

FOODSERVICE DIRECTOR AND SCHOOL ADMINISTRATOR'S KNOWLEDGE, ATTITUDES AND INTEREST/MOTIVATION TOWARDS FAMILY-STYLE MEALS IN SCHOOL FOODSERVICE SETTINGS

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ABSTRACT

Many schools serve meals in a traditional cafeteria style but family-style service is limited. The aim of this study was to assess knowledge, attitudes, previous exposure, and interest/motivation of foodservice directors/managers towards a family-style meal service in school settings. The survey was pilot-tested with a random sample of 20 foodservice directors/managers and subsequently administered to a convenience sample of 718 foodservice directors/managers. Test-retest reliability coefficients were weak to substantial ($r = 0.16$ to 0.80). Principal components analysis confirmed a six-factor model. Internal consistencies were substantial ($\alpha = .73$ to $.91$). Future research should focus on additional testing of the survey instrument on a broader scale.

Keywords: Family-style meals, foodservice directors, school-aged children, instrument development, and factor analysis

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INTRODUCTION

In 2012, the National School Lunch Program (NSLP) served school lunch to approximately 31 million children (United States Department of Agriculture, 2014). That same year, the United States Department of Agriculture (USDA) initiated a final rule to update NSLP and School Breakfast Program meal patterns and standards to better align them with the 2010 Dietary Guidelines for Americans (USDA, 2010) by requiring that the availability of fruits, vegetables, whole-grains, and fat-free or low-fat milk be increased in school meals (Federal Register, 2012). Since implementation of the final rule, over 90% of schools are meeting the new standards (First Focus, 2014). The objective of the Healthy Hunger-Free Kids Act is to improve the health and well being of children (Federal Register, 2012). This overarching philosophy has also been at the cornerstone of the NSLP since its inception in 1946 (Public Law 396, 1946). However, an important consideration should not only be what children are served, but the environment in which they are served.

Historically, family-style meals were observed in childcare centers, institutional settings (e.g. psychiatric facilities, nursing homes), and the home environment. A growing body of research has demonstrated the beneficial effects of family meals on the health and dietary behaviors of children including the self-regulation of intake of young children (Mogharreban & Nahikian-Nelms, 1996), opportunities for adult role modeling in childcare centers (Sigman Grant, Christiansen, Branen, Fletcher, & Johnson, 2008) and greater intake of fruits, vegetables, grains and key nutrients such as calcium, iron,

folate, fiber, and vitamins C, E, and B₆ (Burgess-Champoux, Larson, Neumark-Sztainer, Hannan, & Story, 2009; Christian, Evans, Hancock, Nykjaer, & Cade, 2013; Gillman et al. 2000; Larson, Neumark-Sztainer, Hannan, & Story, 2007; Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003).

A paucity of research assessing the use of a family-style meal service in school settings exists in the literature. Cain (1984) investigated the effect of a family-style versus a cafeteria-style meal service on student's food preferences, intake, and food waste. Students in grades 4-6 were randomly assigned to either condition and were served two different menus. Significantly greater intakes of key nutrients (e.g. protein, thiamin, riboflavin, niacin, and iron) and energy were reported among students in the family-style condition on one of two days compared to the cafeteria-style condition ($p < 0.05$). Overall, the family-style meal service was deemed acceptable by students and resulted in reduced plate waste. A subsequent study by Donnelly, Jacobson, Legowski, Johnson, & McCoy (2000) extended this work by assessing the effect of family-style versus the traditional method of service on student's dietary intake and food waste. Similar to the study by Cain (1984), students in grades 3-6 were randomized to either a family-style or traditional style of service. Although not statistically significant, the study reported that there were slightly greater intakes of energy, protein, and fat and less food waste among students in the family-style meal condition.

Food service directors are key stakeholders and decision makers with regards to operations and fiscal management in school foodservice settings. The aim of the present study was to develop and test a survey instrument that assessed the knowledge, attitudes, level of previous exposure, and interest/motivation of foodservice directors/managers towards a family-style meal service in school settings.

METHODS

Sample Overview

Participants ($n=20$) for the pilot sample were identified from the Minnesota Department of Education database (Minnesota Department of Education, 2014) and were randomly selected if they had the title, "Foodservice Director or Manager." Compensation was given in the form of a \$15 Target gift-card. Participants of the final sample ($n=718$) were identified from membership lists provided by State School Nutrition Associations (SNA) representing several geographic regions of the United States. State SNA's were contacted individually via telephone by the research team to obtain permission to release their state SNA membership list. Overall, six state SNA's provided their membership lists containing valid email addresses for 718 foodservice directors/managers. An email invitation containing a letter describing the study and survey objectives and a link to access

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the survey was sent to the 718 email addresses. Participants provided informed consent prior to completing the survey. To maximize the response rate, a follow-up email reminder was sent two weeks later to non-responders (Dillman, Smyth, & Christian, 2009). Participants who completed greater than 75% of the survey were entered into a drawing to win one of two Apple iPad Mini's. The University of Minnesota and St. Catherine University Institutional Review Boards approved the use of human subjects in this research prior to data collection.

Survey Development and Description

The survey was developed to assess participants' knowledge, level of exposure, attitudes, and interest/motivation concerning a family-style meal service in a school foodservice setting. Themes from individual interviews (n=8) and focus groups conducted with foodservice directors or school administration (principals) (n = 8), children (kindergarten, 3rd and 4th grade; n = 20), parents (n = 8), and teachers (n = 12) were used to inform development of the survey instrument. Study design and findings have been described previously (Street-Coborn, 2014).

Survey questions addressed demographic characteristics and participant's knowledge, attitudes, and interest/motivation towards a family-style meal service. Demographic characteristics included participant's current or most recent position, geographic location, registered dietitian status, percentage of students on free or reduced priced meals, and NSLP participation by grade level. Level of exposure to a family-style meal service was assessed by one question that asked participants if they had past exposure and/or experience with a family-style meal service. The USDA definition of a family-style meal service in a school lunch environment provided a framework for participants to answer questions that addressed knowledge, attitudes, and interest/motivation related to a family-style meal service in school settings (Food and Nutrition Services USDA, 2013-2014). The definition described common characteristics of a family-style meal service in a school foodservice setting, which included the following: (1) allowing students to serve themselves from common dishes of food and make choices in food selection, (2) supervising adults providing assistance during mealtimes, (3) encouraging of additional portions and selections by supervising adults, and (4) complying with daily and weekly NSLP food component/food item requirements (Food and Nutrition Services USDA, 2013-2014).

Following the definition, three items measured knowledge using a 5-point scale. The questions asked how similar the USDA definition was to their knowledge prior to completing the survey (1= not very similar to 5= very similar), how well participants understood the USDA definition (1= not at all well to 5= very well), and level of confidence in their ability to implement a family-style meal service based on the USDA definition provided (1= not very confident to 5= very confident). Attitudes related to the benefits (3 questions) and barriers (1 question) of a family-style meal service in a school foodservice setting were assessed using a 5-point scale (1= strongly disagree to 5= strongly agree). The four questions addressed the following: attitudes towards benefits of a family-style meal service, benefits of adult presence and supervision during a family-style meal service, benefits towards educational opportunities during a family-style meal service, and potential barriers to the application of a family-style meal service in a school foodservice setting. A total of four questions assessed participant's interest/motivation towards a family-style meal service in a school foodservice setting. Two questions asked participants to rate their level of agreement using a 5-point scale (1= strongly disagree to 5= strongly agree): interest in learning more about a family-style meal service in a school foodservice setting, and

motivation to learn more about a family-style meal service in a school foodservice setting. The preceding two questions also asked participants to rate their level of agreement using a 5-point scale (1= not at all interested to 5= very interested) to the following: 1) regardless of the barriers, how interested are you in learning more about the application of a family-style meal service; and 2) regardless of the potential barriers, how interested are you in learning more about the concept of a family-style meal service in a school foodservice setting?

The pilot sample of 20 foodservice directors/managers (female=90%, male=10%) were utilized to test the stability and reliability of the survey by administering the same survey, with the same participants, on two different occasions approximately 10-14 days apart. The research team revised all questions with correlations below 0.45 to enhance clarity and understanding.

Statistical Analysis

Data were analyzed using Statistical Analysis System (SAS, version 9.3, copyright 2002-2003, SAS Institute Inc, Cary, NC). The level of statistical significance was set at $p < 0.05$. Descriptive statistics including frequency distributions were generated for demographic characteristics and level of exposure. Spearman correlation coefficients were calculated to determine test-retest correlations for knowledge, attitudes, and interest/motivation between the two time intervals. Exploratory factor analysis using Principal components analysis with Varimax rotation was conducted to identify factors related to knowledge, attitudes, and interest/motivation towards a family-style meal service in a school foodservice setting. Factors with an eigenvalue of one or more were retained based on Kaiser criterion (Kaiser, 1960) and the scree plot test (Cattell, 1966). Factor loadings were considered "high" if the absolute value exceeded 0.40 (Costello & Osborne, 2011). To assess internal consistencies of the factor patterns, Cronbach alpha coefficients were calculated (Nunnally & Bernstein, 1994). Cronbach alpha > 0.7 were indicative of good to excellent internal consistency (Nunnally & Bernstein, 1994).

RESULTS AND DISCUSSION

Results

Response Rate and Participant Characteristics: A total of 233 surveys were completed out of the 718 sent to foodservice directors/managers resulting in an overall response rate of 32%. Data from survey respondents who did not complete more than 75% of the survey were discarded (n= 48). The final analytical sample included 187 usable surveys. The majority of participants indicated most recent position of Foodservice Director (78%), Foodservice Manager (13%), Foodservice Employee (2%), and other (7%). Eighty-one percent of participants stated they were not Registered Dietitians. Approximately one-fourth (26%) of participants indicated that they had a previous opportunity to serve family-style meals in a school foodservice setting. Slightly less than three fourths (71%) of participants indicated no previous opportunity, while the remaining participants (3%) responded "unsure".

Participants identified their geographic location as Midwest (54%), South (39%), and North East (7%) with nearly half (47%) indicating student enrollment less than 2,500. Percentage of students that received free or reduced price lunches ranged from 10-80% and the majority of participants ($> 95\%$) indicated that all grades in their district including elementary, middle, and high school participated in the National School Lunch Program (Table 1).

Table 1: Demographic Characteristics of Survey Participants (n = 187)

Characteristics	n (%)
Title	
Foodservice Director	145 (78)
Foodservice Manager	24 (13)
Foodservice Employee	4 (2)
Other ¹	14 (7)
Registered Dietitian²	
Yes	35 (19)
No	150 (81)
Geographic Location	
Midwest	102 (54)
South	73 (39)
Northeast	12 (6)
Student Enrollment³	
< 2500	86 (47)
2501-5000	35 (19)
5001-7500	7 (4)
7501-10000	12 (7)
10001-15000	15 (8)
15001-25000	11 (6)
25001-50000	6 (3)
> 50000	1 (.5)
NSLP⁷ Participation by Grade	
Elementary school ⁴	173 (99)
Middle school ⁵	175 (100)
High school ⁶	171 (99)

¹Titles listed as “other” included Foodservice Supervisor (district level), Nutrition Fund Coordinator, Head Cook, Consultant, Record Keeper, Foodservice Director Assistant, Registered Dietitian, Operations Manager, Camp Director, Food Service Director, Nutrition Coordinator (district level), and District Level Coordinator.

²Data missing from 2 participants who declined to answer the question.

³Data missing from 6 participants who declined to answer the question.

⁴Data missing from 14 participants who declined to answer the question.

⁵Data missing from 12 participants who declined to answer the question.

⁶Data missing from 16 participants who declined to answer the question.

⁷NSLP= National School Lunch Program

KNOWLEDGE, ATTITUDES AND INTEREST/MOTIVATION TOWARDS FAMILY-STYLE MEALS

Knowledge

Approximately 40% of participants indicated that the USDA definition of a family-style meal service was “somewhat similar” to their knowledge prior to completing the survey. Slightly less than one-fourth (20%) of participants indicated that the definition was “very similar” to their prior knowledge. Thirty-seven percent stated that they understood the USDA definition “very well.” Of the total participants, approximately 7% responded that they understood the USDA definition “not very well” or “not well”.

Responses related to confidence were not evenly distributed. Thirty-eight percent of participants indicated that they were not confident in their ability to apply a family-style meal service based on the USDA definition; whereas 20% felt neither confident nor un-confident. Alternatively, 32% felt confident and 9% felt very confident in their ability to apply a family-style meal service based on the USDA definition provided.

Attitudes

Approximately half of participants agreed that the application of a family-style meal service could provide students an opportunity to

socialize with adults during lunch (52%) and meet government regulations by offering all food components (50%). Only 3% of survey participants strongly disagreed with these items. Somewhat less than half (45%) agreed that the application of a family-style meal service could enhance a student’s willingness to try new foods, while 19% disagreed and/or strongly disagreed.

When asked about the benefits of having adult supervision during the use of a family-style meal service, over half (52%) of the survey participants agreed that the presence of a supervising adult would provide students with an opportunity to build social skills by conversing with adults and promote a holistic school environment (e.g. meeting the physical, mental and social factors for student development) (48%). Slightly more than half (58%) of the participants also agreed that the presence of a supervising adult could provide students with a role model to encourage positive selection of food components.

Approximately half of participants agreed that the family-style meal service should encompass “learning” where students learn about how food is acquired, produced, and served at school (48%) and learn about the health benefits of foods served (52%). A little over half (60%) also agreed that students should learn how to apply nutrition knowledge learned in the classroom to make healthy choices during lunch.

Overall, participants responded that the two greatest barriers to a family-style meal service would be money (56%) and adequate staffing (42%). Additional barriers included resources and lack of facility space.

Interest/Motivation

Two questions assessed participant’s interest/motivation towards a family-style meal service in a school foodservice setting. The first question assessed participant motivation to learn more about a family-style meal service. Approximately half responded that their interest in learning more would be motivated by increased student consumption of fruits and vegetables (50%), student willingness to try new foods (51%), and community engagement within the school environment (49%). Furthermore, approximately 40% of participants also responded that their interest in learning more would be motivated by increased student socialization with peers (40%) and adults (42%). The second question addressed participant interest in learning more about the use of family-style meals in a school environment. Participant interest in learning more about the family-style meal service was motivated by a reduction in plate waste (58%), followed by reduced production costs (48%), reduced overall costs (43%), the ability to meet food safety requirements (43%), and the ability to increase the number of reimbursable meals (40%).

Finally, participants were asked whether completion of the survey enhanced their interest and receptivity to the application of a family-style meal service. Roughly one-fourth (26%) indicated that completion of the survey had made them more interested and receptive to the concept and application of a family-style meal service in school settings. Lastly, regardless of the barriers, one fourth of participants were not at all interested in learning more about the application of a family-style meal service compared to 34% that were interested.

Exploratory Factor Analysis and Reliability Analysis

Principal components analysis identified six factors: one factor regarding knowledge, three factors regarding attitudes, and two factors regarding interest/motivation (Table 2). The one factor for knowledge, “Knowledge of A Family-Style Meal Service,” included two

items (three originally): similar, understand, and confidence. Factor loadings for the three items ranged from 0.83 to 0.66. The item “confidence related to a participant’s knowledge of a family-style meal service” was removed to increase the internal consistency from moderate ($\alpha=0.68$) to substantial ($\alpha= 0.73$).

Three factors regarding attitudes included the following: factor one, “Attitudes Towards Family-Style Meal Service Benefits”, factor 2, “Attitudes Towards Family-Style Meal Service Benefits Aside From Nutrition”, and factor three, “Attitudes Towards Family-Style Meal Service Barriers”. Factor one contained four items (five originally): opportunity to socialize with adults, enhance a student’s willingness to try new foods, opportunity to build social skills by conversing with adults, and provide an adult role model. One item, “promotes a holistic school environment”, was removed because it cross-loaded onto multiple factors. Factor two contained four items and all of the

items loaded at least 0.40; therefore, none were discarded. Lastly, factor three contained six items with the highest loadings observed among the following items: money (0.70), facility space (0.71), and resources (0.71). Factor loadings for the three factors ranged from 0.52-0.86 and internal consistency for factor one ($\alpha= 0.91$), factor two ($\alpha= 0.82$), and factor three ($\alpha= 0.79$) was substantial.

Two factors regarding interest/motivation included factor one, “Interest/Motivation Towards a Family-Style Meal Service Based on Ability to Reduce Potential Barriers,” and factor two, “Interest Towards a Family-Style Meal Service Based on Ability to Enhance Children’s Physical and Social Health.” Factor one contained five items, none of which were removed. Factor two contained two items (seven originally). Five items (student consumption of fruits and vegetables, student willingness to try new foods, community engagement in school environment, serving of healthier, less processed food to students, and connection between home and

Table 2. Factor Loadings and Internal Consistency Reliabilities for Family-Style Meal Scales (n = 187)

Factor and Items	Factor Loadings ¹	Cronbach α ²	% Variance Explained	Item Mean (SD) ³
<i>Knowledge</i>				
F1: Knowledge of a Family-Style Meal Service		.73	61%	
Similar ⁴	.83			3.62 (1.07)
Understand ⁵	.84			3.99 (0.94)
<i>Attitudes⁶</i>				
F1: Attitudes Towards Family-Style Meal Service Benefits		.91	33%	
Enhance a student’s willingness to try new foods	.67			3.40 (0.96)
Provide student’s an adult role-model	.76			3.70 (0.85)
Opportunity to socialize with adults	.77			3.49 (0.87)
Opportunity to build social skills by conversing with adults	.86			3.55 (0.88)
F2: Attitudes Towards Family-Style Meal Service Aside From Nutrition		.82	17%	
Meet government regulations by offering all food components	.56			3.58 (0.99)
Learn about how food is acquired, produced, and served at school	.75			3.42 (0.90)
Learn about the health benefits of food served	.80			3.68 (0.86)
Apply the nutritional knowledge they learned in the classroom to make healthy choices during lunch	.81			3.78 (0.80)
F3: Attitudes Towards Family-Style Meal Service Barriers		.79	8%	
An easy method to assess that federal regulations are met for reimbursable meals	.52			3.54 (1.42)
Adequate staffing	.59			4.52 (0.75)
Preparation time	.65			3.96 (1.07)
Money	.70			4.07 (1.03)
Facility space	.71			3.91 (1.09)
Resources	.71			4.11 (0.97)
<i>Interest/Motivation⁷</i>				
F1: Interest/Motivation Towards A Family-Style Meal Service Based On Ability To Reduce Potential Barriers		.89	52%	
Reduced plate waste	.70			3.89 (0.93)
Meeting food safety requirements	.78			3.67 (1.09)
Increase the number of meals reimbursed	.82			3.82 (0.99)
Reduced overall cost	.82			3.79 (1.03)
Reduced production cost	.87			3.47 (0.98)
F2: Interest/Motivation Towards A Family-Style Meal Service Based On Ability To Enhance Children’s Physical And Social Health		.89	15%	
Student socialization with adults	.81			3.47 (0.93)
Student socialization with peers	.82			3.41 (0.93)

¹ Factor loadings refer to correlations between factors and variables that emerged from the principal components analysis.

² Measures the reliability of internal consistency between multiple item scales.

³ SD, standard deviation

⁴ Total n= 187 with all items scored on a scale of 1-5 (1= not at all similar and 5= very similar).

⁵ Total n= 187 with all items scored on a scale of 1-5 (1= not very well and 5= very well).

⁶ Total n= 181 with all items scored on a scale of 1-5 (1= strongly disagree 5= strongly agree).

⁷ Total n= 130 with all items scored on a scale of 1-5 (1= not at all interested and 5= very interested).

school environment) were removed because they cross-loaded onto multiple factors. Factor loadings ranged from 0.70 to 0.82 and internal consistency for factor one ($\alpha = 0.89$) and factor two ($\alpha = 0.89$) was substantial

DISCUSSION

To our knowledge, this is the first study to assess knowledge, attitudes, level of previous exposure, and interest/motivation of foodservice directors/managers towards a family-style meal service in school settings. Exploratory factor analysis established a six-factor model to explain these scales.

The majority of participants held the title, foodservice director and were not Registered Dietitians. Additionally, almost 100% of participants indicated that all grade levels participated in the National School Lunch Program. These findings are similar to previous survey results conducted with foodservice directors or other food and nutrition personnel (Rosen, Arndt, & Marquart, 2013).

Survey results indicated that forty percent of participants felt that the USDA definition of a family-style meal service was similar to their knowledge prior to completing the survey. Additionally, 37% responded that they understood the USDA definition. However, only 9% of participants felt confident in their ability to apply a family-style meal service in a school setting based on the definition provided. Inadequate knowledge may best be explained by lack of exposure to family-style meals in school settings. Only 26% of participants had previous exposure to a family-style meal service, whereas the majority (71%) did not. Overall, this lack of knowledge suggests a need to train foodservice directors and school personnel on the standard operating procedures related to the incorporation of a family-style meal service in a school foodservice setting.

Attitudes of foodservice directors and school personnel were also assessed. Identified barriers to a family-style meal service were lack of money, facility space, resources, and adequate staffing. An additional barrier identified in the present study was plate waste. Over half (53%) of participants indicated that they would be interested/motivated to move towards a family-style meal service based on the ability to decrease plate waste. These potential barriers are consistent with published survey results from school food authorities related to the challenges they face when implementing new meal standards (PEW Charitable Trusts & Robert Wood Foundation, 2013). Based on this evidence, it seems plausible that changes to the foodservice delivery method, such as implementing a family-style meal service, might present similar challenges to those resulting from the incorporation of new meal standards. Future research should examine the effect of a family-style meal service in minimizing these barriers.

Previous research has shown that the use of a family-style meal service in childcare and nursing home settings can result in increased socialization and communication for participants during mealtimes (National Food Service Management Institute, 2003). Although minimal research has explored the relationship between a family-style meal service and its effect on a child's socialization and communication during school mealtimes, our survey results support the concept. Over half (52%) of participants agreed that children could build social skills by conversing with adults during a family-style meal service. Furthermore, participants indicated that interest in learning more about a family-style meal service would be motivated by increased student socialization with peers (40%) and adults during mealtimes (42%). Interestingly, only 11% of participants disagreed with these statements. These results suggest that foodservice

directors/managers are not solely focused on meeting children's physical needs through nutrition and compliance with school meal standards. Rather, our findings suggest that foodservice directors/managers are concerned with other dimensions of a child's health such as their social development.

Exploratory factor analysis using principal components analysis with varimax rotation revealed a one-factor solution for knowledge, a three-factor solution for attitudes, and a two-factor solution for interest/motivation. Attitude factor two may need further development because three of the four items (learn about how food is acquired, produced, and served at school; learn about the health benefits of food served; and apply the nutritional knowledge they learned in the classroom to make healthy choices during lunch) cross-loaded onto factor one.

Two factors were identified for interest/motivation. Five items from factor two were removed because they cross-loaded onto more than one factor. Additional development and testing of this factor is needed. Because this factor is related to social health, participants may not have understood the context of the items in relation to a school foodservice setting because social health is not a dimension of health that is often considered when serving school meals to children. Currently, the emphasis has been solely on promoting the physical health of children by improving the nutritional quality and quantity of foods served (Cohen, Richardson, Parker, Catalano, & Rimm, 2014; Hanks, Just, & Wansink, 2014; Sallis et al. 2003).

CONCLUSIONS AND APPLICATIONS

This survey is a reliable and valid instrument to measure the knowledge, attitudes, and interest/motivation of foodservice directors/managers towards a family-style meal service in a school foodservice setting. Overall, the study found that foodservice directors/managers understood the definition of a family-style meal service despite having limited exposure prior to the survey. The majority of foodservice directors/managers were also receptive and interested in learning more about this style of service and its application in a school foodservice setting. Attitudes towards family-style meal service benefits were relatively positive. Survey responses indicated that foodservice directors/managers care about the potential positive impact of a family-style meal service on the development of a child's physical, social, and mental health. However, concern was expressed towards logistical barriers such as money, facility space, resources, and, adequate staffing.

Overall, future work in this area should use the present study findings to further examine potential barriers, promoters, and feasible strategies for implementing a family-style meal service in a school foodservice setting. Moreover, study findings can be utilized to develop additional surveys targeted towards other stakeholders involved in school foodservice such as, parents, teachers, school district personnel and government or state officials. Adoption of a family-style meal service may impact the implementation and oversight of the current school meals program nutrition standards. Therefore, surveying federal and state government officials to identify strategies to further meet the NSLP guidelines / regulations with a family-style meal service may help clarify the logistical challenges and opportunities within the food delivery system, kitchen preparation, and service area (e.g. portion sizes, food component requirements) in the cafeteria. Additional work in this area that addresses the potential positive impact of a family-style meal service in school settings on the social and emotional health of children is also warranted. This might include the influence of a family-style meal service on adult-role modeling, adult-child interactions and peer relationships.

The present study has limitations that should be considered when interpreting the results. First, the recruitment of participants was an inherent limitation because a convenience sample of foodservice directors/managers was generated from select states rather than a random national sample. The primary reason for this limitation was that consent was not provided by each state's SNA to obtain their membership lists which resulted in a relatively low overall response rate (32%). Administration of this survey with a larger, geographically diverse sample is warranted to confirm the factor structure. Lee, Kwon, and Sauer (2013) reported that low response rates among foodservice directors could be attributed to limited access to the Internet. Past research suggests that the range of response rates for an online survey can be wide, between 6-75% (Sheehan & McMillan, 1999). Although the response rate was relatively low, it was within the range (24-50%) of response rates of foodservice directors or other food and nutrition personal previously reported in the literature (Gilmore, O'Sullivan Maillet, & Mitchell, 1997; Rogers, 2003; Rosen, Arndt, & Marquart, 2013; Lee, Kwon, & Sauer, 2013).

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