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Sarah Robbins Date

Barriers to Participation in the National School Lunch Program As Perceived by School Nutrition Staff and Managers, Students and Students' Parents

By

Sarah Robbins
Master of Public Health

Hubert Department of Global Health

_____

Monique Hennink, PhD
Committee Chair

_____

Jean Welsh, MD
Committee Member

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By

Sarah Robbins

Bachelor of Arts (BA)
University of Wisconsin - Madison
2013

Thesis Committee Chair: Monique Hennink, PhD

An abstract of
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Abstract

Barriers to Participation in the National School Lunch Program As Perceived by School Nutrition Staff and Managers, Students and Students' Parents
By Sarah Robbins

Obesity is a growing public health issue both internationally and domestically, and children who are overweight or obese are more likely to become obese adults (WHO, 2015; Guo et al., 1999; Freedman et al., 2005; Freedman et al., 2009; Freedman et al., 2001). The Healthy, Hunger-Free Kids Act of 2010 seeks to reduce childhood obesity and improve the diets of children through a number of prevention-based interventions, many of which are implemented through the National School Lunch Program (NSLP), yet nationwide participation in NSLP declined by 1.2 million students in the first two years after the act was introduced (Healthy, Hunger-Free Kids Act of 2010, 2010), (GAO, 2014). In order to inform development of NSLP based interventions to reduce and prevent childhood overweight and obesity, this study sought to identify and understand barriers to participation in NSLP from the perspectives of school nutrition program employees, students, and parents. Data were collected through eight focus group discussions of five to seven participants and analyzed through the process of thematic analysis. The study population were of schools in middle income suburban communities in the Atlanta area. Results showed several barriers related through a central theme of food dissatisfaction. Students and parents shared decision power in the choice of whether or not to purchase school lunch. Students were more likely to choose whichever option best met their taste preferences, while parents' decision processes were more complicated, with convenience and their children's food preferences acting as influencing factors towards participation barriers. Although staff and managers felt many issues affecting school food satisfaction were out of their control, i.e. strict regulations and budget limitations, some had found ways to work within such constraints through creative food seasoning and grant funding for fresh local produce. Results suggest that schools may be able to improve participation in their own programs through use of these alternative solutions.

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I owe an enormous amount of thanks to my thesis advisor Dr. Monique Hennink for her expert guidance, which of course was extremely helpful and effective in every step of the thesis process. But beyond this, Dr. Hennink offered endless patience and positive words of encouragement, all of which motivated me to "keep going."

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I greatly honored to have had the opportunity to spend the last two years with the Rollins School of Public Health community. I am extremely grateful for the education and support I have received from faculty, staff and peers. It has been a true privilege to learn and work with you. Thank you.

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Introduction

Introduction and Rationale

Obesity is a growing public health issue both internationally and domestically. The World Health Organization (WHO) defines overweight and obesity as "abnormal or excessive fat accumulation that may impair health," and reports that global obesity prevalence has more than doubled in the last 35 years (WHO, 2015). In the United States, the population faces an epidemic with 68.6% of individuals overweight and 34.9% obese as of 2012 (NCHS, 2014). Childhood obesity is of particular concern, because children who are overweight or obese are more likely to become obese adults (Guo et al., 1999; Freedman et al., 2005; Freedman et al., 2009; Freedman et al., 2001). The number of children who are obese in the U.S. has more than tripled in the past 45 years (Ogden et al., 2010; Ogden et al., 2006; Ogden et al., 2014; Ogden et al., 2002), and so the increasing prevalence of childhood obesity implicates further acceleration of prevalence of obesity and related diseases as today's youth advance into adulthood.

Obesity and overweight is caused when more calories are consumed than are burned. Global rise in obesity and overweight is attributed to increased consumption of highly calorie-dense foods as well as reduced physical activity due to increasingly sedentary lifestyles (WHO, 2015). Consequences of childhood obesity include earlier onset of related complications such as cardiovascular disease, diabetes, and psychological distress, as well as increased risk for later onset problems like cancer, premature death and disability (Yanovski, 2015; WHO, 2015). Furthermore, obesity presents serious economic costs for the U.S. with an estimated annual health care cost of $190.2 billion, which accounts for nearly 21% of total annual medical spending nationally (Cawley et al., 2012).

Childhood obesity may be treated through behavioral interventions, e.g. diet, exercise and lifestyle changes, as well as pharmacological. These treatments have been shown to produce small to medium effects in terms of reducing BMI, but studies following participants post-intervention have determined that the changes in weight are not typically sustainable beyond six months (Peirson et al., 2015). Prevention of childhood obesity may then be more effective than acute treatments in reducing future health and economic burdens. Among prevention-based interventions showing the most promise in curbing BMI among children are school curriculums which include healthy eating, physical activity and body image, school-based physical activity sessions, and improved nutritional quality of foods provided in school (Waters et al., 2014). The Healthy, Hunger-Free Kids Act of 2010 (HHFK) seeks to reduce childhood obesity and improve the diets of children through a number of prevention-based interventions, many of which are implemented through the National School Lunch Program (NSLP) (Healthy, Hunger-Free Kids Act of 2010, 2010).

The National School Lunch Act established the NSLP with the allocation of funds to states for the purpose of providing low-cost or free meals to children through non-profit school lunch programs (Ralston et al., 2008). HHFK amended this act with the creation of additional reimbursement for schools that meet updated regulations based on recommendations furnished by the Institute of Medicine (Healthy, Hunger-Free Kids Act of 2010, 2010). Already, the potential of this program to improve children's health has been demonstrated through increased consumption of fruits and vegetables (Schwartz et al., 2015; Cullen et al., 2015). However, this progress is opposed by some school officials, food-industry representatives and members of the School Nutrition Association who report that school lunch participation has dropped since the introduction of the new regulations (Woo et al., 2014). Indeed, according to a report released by

the U.S. Government Accountability Office (GAO), nationwide participation in NSLP declined by 1.2 million students from the 2010-2011 school year to 2012-2013 (GAO, 2014). Participation rates reported by the U.S. Department of Agriculture show that most of this decline, about 1 million students, occurred between 2011-2012 and 2012-2013, meaning that the greatest drop in participation happened in the second year following the introduction of HHFK (USDA, 2015).

Problem Statement

NSLP along with interventions like Strong4Life, a Children's Healthcare of Atlanta (CHOA) a program that works with school nutrition programs to encourage healthy eating and physical activity among students, have the potential to reduce childhood obesity as well as future adult obesity and related public health issues. NSLP-based interventions will not be effective if children fail to participate, i.e. purchase and consume school lunches. In order to improve NSLP participation and maximize effectiveness of school lunch interventions, there is a need to understand why students might not be participating in the NSLP.

Currently, there exist various quantitative and qualitative research studies which examine factors influencing school nutrition program participation. However, most focus on school breakfast, and many occurred before the most recent updates to school meal nutrition standards. Furthermore, there exists no one study utilizing the perspectives of three key stakeholders: school nutrition employees, students, and students' parents. Because of this, the body of literature up to now only tells part of the story. Comprehension of barriers to participation from viewpoints of multiple groups is necessary in order to fully understand how best to increase coverage and effectiveness of NSLP-based interventions and eventually improve health outcomes among children.

Purpose Statement

In order to inform development of NSLP based interventions to reduce and prevent childhood overweight and obesity, this study seeks to identify and understand perceived barriers to participation in NSLP from the perspectives of school nutrition staff and managers, students, and students' parents. We aim to answer the following questions:

1. How is the decision of whether or not to purchase school lunch made?
2. Why might participants find school lunches unappealing?
3. How may we promote participation in NSLP?

Significance Statement

The findings of this study will help to maximize effectiveness of the HHFK, as well as any childhood obesity prevention intervention delivered through NSLP. As stated above, a reduction in overweight and obese children would lead to improved health of the U.S. population, and the knowledge gained here may also be applied in similar contexts worldwide, for example, in areas where governments are currently working to introduce or improve on their own school nutrition programs. Furthermore, conclusions may help the greater public health field to understand why some interventions may or may not experience success in achieving their intended targets and offer insight for what public health professionals should be thinking of when planning interventions. Therefore, the information generated here has significant implications for better informed preventative health policymaking as well as health intervention design and evaluation.

Definition of Terms

Focus group discussion (FGD)

An interviewing technique common in qualitative research methodology in which participants are interviewed as a group with a moderator facilitating the discussion. FGDs in this study occurred once for each focus group, of which there were eight. In each FGD, the moderator administered a semi-structured series of questions to five to seven participants in order to encourage a 60 to 90 minute group discussion about school nutrition programs and healthy eating.

National School Lunch Program (NSLP)

The federally assisted meal program which allocates funding to states in order to facilitate the provision of low-cost or free lunches to students in public and non-profit schools. Established by the National School Lunch Act in 1946.

Healthy, Hunger-Free Kids Act of 2010 (HHFK)

Legislation that amends the Richard B. Russell National School Lunch Act, setting new nutrition standards for the NSLP.

Children's Healthcare of Atlanta (CHOA)

An Atlanta-based hospital system and nonprofit organization which treats pediatric patients, educates the public, designs programs and conducts research in order to improve and maintain health of all children.

Review of Literature

Researchers have explored barriers to participation in both school lunch and school breakfast programs (Gleason, 1995; Meyer et al., 1998; Sabol et al., 2011; Bailey-Davis et al., 2013; Burgess-Champoux et al., 2006; Marples et al., 1995; Mirtcheva et al., 2009; Leos-Urbel et al., 2013; National, 2005; McDonnell et al., 2004; Zucchino et al., 1990; Bartfield et al., 2010; Reddan et al., 2002; Ohri-Vachaspati, 2013; Lambert et al., 2002; Duniflon et al., 2003). While some conclusions drawn from breakfast program studies may be applied to the NSLP, these programs are very different and have different participation rates (Food, 2003). Therefore generalizing the barriers to participation between the two is limited. Nevertheless, there exist identified commonalities in participation among the two types of programs, and since much of the literature on school nutrition programs covers breakfast programs (eight of the nineteen studies discussed here), these commonalities as well as differences will be further explored in findings to date.

Research into school nutrition and participation in school breakfast and lunch programs spans decades and several countries. However, the introduction of HHFK in 2010 has spurred new research within the last few years into effects of new federal regulations on nutrition of school meals and program participation. Very little of this research has been conducted in Georgia. Though investigators have used both qualitative and quantitative methods to identify school nutrition program participation barriers, more of the research reviewed here is quantitative rather than qualitative. The quantitative studies come in the form of primarily cross-sectional surveys, but also longitudinal surveys, secondary analysis of demographic and school data, and one randomized control trial. The qualitative research is done entirely with focus groups. There is one mixed methods study, in which focus group discussions were used to

inform survey development. The limitation of quantitative research is that we may identify important correlations between variables of our choosing, but without open-ended questions, there is no opportunity to identify new barriers which have not yet been considered. Also, we may observe correlations, but without interviews, it is difficult to understand why these relationships exist.

The reviewed research has identified the following variables as factors affecting participation in school nutrition programs: students' food preferences, social stigma, cost of participation and meal prices, convenience and time constraints, neighborhood factors, students' perceptions of cafeteria staff and quality of service, and parents' preferences and perceptions. This review discusses identified barriers to school nutrition program participation in the U.S., as well as the varied approaches that have been used to study these issues. In doing so, our goal is to show the current knowledge and gaps in the literature which motivated our own research into NSLP participation.

Food Preferences

Students' food preferences seem to have a large effect on participation, and these preferences are reportedly influenced by perceptions of food characteristics such as quality, variety and taste (Gleason, 1995; Meyer et al., 1998). An analysis of student and school-level data from a nationally representative sample showed that participation rates were much lower in schools that served lunches containing less than 32% of food energy from fat compared to schools that serve higher-fat lunches (Gleason, 1995). This suggests that food taste is an important factor affecting participation, as the taste of lower fat foods is generally not as widely appealing as that of high fat foods. This finding is further supported by another study examining the effects of banning chocolate milk in school cafeterias, comparing sales and participation

before and one year after the ban was introduced. The result was a 9.9% decrease in milk sales and a 6.8% decrease in participation (Hanks et al., 2014). However, these results are somewhat contrasted by another study which found that school lunch participation rates dropped following a switch to low calorie and low fat milk options in school cafeterias across the country but eventually recovered within a year (Yon et al., 2014). Another large scale quantitative study showed that variables most highly correlated with satisfaction were food variety, flavor, quality and attractiveness, as well as friendliness of lunch staff (Meyer et al., 1998). Promotional events such as connecting schools with local chefs can increase taste and appeal of school lunch, not only leading to an increase in participation, but also in consumption of fruits and vegetables (Just et al., 2014).

Themes of food preference and perception in were observed in multiple studies within limited regions. Researchers conducted focus group discussions in Southeast Alabama with middle school students and their parents and identified students' dislike or sensitivity to foods offered as a major theme explaining why students do or do not participate in the school breakfast program (Sabol et al., 2011). Similarly, a study with focus group discussions with middle school students and parents in Philadelphia identified negative perceptions of food quality as a barrier to free school breakfast program participation (Bailey-Davis et al., 2013). Another study with focus group discussions, this time with elementary school students, parents and teachers in St. Paul, MN, showed that students' acceptance of school provided food related to taste, appearance and familiarity of the food (Burgess-Champoux et al., 2006). A survey of students in Cincinnati public high schools demonstrated perceived quality and variety of food as significant determinants of participation in the NSLP (Marples et al., 1995).

Social Stigma

Social stigma was another frequently identified barrier to participation in school meal programs, specifically free or reduced price meals, because these are meal plans on which students from low income families must rely. Therefore, students who receive free or reduced lunch or breakfast may be assigned negatively connoted labels by their peers, such as "poor," "ghetto" or "uncool." Students may choose not to take advantage of an affordable meal in effort to avoid such branding. (National, 2005; McDonnell et al., 2004; Bailey-Davis et al., 2013). This is contrary to the intention of these programs, which is to provide nutrition to children who may need it the most. Universal free lunches may eliminate this barrier for NSLP participation by making it impossible to distinguish students' income statuses by their meal plans. Research confirms that likelihood of participation increases with school-level free lunch eligibility, suggesting that increasing the proportion of students eligible for free lunch reduces stigma experienced by those students (Mirtcheva et al., 2009) (Leos-Urbel et al., 2013). Going a step further and eliminating a la carte menu items, so that everyone receives the same NSLP meal, and implementing a point-of-service payment system designed to ensure anonymity of low-income students' identity has also been demonstrated to increase participation rates by up to 154% (Bhatia et al., 2011). It is important to note that most of these studies identifying social stigma, particularly the qualitative ones, are limited to school breakfast program participation.

Cost of Participation

Cost of participation and price of school meals were not very frequently identified barriers. It seems this could be because of the access to free or reduced meal plans. However, a previously mentioned national survey of students in grades 1-12 showed that those who are eligible for free or reduced meals are more likely to participate in school meal programs than

those who are not eligible for any assistance. Among these other non-eligible students, participation is negatively associated with meal price (Gleason, 1995). Sabol et al. also identifies high meal prices as a barrier to school breakfast participation for students who do not qualify for free or reduced meals. Parents whose incomes were just far enough above the poverty guidelines so that their children did not qualify for free or reduce breakfast said that they could not afford the cost of the breakfast meal (Sabol et al., 2011). Lastly, a secondary analysis of county level data in New York concluded that while eligibility for free lunch seemed to increase lunch participation among students, they did not observe the same trend with eligibility for reduced price lunch. The findings suggest that the transaction costs of applying for meal assistance, i.e. the application procedure and stigma of the welfare system, outweigh the benefits of a reduced price lunch (Zucchino et al., 1990).

Inconvenience and Time Constraints

The body of work identifying inconvenience and time constraints as barriers to participation is primarily comprised of quantitative studies. A national longitudinal survey of third grade students found that time constraints and logistical aspects of the school breakfast program, e.g. time available to eat and service of breakfast in classrooms, were predictors of participation (Bartfield et al., 2010). Three other studies also identified timing and time available to eat as barriers to school breakfast participation (Marples et al., 1995; Reddan et al., 2002; Sabol et al., 2011). Zucchino et al. showed that costs associated with applying for reduced lunch were identified as a barrier to participation; such transaction costs could also be interpreted as an inconvenience, supporting inconvenience of the NSLP as a barrier to participation (Zucchino et al., 1990). Lastly, a study of children's selection and consumption of pre-sliced vs. whole fruit in school cafeterias did not necessarily identify inconvenience as a barrier to participation, but it did

show that average daily apple sales increased by 71% for schools that switched from serving whole apples to pre-sliced. Sliced fruits are generally easier to eat and less messy compared to whole fruits, especially for students with braces. This result supports the principle of convenience from behavioral economics as well as the idea that convenience influences food selection and intake (Wansink, 2013).

Service Quality

Quality of service was not a commonly identified factor in NSLP participation. Meyer et al. showed that among high school students in Alabama, Texas, Kansas and Delaware, friendliness and courteousness of the lunch staff is one of the variables most highly correlated with overall satisfaction with the NSLP (Meyer et al., 1998). Conversely, the Cincinnati study of high school students found that friendliness of staff is not a significant factor in participation (Marples et al., 1995). This issue was not among themes identified in any of the qualitative studies reviewed but may be worth further investigation in future studies.

Mirtcheva et al. observed effects of socio-contextual variables and found that predicted participation among African American students is thirteen percentage points higher than among white students, even after controlling for income and certification status. Probability of participation was also higher among younger and male students than older and female, though this is contrasted by Guinn et al., and students living in rural areas are more likely to eat school breakfast than students in urban or suburban areas. These results suggest cultural, regional, and other contextual barriers that are little understood, yet significantly affect participation (Mirtcheva et al., 2009; Guinn et al., 2014).

Parents

It seems that students' parents often have final say in whether or not their children participate in school meal programs. Data from a random digit dial phone survey of 1,708 households in New Jersey showed that students whose parents perceive food served in school to be healthy were more likely to eat school meals (Ohri-Vachaspati, 2013). In a mixed methods study with elementary school parents in the Southeast, parents' intentions to encourage children to participate in the NSLP were strongly correlated with their children's actual participation (Lambert et al., 2002). Additionally, focus group studies identified parents' perceived low quality and nutritional content of school breakfast foods and unmet preferences as barriers to participation (McDonnell et al, 2004; Bailey-Davis et al., 2013; National, 2005).

Other Influences

Several articles identified significant variables influencing participation in school meal programs which aren't necessarily barriers, but may indicate potential issues yet to be explored. These variables include family income, race, family characteristics such as number of siblings and marital status of parents, and local norms, e.g. participation disparities in rural vs. urban settings (Bartfield et al., 2010; Duniflon et al., 2003; Turner et al., 2014). Some of these variables may point back to previously mentioned barriers. For example, family income as a variable may indicate meal price as a barrier. On the other hand, low income can also encourage participation if the affected student qualifies for free or reduced lunch. Even variables like day of the week or month of the year have been demonstrated to correlate with variations in NSLP participation among elementary school students (Guinn et al., 2014). One study examined the effect of incentivizing elimination of unhealthy competitive foods on NSLP participation, an initiative introduced in Connecticut a few years ago. It was found that eliminating outside

sources of food increased school lunch participation up to 23% and increased revenue by an average of $30,000 per school district per year (Long et al., 2013).

Limitations

A large proportion of the research into participation in school meal programs pertains exclusively to school breakfast programs. As previously stated, these programs are very different with very different participation rates, and so generalizability between the two is limited. The geography of these studies is widely varied, however all those reviewed here are U.S.-based. The selection of U.S.-based studies was due to the wide variation in school nutrition policies between countries, but all public and nonprofit private school nutrition programs must comply with federal regulations. There may be minor variation between programs as a result of state or district wide initiatives. Little to no research exists on barriers to participation in school meal programs in the state of Georgia. Georgia has a wealth of local produce sources to which other states or isolated school districts may have limited access. The availability and affordability of fresh foods may affect identified barriers associated with food quality and variety.

The body of reviewed literature examined answers and perspectives from students, parents, school lunch staff and managers, and teachers. Among students, the scope of the studies were often limited to specific age groups. It is not uncommon for investigators to collect data from multiple groups, e.g. students and their parents; however there is no study, qualitative or quantitative, that includes students, parents *and* school nutrition employees in its study population. Such a diversity of participants could generate a rich variety of data which studies with only one or two participant groups could not. Including students from multiple school groups, e.g. elementary and middle school, may further increase data richness.

Conclusion

To summarize, previous research has identified many barriers and other variables which influence students' participation in school meal programs. However, findings are limited in specific subject matter, geographic context, and study populations. There exists little qualitative research on barriers to NSLP participation for both elementary and middle school students, and no study has examined this issue from the collective perspectives of students, parents, and lunch staff.

Title Page

Barriers to Participation in the National School Lunch Program As Perceived by School Nutrition Staff and Managers, Students and Students' Parents

Research in Action

Sarah Robbins [1]

Monique Hennink, PhD [1]

Jean Welsh, MD [2]

[1] Rollins School of Public Health, Emory University
[2] Children's Healthcare of Atlanta

Contribution of Student

Children's Healthcare of Atlanta (CHOA) performed all data collection in this project. Verbatim transcription of focus group discussion recordings was divided up and completed in combined effort by CHOA staff, a hired transcription service and myself. I was responsible for analysis of data, development of tables and figures and composition of the final manuscript, all of which was accomplished under the advisement of my thesis committee Dr. Monique Hennink of Emory University and Dr. Jean Welsh of Emory University and CHOA.

Abstract

Obesity is a growing public health issue both internationally and domestically, and children who are overweight or obese are more likely to become obese adults (WHO, 2015; Guo et al., 1999; Freedman et al., 2005; Freedman et al., 2009; Freedman et al., 2001). The Healthy, Hunger-Free Kids Act of 2010 seeks to reduce childhood obesity and improve the diets of children through a number of prevention-based interventions, many of which are implemented through the National School Lunch Program (NSLP) yet nationwide participation in NSLP declined by 1.2 million students within the first school year after the act was introduced (Healthy, Hunger-Free Kids Act of 2010, 2010), (GAO, 2014). In order to inform development of NSLP based interventions to reduce and prevent childhood overweight and obesity, this study sought to identify and understand barriers to participation in NSLP from the perspectives of school nutrition program employees, students, and parents. Data were collected through eight focus group discussions of five to seven participants and analyzed through the process of thematic analysis. The study population were of schools in middle income suburban communities in the Atlanta area. Results showed several barriers related through a central theme of food dissatisfaction. Students and parents shared decision power in the choice of whether or not to purchase school lunch. Students were more likely to choose whichever option best met their taste preferences, while parents' decision processes were more complicated, with convenience and their children's food preferences acting as influencing factors towards participation barriers. Although staff and managers felt many issues affecting school food satisfaction were out of their control, i.e. strict regulations and budget limitations, some had found ways to work within such constraints through creative food seasoning and grant funding for fresh local produce. Results suggest that schools may be able to improve participation in their own programs through use of these alternative solutions.

Introduction

Obesity is a growing public health issue both internationally and domestically. Global obesity prevalence has more than doubled in the last 35 years (WHO, 2015). In the United States, the population faces an epidemic with 68.6% overweight and 34.9% obese as of 2012 (NCHS, 2014). Childhood obesity is of particular concern, because children who are overweight or obese are more likely to become obese adults (Guo et al., 1999; Freedman et al., 2005; Freedman et al., 2009; Freedman et al., 2001). Consequences of childhood obesity include earlier onset of related complications such as cardiovascular disease, diabetes, and psychological distress, as well as increased risk for later onset problems like cancer, premature death and disability (Yanovski, 2015; WHO, 2015). Furthermore, obesity presents serious economic costs for the U.S. health system with an estimated annual healthcare cost of $190.2 billion, which accounts for nearly 21% of total annual medical spending nationally (Cawley et al., 2012).

The Healthy, Hunger-Free Kids Act of 2010 (HHFK) seeks to reduce childhood obesity and improve the diets of children through a number of prevention-based interventions, many of which are implemented through the National School Lunch Program (NSLP) (Healthy, Hunger-Free Kids Act of 2010, 2010). However, according to a report released by the U.S. Government Accountability Office (GAO), nationwide participation in NSLP declined by 1.2 million students in the first two years after HHFK was introduced into schools across the country (GAO, 2014). In order to improve NSLP participation and maximize effectiveness of school lunch interventions, there is a need to understand the reasons for this decline.

Research into school nutrition and participation in school breakfast and lunch programs spans decades and several countries. However the introduction of the HHFK has spurred new research within the last few years into effects of new federal regulations on nutrition of school

meals and program participation. Previous research using both quantitative and qualitative methods has identified that students' food preferences and food satisfaction in particular seem to have a large effect on participation, and these preferences are reportedly influenced by perceptions of food characteristics such as quality, variety and taste, and attractiveness (Gleason, 1995; Meyer et al., 1998; Sabol et al., 2011; Bailey-Davis et al., 2013; Burgess-Champoux et al., 2006; Marples et al., 1995). Additional barriers identified include negative social stigma assigned to free or reduced meal plans, cost of participation and meal prices, time constraints and lack of convenience, poor customer service, and parents' negative perceptions of food quality and healthiness (National, 2005; McDonnell et al., 2004; Bailey-Davis et al., 2013; Mirtcheva et al., 2009; Leos-Urbel et al., 2013; Gleason, 1995; Sabol et al., 2011; Zucchino et al., 1990; Bartfield et al., 2010;Marples et al., 1995; Reddan et al., 2002; Wansink, 2013; Ohri-Vachaspati, 2013).

The majority of previous studies on participation in school meal programs focus exclusively on school breakfast programs. While some conclusions drawn from breakfast program studies may be applied to the NSLP, these programs are very different and have different participation rates. Therefore generalizing the barriers to participation between the two is limited. The geography of previous research is widely varied, yet all studies cited were conducted within the United States. The decision to review only U.S.-based studies was due to the wide variation in school nutrition policies between countries, whereas all schools within the NSLP are subject to the same federally regulated nutrition standards. Little to no research exists on barriers to participation in school meal programs in the state of Georgia. Georgia has a wealth of local produce sources which other states may not find as accessible, and such access to fresh foods may affect identified barriers associated with food quality and variety.

The body of previous research has focused on perspectives from students, parents, school lunch staff and managers, and teachers. Among students, the scope of the studies were often limited to specific age groups. It is not uncommon for investigators to collect data from multiple perspectives, e.g. students and their parents, but there is no study, qualitative or quantitative, that includes students, parents *and* school lunch staff and managers in its study population. Such a diversity of participants could generate a rich variety of data which studies with only one or two participant groups could not. Including students from multiple school groups, e.g. elementary and middle school, could further increase data richness.

To summarize, previous studies on NSLP participation are limited in their specific subject matter, geographic context, and study populations. In order to inform development of NSLP based interventions to reduce and prevent childhood overweight and obesity, this study seeks to identify and understand barriers to participation in NSLP from the perspectives of school nutrition staff and managers, students, and students' parents. This was accomplished through the use of qualitative research methods. Data were collected through eight focus group discussions with five to seven participants each and data examined through the process of thematic analysis. We aim to answer the following questions:

1. How is the decision of whether or not to purchase school lunch made?
2. Why might participants find school lunches unappealing?
3. How can we potentially promote participation in NSLP?

The findings of this study will help to maximize effectiveness of the Healthy, Hunger-Free Kids Act and any other childhood obesity prevention intervention delivered through NSLP, improve overall health of the U.S. population and provide information with which to inform preventative health policymaking and community-based health intervention design.

Methods

Barriers to participation in school nutrition programs are complex, involving individual and social issues, preferences and perceptions, and environmental influences. Therefore qualitative methods were chosen in order to understand "the contextual influences on the research issues" (Hennink, 2011). Qualitative methods would allow us not only to identify the perceptions and barriers on school lunch participation, but also help us to explore the depth and context of these issues from three critical perspectives - that of parents, pupils and school staff.

Data Collection

Focus group discussions (FGDs) were selected as the method of data collection in order to use interactive discussion to explore the context and influences on students and their families' decisions regarding participation in the school lunch program, and gain a rich variety of perspectives from each of the key stakeholder groups. The staff and managers, students and parents represent those who serve, consume and potentially pay for school meals, and so each group's perspective is unique and important. School lunch staff and managers must constantly consider what kids like and don't like in order to market their products and sustain their lunch programs. Students are the direct consumers of school lunches, and those who have the option to purchase lunch or bring their own may have a large say over whether or not they participate. Parents as the purchasers may hold even greater decision power in regards to school lunch participation, and their decisions are largely influenced by the desire to ensure the health and satisfaction of their children.

Conducting separate discussions with different stakeholder groups allowed us to collect information from a diversity of perspectives as well as the normative views within each group.

Eight focus group discussions of five to seven participants were conducted with school nutrition managers and staff, students and parents, per the commonly agreed upon recommendation to have two or more focus groups for each defining demographic (Guest et al., 2012). Focus groups were stratified by type, i.e. staff, managers, parents and students. Student groups were further stratified by school level, elementary or middle school, and sex (Table 1), leading to a total of 8 groups. The stratification allowed for homogeneity of the groups, which would help participants to feel comfortable saying what they honestly feel as well as encourage discussions of normative ideas and experiences that may be unique to these particular parties. The focus groups were also demographically diverse, particularly the adult groups which were of mixed gender, and this heterogeneity allowed for diversity of perspectives within each focus group.

Participant Recruitment and Focus Group Discussions

School nutrition Staff and Managers: Children's Healthcare of Atlanta (CHOA) staff contacted directors of schools in the Greater Atlanta Area with whom they have existing collaborations. Acting as gatekeepers, these school directors reached out to their school nutrition staff and managers to participate in the study and encouraged participation. School directors sent emails to nutrition staff and managers, which included instructions and a link to e-Ply, an online event registration software where they could agree to participate. Of those who responded through e-Ply, participants were purposively sampled so that multiple schools were represented in the study. Recruitment from schools was limited to elementary, middle and high schools within a 40 minute driving radius from Atlanta in order to make access to the study relatively convenient for participants. All schools recruited were public institutions, as NSLP does not operate in for-profit private schools.

School nutrition staff and managers who participated in the FGDs therefore came from a mix of elementary, middle and high schools in suburban communities, which varied in demographic characteristics but mostly consisted of racially mixed, middle class neighborhoods. School nutrition staff and manager discussions lasted approximately 90 minutes each. The discussion guide for this group included questions about the strengths and weaknesses of the schools' lunch programs, what kinds of foods they perceive as healthy, the taste and nutritional value of foods served in their cafeterias, and the students' eating patterns. Staff and managers were then asked about their school's role in students' nutrition and their ideas for promoting school lunch programs and healthy eating.

Students: Elementary and middle school students were contacted through phone calls to households within a 40 minute driving distance from Atlanta. Callers spoke with students' parents and used a screener to identify whether any children lived in the household and, if so, select potential student participants based on qualifying variables. These variables were defined as a household income of $25,000-150,000 and employment of at least one parent in the household. Students were selected through quota sampling to fill predefined categories in order to ensure diversity with respect to household income, race and ethnicity, homeowner or renter status, and gender. Recruitment stopped when a quota of five participants for each focus group was filled. The pupils therefore did not necessarily come from the same schools as the staff and managers, but they resided and attended school in the same geographic areas with schools of similar socio-economic makeup. No two children from the same household or family were included in the study.

FGDs with students were stratified and conducted separately by gender and school level, i.e. elementary or middle school. These discussions lasted approximately 60 minutes. As a

"homework assignment," the students were asked to bring their favorite healthy food with them to show and discuss with the group. They were then guided in their discussions through their thoughts about healthy eating and school lunches, reasons why they may or may not purchase lunches at school, their impressions of school cafeterias and ideas to promote school lunch programs and healthy eating. During this last part of the discussion, the children were shown marketing materials, i.e. posters, promoting healthy eating and physical activity. FGDs with students were videotaped in order to record participants' physical reactions to these advertising materials.

Parents: Parents were contacted through the same phone recruitment and quota sampling described above for students with a goal to recruit the parents of half of the student participants, i.e. one parent per child. Again, recruitment stopped when a quota of five participants per focus group was met. FGDs with parents lasted approximately 90 minutes. Parents were asked about their feelings on healthy eating in their families, their opinions of school lunch programs and cafeterias, and their ideas for involvement in and promotion of their children's school lunch programs.

FGDs were conducted at CHOA's office park and conducted on the weekends when the space was vacant. The site was selected for its convenience for participants, as the facilities are located near major roads and public transportation routes. Refreshments were provided for all participants. Discussions were facilitated by professional moderators assisted by a note taker. All FDGs were audio recorded to accurately capture the discussion.

Data Analysis

Audio recordings of all focus group discussions were transcribed verbatim, de-identified, and uploaded into MAXQDA11, a program for textual data analysis(1989-2015, VERBI Software--Consult-- Sozialforschung GmbH, Berlin, Germany). All transcripts and were thoroughly read and memoed to identify emerging themes, after which, a series of codes were developed to capture unique concepts in the data. The first codebook consisted of 30 codes, and inter-coder agreement was used to check the accuracy and clarity of code definitions, after which the codebook was refined resulting in a final codebook of 29 codes which were used to code the data.

Coded transcripts were analyzed for patterns and themes using the process of thematic analysis (Guest et al., 2011). Through analysis, codes were grouped into categories of related codes and corresponding retrieved segments reviewed for broader concepts. Thick descriptions of themes and categories were developed, and comparisons made between the different participant groups. Links between themes and broader categories led to the development of a conceptual framework to portray the complex influences and connections that explain student's participation n NSLP. Results were checked for validity by continually revisiting the data to verify themes were well supported by the data and quotes were identified to support the issue and linkages in the framework.

Ethical Considerations

Adult participants received incentives of $100 each. Children received $50 for participating and an additional $25 for completing the "homework assignment." Participants who arrived to the FGDs early were entered into a drawing to receive an additional $25. Consent forms for participation were signed and participants informed of the audio and video recordings before the start of the discussions. Because the focus groups were conducted in order to inform

program development, the project was reviewed and exempted Institutional Review Board (IRB) approval. The secondary analysis of the de-identified digital recordings of these FGDs was approved by Emory University's IRB (IRB00078634).

Limitations

Information collected in this study reflects the perspectives of core stakeholders in Atlanta. We cannot draw broader conclusions that would be applicable to students, parents, and school staff in other parts of the United States. However the different groups of participants offer a variety of perspectives that contribute to data richness.

Results

The results examine perceived barriers to participation in NSLP from the perspectives of three stakeholder groups: school nutrition staff and managers, students, and parents. Focus group discussions provided an opportunity for deep understanding of normative views of such influences on the decision of whether or not to purchase school lunch. Figure 1 contains the framework which was developed to show the influences and connections that explain NSLP participation. Each circle represents a different participant group: school nutrition managers and staff, students, and students' parents. Results will be explained using this framework, describing the barriers shown within each circle as well as in areas where circles are overlapping. Circle overlaps represent shared views.

Food Dissatisfaction

This study identified multiple issues influencing participation, but as shown in Figure 1, the overarching theme for all groups is food dissatisfaction. Even when participants did not specifically cite dissatisfaction with school lunches, the decision to forgo a school provide meal was based on preference for a packed lunch from home. Overall dissatisfaction with the NSLP product was a major barrier identified by all participant groups, but the individual barriers cited as reasons for dissatisfaction vary greatly among the different circles.

Students Circle

Taste and Appearance: In the decision of whether to purchase a lunch or bring one from home, students described considering which option offered more appeal to them. Quite simply, they select whichever option gives them the food they like more. The likability of food is determined primarily by how it tastes, but also how it looks and smells. For these reasons, the major barriers to participation for students are taste and appearance of the food served in school. Interestingly, the female students tended to comment more than males on poor food quality and appearance, referring to hairs or worms in their food and often bad tasting meals. In contrast, among the boys, there were a couple mentions made of certain food items being too cold and only one comment about food that tasted bad.

Peer Influence: Peer influence was described as a social norm influencing students to choose a packed lunch over school lunch in order to feel or appear "cool." For example, a few parents reported packing leftover pizza or Subway sandwiches for their children's lunches,

because students want to bring a lunch that they can show off in front of their friends. We see how this desire to make a more popular choice can influence students' eating behaviors in the extract below where students are discussing poster designs to market healthy foods.

> *P1: Well, how 'bout we just put like kids that are eating healthy?*
>
> *M: So what does that do when you see kids eating healthy?*
>
> *P1: Uh,*
>
> *P4: Others actually try it.*
>
> *M: Then you would actually try it.*
>
> *P1: Like- like the most popular kid in school eat it... [Imitating other kids] "Oh, I wanna be like him!"*

Parents Circle

Hunger: Many parents reported preference for packing lunch over purchasing lunch because of a concern that their children will otherwise come home hungry. This concern is explained partly by parents' perception that students have very little time to eat at school. Although the student participants did not confirm that they don't have enough time to eat their lunch, many of their parents have determined that eating time is so limited, it's to the extent at which students cannot eat their entire lunch. These conclusions are drawn from parents' knowledge of the school day schedules as well as their personal conversations with their children.

Another factor which parents perceive to be contributing to students' hunger is their dislike of school meals. Students might be displeased with school lunches for a number of

reasons, e.g. taste and quality, but parents who said that they have "picky eaters" described exceptionally difficult experiences in finding foods that their children will eat. Most of these parents believe that if they cannot provide a meal crafted to the specific preferences of a picky child, he or she will not eat the food and may as a result go hungry. For this reason, parents may prefer to pack a lunch they *know* their children will eat, rather than risk having their kids come home hungry.

Perceived Healthiness: Most parents perceive meals served at school as being unhealthy, because they possess characteristics of "junk food," such as high sodium or sugar content. Even though new parents know federal guidelines require whole grain ingredients, portion control and incorporation of all food groups in every meal, the items are still believed to be highly processed and of low quality, and therefore not *truly* healthy. Furthermore, one parent pointed out that kids who don't like the food and consequently don't eat any or all of their lunches are not consuming a complete and balanced meal. Therefore poor taste limits a meal's potential nutritional value.

It may be worth noting here that it seems different participant groups perceive the healthiness of school lunches differently. Most parents and students said that they believed the food at school was mostly unhealthy. Managers feel that the food they serve is mostly healthy, that parents' perceptions are incorrect, and that they could increase participation if it were possible to demonstrate the true nutritional value of the food to parents. Staff tend to view school

lunches as fairly unhealthy due to its large amount of processed ingredients. However, they see the lunches parents pack as equally processed and therefore equally unhealthy.

Many parents indicate that these perceptions of the healthiness of school lunches are an important deciding factor in whether or not their children eat school lunch. Parents are motivated to provide healthy food to their children in order to control their weight as well as to improve their appearances and overall health. By packing lunches, parents can control the nutritional quality of their children's meals and, again because they feel they best understand their children's food preferences, they can know that their children have meals that they will eat and from which they will receive full health benefits. One parent said she would be willing not only to purchase school lunch, but also pay *more* money for healthier meals, since she is spending the money anyway on healthy food for her kids at home and for their packed lunches.

Price: Most parent participants said that they do not feel that price of school lunch is a barrier to participation. In their minds the school meals are about equal to the cost of preparing a packed lunch, and free and reduced meal programs make school lunch affordable to those of lower income status. One parent said she feels that school lunches are too expensive, but she was explaining that in her opinion the price does not fit the poor quality of the food, rather than acknowledging price as a barrier.

Parents and Students – Common Issues

Allergies and Dietary Restrictions: The following barriers are found in the overlap of parent and student circles. These two groups both reported allergies and dietary restrictions as barriers to participation, an issue not raised by the managers and staff groups. This barrier is

fairly straightforward--some students cannot participate in NSLP because of allergies or other dietary restrictions which for health reasons prevent them from consuming foods prepared by the school. Because the school cannot always make adjustments in preparations or menu offerings to meet the nutritional restrictions of these individuals, satisfaction with school meals would be much lower than it is for meals prepared in a controlled environment, like at home, and absent of any potentially harmful ingredients or additives.

Managers and Staff Circle

Food Sourcing Limitations: Staff and managers feel that a major influence on the taste and quality of the food they prepare is the ingredients they are provided. While students and their parents may prefer to purchase food made with fresh and local produce, the food that nutrition staff have to work with comes from a limited number of sources, mostly large-scale food suppliers, and typically consists of highly processed products. Fresher ingredients are more expensive, and the tight, non-profit nutrition program budget does not allow much room for such extravagant purchases. The result is a meal that is perceived by many consumers as processed, low quality and unhealthy.

District Food Preparations Restrictions: Though guidelines for NSLP are developed by the federal government, the schools in this study are directly regulated at the district level. Therefore, in order to ensure compliance with HHFK, district administrators set requirements for recipes, meal components, and more. Staff expressed frustration with severe limits on things like salt and condiments. They feel that these restrictions negatively affect the taste of school lunches and therefore NSLP participation, though they do seem to understand that these rules are part of

an effort to maintain strict control of school meal nutrition and adherence to HHFK policies. Staff may appeal to the district for new recipes, but many feel discouraged from deviating from that which is provided by their district office.

Supervisors' Resistance: This dissuasion from new ideas described above is attributed to resistance from supervisors. One nutrition staff member said she had suggested a new recipe to her manager, but that her idea was dismissed. In response, she went directly to the manager of her school district's recipe database. Her recipe was approved and made available for use in the school's lunch program, though she suffered the disapproval of her direct supervisor, who was unhappy to hear about how she had gone over his head. In another example, a manager said he had expressed interest to his principal in promoting the school lunch program through visits to classrooms to perform cooking demos with their new mobile kitchen. The principal rejected this suggestion, citing reluctance to sacrifice classroom time for a nutrition program activity. Again, staff and managers feel that this barrier to implementing change negatively affects NSLP participation, in these cases because it prevents introduction of new appealing foods and customer recruiting promotions.

Lack of Empowerment: Federal and district level regulations, along with supervisors' resistance, are reasons staff and managers reported for feeling powerless to improving school lunches. Many expressed feelings of frustration as well as lack of control or understanding of many of the rules imposed in their nutrition programs. These rules seem to make it difficult to prepare the food they believe kids will want to eat. One staff member suggested that their food service association in particular should to empower its members through political lobbying and community organizing.

P1: Our food service association needs to be updated. It needs more empowerment.

M: And what do you mean by that?

P1: Well, the managers belong to the association, and they go to D.C. to lobby or whatever. That area needs to be tackled.

M: Okay. What do you think that they could do with that?

P1: Reach the President Obama and Michelle and them...Ya know? They're the ones that are mandating these rules and regs, and they need to be worked on.

Managers, Staff and Parents – Common Issues

Poor Presentation of Food: Among issues within the overlap of the Managers and Staff and Parent circles, the presentation of food was believed to be important to improving food appeal and NSLP participation. One staff reported noticing higher sales on days when she packaged lunch entrees in a Chinese take-out boxes. Another noted that participation increased when they put lunches in to-go bags, suggesting that students appreciate the convenience of a grab-and-go meal. Parents also said that presentation influenced their children's food choices and that their children prefer foods from home when they are wrapped in attractive packaging. Conversely, one parent was dissatisfied with the way her child's school nutrition program packaged school lunches. Linking this barrier to the previously mentioned concern about amount of eating time, she said it took so long for the younger students to open their meals that they didn't have time to finish eating.

Customer Service: Staff friendliness is important to both parents and nutrition employees. Parents want their children to be treated well and with courteousness, as this adds to their meal satisfaction. One mother said she liked how her son is treated at the deli counter at her Publix, because he is treated as a customer and is able to have his sandwich prepared to his liking. Staff and managers discussed the importance of developing a rapport with students. Managers see this as important to spreading positive perceptions of the school lunch program and encouraging

more students to become regular customers. Staff see friendliness as a useful tool in helping children to try new school lunch foods and make healthier nutritional choices. Absence of these customer service efforts then is a barrier to NSLP participation.

Lack of Choice and Federal Regulations: Nutrition employees and parents both see lack of choice as a negative influence on meal satisfaction. Choice is the presence of the students' control or decision power over their foods. Parents appreciate features such as salad bars or made-to-order food service, because again, these are strategies that enhance meal satisfaction for their children. It ensures that the child receives something he or she will like and will eat. Managers and staff discuss choice more in the context of federal regulations, i.e. new regulations have reduced choice for students. This is seen in regulations regarding components. Students purchasing meals are typically required to take a certain number of different components such as fruit, vegetable, starch, etc. Staff and managers feel that strict rules like these reduce meal satisfaction.

Another issue with the federal regulations as mentioned by both groups is how they have seemed to worsen food quality. Staff and managers attribute this to the food products with which they must work, and much of the blame is placed on the requirement for all grains to be whole grain. They feel that the new whole grain items are simply drier and blander versions of old menu items, that the kids don't like the taste of whole grain products, and that they are not necessarily healthier products than what they had served previously. Parents too reported noticing a decline in food quality since the introduction of new federal nutrition standards, though they did not speculate much about reasons behind this. Staff, but not managers or parents, also noted a substantial decrease in portion sizes following the introduction of HHFK. Not only were things like number of chicken nuggets reduced, but strict limits on number of condiments

were also imposed. Staff believe these changes further negatively affected taste and satisfaction of the food they serve.

Parents' decision processes

When it comes to choosing between packed lunch and school lunch, decision power seems to typically be shared between students and their parents. For the students, the decision process is simple; students choose whichever option they believe provides the better tasting meal. Figure 2 shows factors that parents weigh when deciding whether or not to purchase school lunch for their children. These factors are grouped into barriers to purchasing school lunch and influences on these barriers. For most parents, the barriers outweigh the influences. However, no parent reported packing a lunch every single day. Rather, there are occasions when it is more convenient to purchase lunch from school, e.g. the parent forgot to go grocery shopping or didn't have time to prepare something. This indicates that these influences have the potential to mitigate the effects of the barriers. Many parents feel that if the school lunch was healthier, they would certainly purchase more often, as it is more convenient for their families to do so. Students' preferences may also occasionally help to outweigh barriers, as parents said that they tend to let their children purchase lunch on the days when their favorite foods are served.

Discussion

This study identifies negative influences on NSLP participation from the perspectives of school nutrition staff and managers, students and students' parents. Previous literature identified students' food preferences, social stigma, cost of participation and meal prices, convenience and time constraints, socio-contextual factors, students' perceptions of cafeteria staff and quality of service, and parents' preferences and perceptions as barriers to NSLP participation. This study

confirms and offers new understanding of some of these barriers through the development of a framework to portray how they are related to one another under a broader issue shared by all participant groups: food satisfaction.

The of issue NSLP participation from the perspectives of students and their parents is relatively simple; when you offer foods with which the consumer is dissatisfied, participation will be lower. Students' satisfaction is even more simply explained by individual food preferences, food taste and appearance. This confirms previous literature linking satisfaction and preferences of students and their parents with NSLP participation (Meyer et al., 1998; Sabol et al., 2011; Bailey-Davis et al., 2013; Burgess-Champoux et al., 2006; Marples et al., 1995).

Quality and taste as drivers of food satisfaction are confirmed by this study. Variety was identified as a barrier in previous studies (Gleason, 1995; Meyer et al., 1998). However, variety was not identified as a barrier in our focus groups. This may be because most of our participants cited variety as an observed strength rather than something that was missing.

Figure 2 portrays parents' decision processes in choosing whether or not to purchase school lunch for their children. It weighs barriers identified in the parents' circle in the conceptual framework against influences of those barriers, which are convenience and students' preferences. This figure illustrates a novel concept, as reviewed studies identified barriers from parent perspectives, but did not examined factors that may increase or reduce their effects. Previous studies have also reported that students' preferences influence NSLP and that convenience of school nutrition programs is a predictor of participation and purchasing patterns (Bartfield et al., 2010; Zucchino et al., 1990; Wansink, 2013). Another item listed on the left side of the scale in Figure 2, is "eating time," which represents concerns for amount of time provided for eating. This barrier has also been identified in previous literature. (Marples et al., 1995;

Reddan et al., 2002; Sabol et al., 2011). However, findings in our study are somewhat different in that only parents, and not students, listed eating time as a barrier to participation. That parents' negative perceptions of food healthiness and quality are barriers to participation is also consistent with the literature. Other studies have found that perceived low quality and nutritional content of school foods and unmet preferences are barriers to participation (McDonell et al, 2004; Bailey-Davis et al., 2013; National, 2005).

Schools may find effective ways to increase participation by consulting the decision process of parents outlined in Figure 2. For example, by increasing convenience of school lunches, e.g. through grab-and-go meals, one might find that parents will choose to purchase school lunch more often, despite the continued presence of the barriers listed. Providing meal options that appeal to students' preferences may also mitigate barriers to deciding to purchase school lunch.

Staff and managers recognize that improving food satisfaction is key to increasing NSLP participation. Strict regulations and limited budgets impair their ability to serve satisfying food. However, the findings in this study suggest ways to improve food satisfaction and NSLP participation while working within these constraints. Staff and managers believe that they can increase sales of lunches by developing rapport with students and offering excellent customer service. Some literature supports this idea as well, connecting friendliness and courteousness of lunch staff with overall satisfaction with the NSLP (Meyer et al., 1998). A few manager and staff participants reported finding creative ways to improve food taste without deviating from nutrition standards, such as using spices and herbs to season food and applying for grant funding to bring local fresh produce into school cafeterias to offer with school lunches.

The findings in this study do not indicate social stigma as a barrier to NSLP participation. This contrasts with the conclusion by other authors, that negative social stigma assigned to free or reduced lunch is a barrier. (National, 2005; McDonnell et al., 2004; Bailey-Davis et al., 2013). This can be attributed to a difference in study populations. In this study, student and parent participants were primarily of middle income status, and most reported an ability to afford to purchase school lunch. However, previous research looked at school breakfast programs offered to low income students. It seems a common belief among students and parents that school breakfast programs are primarily intended to feed low income students may cause students who receive school breakfast to feel labeled as needy, and hence feel stigmatized (McDonnell et al, 2004). This particular effect does not apply in our study, as all elementary and middle school students attend lunch in school.

In the school programs included in the present study, some managers and staff reported changes to their nutrition programs to reduce the stigma of free or reduced price school lunches. One approach was to remove a la carte options, which lessened differences between free, reduced and full price lunches, so that the plate of food that the student brought to his lunch table was not an indicator of his family's net worth. This eliminated "ghetto" stigma which had previously been assigned to free or reduced meal plans. Indeed the literature supports that introducing universal free lunch, so that all students regardless of income status receive the same meal for free, is an effective strategy to address the issue of negative social stigma (Mirtcheva et al., 2009; Leos-Urbel et al., 2013).

Previous studies identified price of school meals as a barrier to participation for some, especially those who do not qualify for free or reduced lunch. An increase in eligibility for meal assistance was correlated with likeliness to participate in NSLP (Gleason, 1995; Sabol et al.,

2011). The literature also showed that additional time and social costs of enrolling in a reduced price meal plan seemed to act as a barrier as well. The inconveniences of the application process and the perceived social stigma seemed to outweigh any benefits (Zucchino et al., 1990). In the present study, only one student participant confirmed he received free lunch and consequently participated in his school's lunch program every day, and only one parent expressed an opinion that the food provided at school was not worth the price. Again, most parents and students interviewed were of middle income status and found school lunches to be affordable; thus, our findings can neither confirm nor contrast what has been published on this issue in previous research.

In contrast to prior studies, we do not find socio-contextual variables to significant issues, with the exception of gender bias. As previously reported, female students tended to complain more about food taste, appearance and quality than did male students. Mirtcheva et al. found that the probability of NSLP participation was higher for males than it was for females, so it is possible that female students experience more food dissatisfaction with school lunches than male students (Mirtcheva et al., 2009). Aside from this, our findings fail to support a relationship between demographic variables and NSLP participation. (Bartfield et al., 2010; Duniflon et al., 2003; Turner et al., 2014). It is likely that there was too little variance in these factors within our study population to draw such conclusions. It is possible that with a larger and more diverse population the influence of demographic variable would have been apparent.

Conclusion

This study used qualitative methods to understand why it is that students might not choose to purchase school lunch (or receive it for free if they are eligible). Our findings offer new insight into NSLP participation because they explain and relate perspectives of three

stakeholder groups, telling the story of how school lunches are perceived, how they come to be perceived this way, and what can be done about it.

We examined how the decision of whether or not to purchase a school lunch is made and can conclude that, for those who have the luxury of choice the choice is most often shared between students and their parents. Students tend to choose whichever option gives them the food they like more, and likability is determined by perceived taste and appearance. For parents the issue is more complex, as there are many barriers preventing them from choosing to purchase school lunch for their children, yet there are factors which are influential enough to sometimes overcome these barriers: convenience and children's' preferences.

We wanted to understand why school lunch might not be appealing to consumers, and we know that parents and students find issues with taste and quality of the food, as well as time allotted for eating lunch, food allergies and more. There are many below the surface issues with federal and administrative restrictions as well as supply of food products with which nutrition staff and managers must struggle in order to produce satisfying meals. We also wanted to know how we might be able to promote participation in NSLP. It seems that by increasing convenience and appealing to students' food preferences, we may be able to mitigate the effect of participation barriers. We also know now that there are ways to work within federal regulations to improve taste and quality of foods, like creative seasoning and grant funded Farm to School programs. Schools should consider these strategies when looking to improve their school lunch participation.

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Tables and Figures

Table 1. *Focus Groups*

Participant Type	Number of Groups
School Nutrition Staff	1
School Nutrition Managers	1
Parents	2
Elementary School Students	
Boys	1
Girls	1
Middle School Students	
Boys	1
Girls	1
Total Groups	8

Figure 1. *Barriers to NSLP Participation*

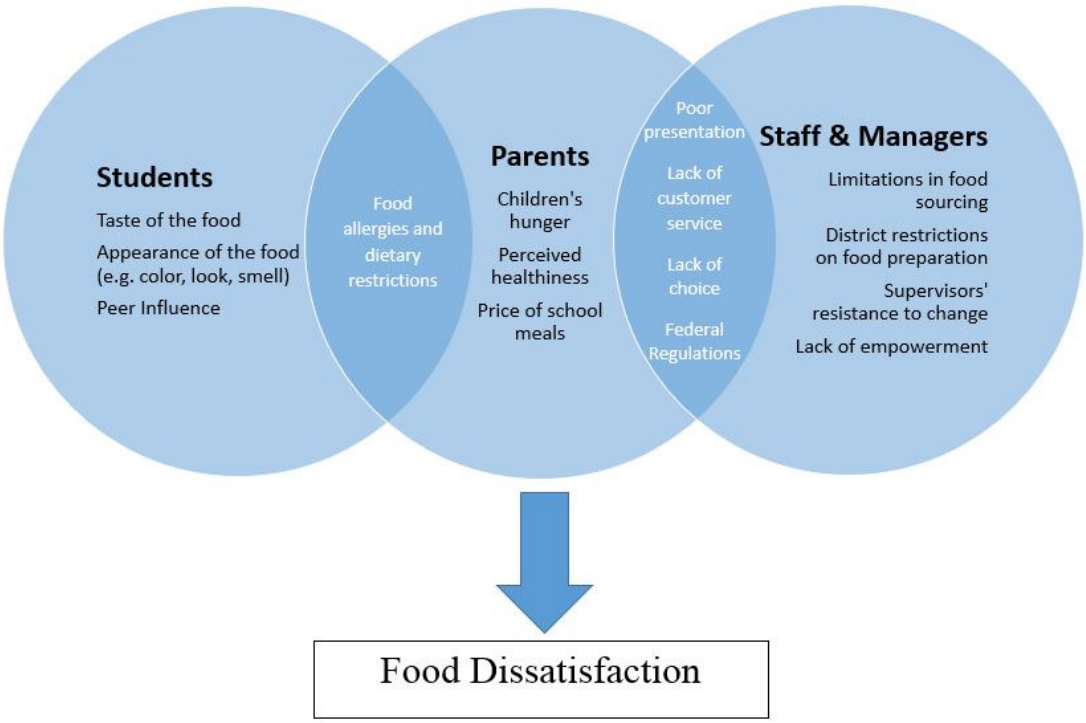
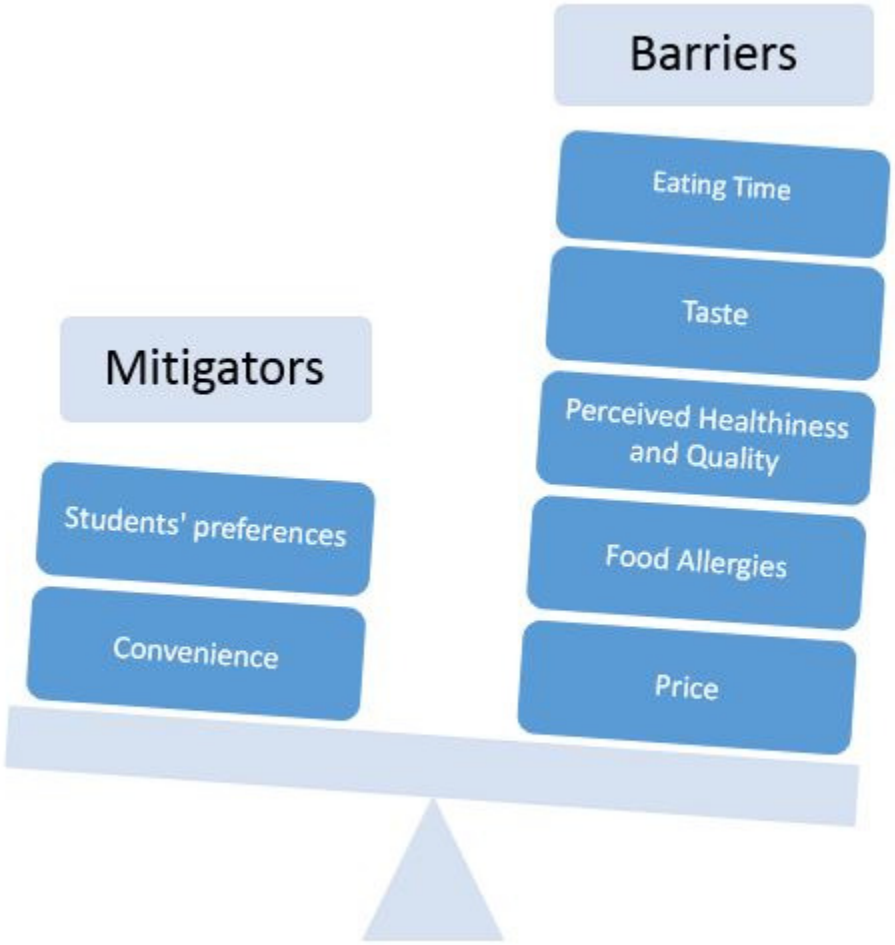


Figure 2. *Parents' Decision Process for Whether or Not to Purchase School Lunch*



Conclusions and Recommendations

The findings of this study will help to maximize effectiveness of HHFK as well as any nutrition intervention delivered through a school meal program. Below are results based recommendations for what can be done to improve NSLP participation and increase coverage of HHFK.

- Educate parents on content and nutritional value of school lunches, e.g. bring-your-parent lunches, school kitchen tours and cooking demos, taste testing
- Train school nutrition staff in ways to prepare, package and present food so that it is convenient visually appealing to students, e.g. fun food containers, garnish, baskets for fresh produce
- Train staff to promote school lunch in ways that attract and engage students and their parents, e.g. taste testing
- Train staff in customer service skills so that they may develop positive rapport with students and their parents
- Educate staff on how to season and improve taste of foods while maintaining adherence to HHFK regulations, e.g. use spices and herbs
- Provide opportunities for staff to be involved in school lunch program decisions and regulations, e.g. encourage submissions of new recipes, host town hall meetings for strategies to improve school lunch programs
- Provide choice and control to students in their school lunch options, e.g. made to order meals, build-your-own salad bar
- Increase lunch period or reduce waiting lines, e.g. through multiple lines or grab-and-go lunches, in order to maximize time allotted for eating
- Offer opportunities to school lunch programs for funding of programs to connect schools with local farmers and provide fresh foods to students, e.g. grant funding

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