of school climate: safety (physical and social-emotional); teaching and learning (quality of instruction; social, emotional and ethical learning; professional development; and leadership); relationships (respect for diversity; school community and collaboration; morale and “connectedness”); and environmental-structural (physical surroundings).¹⁵ However, there is little agreement on how to measure the various constructs of school climate, and a wide variety of school climate measurement tools and surveys exist.¹⁶

School climate is consistently associated with a variety of student outcomes including learning, academic achievement, social well-being, emotional health, and mental health.^{15,16} However, there has been sparse application of school climate in the health field. Modin and Ostberg¹⁷ found school climate to be associated with psychosomatic health (headaches, upset stomach, sleep problems, and poor appetite). Birnbaum et al¹⁸ found that school climate for physical activity in girls was associated with their physical activity levels. Two studies have shown better intervention implementation and institutionalization in schools with a positive school climate.^{19,20} A variety of additional terminology is used in the research literature to identify similar concepts of school-level characteristics and traits. Researchers using the terms “health promoting school,” “value-added education,” and “school culture” have found associations with student tobacco, alcohol, and drug use.^{21–25} Although these studies and others clearly show a relationship between school characteristics and student health behaviors, the measures used vary widely, are not always evaluated for validity or reliability, and rarely assess health-specific characteristics such as presence and activity of a CSHT or attitudes toward health promotion in schools.

Results from the current study begin to identify health-specific characteristics that could contribute to definition of “school *health* climate,” a more targeted description of a school’s attitude toward health promotion initiatives. It may be valuable for future research to create and validate a comprehensive model that documents and quantifies school health climate for nutrition. Such a model could then be utilized to tailor nutrition interventions to existing

school strengths and weaknesses. Encouraging development of positive school health climates may enhance the effectiveness of health interventions.

Type of food service provider may be an important determinant of school meal quality, student satisfaction, and willingness of students to eat healthy food provided.⁹ Outsourcing food service operations seemed likely to influence the success of future nutrition interventions. FSDs in the 2 vendor-run operations where food is prepared at an off-site kitchen and delivered to the school appeared to take less ownership over the food service program. One previous study found that administrators who outsourced food service operations for financial and managerial concerns were satisfied with this decision; however, it did not specify the degree of control or ownership school employees retained, nor did it examine students' opinions of school meals.²⁶

FSDs in this study respected student preferences; however, they believed that students do not like healthy foods and will not try new foods. Previous research in adolescents contradicts this adult perception. In one study, more students felt that it was important to be able to purchase fruits at school than less healthy snack options, but did not feel that the options available at school were healthy.²⁷ In several qualitative research studies, students have suggested strategies for increasing healthy eating in schools which include improving the taste, appearance, availability, and convenience of healthy options while decreasing the availability of less healthy foods in schools.^{28,29} Several studies also show reducing the prices of healthier items will increase the purchase of healthy foods in adolescent populations.^{30,31} Furthermore, despite the common impression that sales of unhealthy competitive foods are necessary to supplement food service revenue, one review suggests that nutrition standards can be applied to competitive food venues without reducing revenue, and can sometimes increase participation in school meals, offsetting any decrease in competitive food revenue.³²

Many of the accomplishments schools had achieved required little or no funding, such as increasing availability of healthy foods, using alternatives to food as rewards, and placing priority on nutrition education. These activities do, however, require time and dedication from school food service staff, teachers, administrators and others, which can be challenging in negative economic climates with strong emphasis on academic accomplishments.

Limitations

Results from this study should be interpreted with awareness that schools self-selected to participate in the SNAK project, and case study schools were nonrandomly selected to ensure demographic diversity. Furthermore, a sample size of 8 schools may not represent the experiences of all schools, and cannot be extrapolated to the general population. While 3 representatives from each school were interviewed, it is possible that interviewing additional persons may have revealed further information at each school, particularly in the variety of accomplishments that each school had made. However, the 3 participants were selected from positions that would have extensive knowledge about the majority of health initiatives happening at their school, and all participate in the CSHT. Findings should be further explored in larger samples of diverse schools. The purpose of qualitative case study research

is to gain an in-depth understanding of a particular phenomenon, and additional quantitative and experimental studies should be performed to validate the current research findings.

IMPLICATIONS FOR SCHOOL HEALTH

Many of the schools in this study demonstrated that despite daunting financial and other barriers, they were able to implement some nutrition programs and policies. Positive school health climate was associated with successful nutrition initiatives. Improving school health climate may improve the success of nutrition initiatives. Expansion of the limited qualitative research exploring student food preferences and school health climate would be beneficial.

Human Subjects Approval Statement

All procedures and instruments were approved by the Michigan State University Institutional Review Board.

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Table 1

Comparison of Case Study Schools to All SNAK Schools

	Case Study Schools (N = 8)	All Schools (N = 65)
Average percentage of students eligible for free/reduced school meals	63.6	70.5
Setting		
Urban	4	43
Suburban	3	13
Rural	1	9
Average number of students in 7th grade	122.3	133.9
Type of school		
Public	5	55
Charter	3	10
Type of food service		
Conventional kitchen at school site run by district employees	1	26
Satellite kitchen served from district central kitchen run by district employees	1	6
Conventional kitchen at school site run by management company	3	14
Vendor prepared meals delivered to school from a central kitchen	2	5
Frozen, precooked meals heated and served at school site in kitchen run by district employees	1	14

Table 2**Sample Interview Questions**

Sample Cross-Cutting Questions (Asked of All Participants)	
•	What are some positive things/accomplishments that your school has done to promote healthy eating at your school in the past few years?
–	Please describe any healthy eating-related events.
–	Describe any changes to the foods and beverages available in various locations (school meals, à la carte, vending machines, classrooms, concessions, etc).
•	What things have helped you make changes at your school to promote healthy eating?
•	What are the challenges your school faces in promoting healthy eating at your school?
–	Please describe any funding issues that impact healthy eating.
•	Do you have any ideas about how you can overcome these challenges to promoting healthy eating?
Sample Administrator Questions	
•	Describe the food and beverage policies at your school.
•	How is food (even healthy food) used as a reward throughout the school?
Sample Food Service Director Questions	
•	What are the priorities/goals of the food service operations?
•	What influences the foods and beverages available in the food service program?
Sample Coordinated School Health Team Questions	
•	Can you describe to me how your coordinated school health team was formed?
•	What was your overall impression of the Healthy School Action Tool?

Characteristics of Schools Related to “School Health Climate” and Recent Nutrition Accomplishments

Table 3

School Health Climate	Health Champion	Support	Awareness/Enforcement of Nutrition-Related Policies	Use of Food as Reward	Active CSHT	Number of Nutrition Accomplishments*
Positive	Yes	High	Aware, enforced	Moderate+ other rewards	Yes	8
Positive	Yes	High	Aware, enforced	Low	Yes	8
Positive	Yes	High	Aware, enforced	Low+ other rewards	Yes	6
Moderate	Potential	Moderate	Aware, not enforced	High+ other rewards	Somewhat	6
Moderate	Potential	Low	Unaware, not enforced	High+ other rewards	No	5
Unsupportive	Potential	Low	Unaware	Moderate	No	4
Unsupportive	Potential	Low	Unaware	Moderate+ other rewards	No	4
Unsupportive	Potential	Low	Unaware	High+ other rewards	No	2

* Total number of accomplishments to promote healthy eating includes making improvements to school meals or competitive foods, environmental changes, applying for grants, information strategies, or other nutrition-related initiatives.