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Characteristics of Youth Food Preparation in Low-Income, African American Homes: Associations with Healthy Eating Index Scores

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Abstract

This study explores food preparation behaviors, including types of food prepared, methods of preparation, and frequency of preparation of low-income urban African American youth ages 9–15 in Baltimore City (n=289) and analyzes a potential association to diet quality as measured through Healthy Eating Index 2010 (HEI) scores. Overall, youth prepared their own food 6.7 ± 0.33 times per week without significant differences between age groups or genders as measured through pairwise comparison of means. Cereal, noodles, and sandwiches were amongst the foods prepared most frequently. Linear regression analysis found youth food preparation frequency was not significantly associated with total HEI ($p=0.59$), sodium ($p=0.58$), empty calories ($p=0.96$), or dairy scores ($p=0.12$). Younger age was associated with higher total HEI scores ($p=0.012$) and higher dairy scores ($p=0.01$) and female gender was associated with higher total HEI scores ($p=0.03$), higher sodium scores ($p=0.03$), and lower dairy scores ($p=0.008$).

INTRODUCTION

Childhood obesity is a prominent issue in the United States with 31.8% of children ages 2 to 19 years overweight and 16.9% obese in 2011–2012 (Ogden et al. 2014.). Childhood weight status often continues into adulthood and is a risk factor for later diabetes, heart disease, and hypertension (Maffei and Tato 2001, Han, Lawlor and Kimm 2010, Reilly and Kelly 2001, Franks et al 2010.). Furthermore, minority children are disproportionately affected by higher rates of obesity with 35.2% of Non-Hispanic black children classified as overweight and 20.2% classified as obese compared to their white counterparts with 28.5% classified as overweight and 14.1% classified as obese (Ogden et al 2014, Weden, Brownell and Rendall 2012). With a number of factors contributing to the high rates of obesity in African

American youth, understanding their current diet quality and contributions to diet quality is of importance.

Youth ages 10–16 are often driven by taste of foods and convenience (Christiansen et al 2013) rather than healthiness of foods when making food choices and also cite encouragement in the family setting as a support for healthy eating (Shepherd et al. 2006). In children aged 2–18, increased energy intake from 1977–2006 was associated with an increase in energy eaten away from home (Poti and Popkin 2011) and family meal frequency and overweight status were found to be inversely related in early adolescent females (Fulkerson et al 2008). In adults, time spent cooking decreased as did nutrient density from 1965–2008 (Smith, Ng, Popkin 2013). Yet little work has been done to explore youth's food preparation patterns, and how it relates to their dietary patterns and obesity risk. Previous studies in Baltimore City found that low income children ages 10–16 are purchasing and preparing their own food, and that it potentially negatively contributes to their diet quality with common food purchases of sugar sweetened beverages, chips, and candy and greater food preparation being associated with higher BMI (Christiansen et al 2013 and Kramer et al 2012). In a recent analysis of the question “do you cook” in a school-based food education program, 79% of children reported cooking, 42% reported making food with friends, and 87% reported making food with family (Cunningham-Sabo and Lohse 2013). However, less is known about the contribution of food that youth prepare for themselves in relationship to their food intake or the potential they have to improve their personal food preparation methods as a means of improving their overall diet quality.

Recent studies have reached conflicting conclusions concerning the food preparation of children, adolescents, and young adults, and its relationship to health. Youth food preparation, in a Baltimore City population, has not been found to be significantly linked to factors such as food knowledge, food self-efficacy, or food-related disease outcome expectancy (Kramer et al 2012). Youth who cooked more frequently compared to those who cooked less frequently were observed to utilize less healthy food preparation methods however it was clear this was a complicated relationship. Caregiver cooking methods and youth cooking methods were associated and youth with higher SES used healthier cooking methods (Kramer et al 2012). These multiple factors could relate to children having an unhealthier intake upon preparing their own foods. However, adolescents helping with food preparation had higher intakes of fruits and vegetables, fiber, folate, and Vitamin A in a sample of students enrolled in 31 Minnesota middle and high schools (Larson et al 2006).

Despite the growing interest in food preparation and culinary education in youth (U.S Department of Agriculture and US Department of Health and Human Services 2010, Lichtenstein and Ludwig 2010, Nelson, Corbin and Nickols-Richardson 2013), little work has been done to fully understand youth food preparation patterns in low income households. Furthermore, food preparation in these low income environments in relation to diet quality has not been fully explored. Children and youth in these low income areas frequently live in an obesogenic environment making them a high risk population for obesity and poor diet quality (Swinburn et al 2011). Information regarding the characteristics of youth food preparation and the relation of preparation to diet quality could aid in effective

program development and best use of resources to address the obesity epidemic and diet quality of youth.

This paper serves to address this gap by using baseline data from the B'More Healthy Communities for Kids, a multi-level systems-based child obesity prevention program (Gittelsohn et al 2014). The following research questions are addressed in this paper: 1.) How often are low-income primarily African American youth preparing their own food and with what techniques? 2.) How are age and gender associated with youth food preparation frequency and food preparation methods? 3.) What is the association between youth food preparation patterns and diet quality (as measured by the USDA Healthy Eating Index 2010)?

METHODS

Study Design and Sample

This paper presents baseline data of 289 youth from an ongoing obesity prevention trial being conducted in Baltimore City (Table 1). The B'More Healthy Communities for Kids (BHCK) trial is a multi-level, multi-component study that aims to increase the demand for and access to healthy and affordable foods through integrated interventions at the individual, family, youth-leader, recreation center, food store, carryout restaurant, wholesale, and policy levels in 30 neighborhoods (Gittelsohn et al 2014). The sample used for this analysis is a subset of the larger study drawn from wave 1 data of 14 low-income, predominantly African American neighborhoods that are defined as food deserts- "An area where the distance to a supermarket is more than one quarter of a mile; the median household income is at or below 185 percent of the Federal Poverty Level; over 40 percent of households have no vehicle available; and the average Healthy Food Availability Index score for supermarkets, convenience and corner stores is low, measured using the Nutrition Environment Measurement Survey" (Center for a Livable Future 2012).

Child-adult dyads were actively recruited from low income African American neighborhoods and nearby recreation centers. A list of potential dyads was created and screened for eligibility. Dyad eligibility criteria included: 1) a child between the ages of 10 and 14 when recruited and a caregiver willing to participate; 2) residence within a mile and a half radius of the recreation center in the neighborhood; 3) have no intentions of moving within the next two years. Among those recruited and screened, 24 were randomly selected to be interviewed in each recreation zone. If a randomly selected dyad was unable to complete the interview, then the next eligible dyad was chosen from the recruitment list.

Measures

The child interview consisted of two instruments – the Block Kids 2004 Food Frequency Questionnaire (FFQ) and a Child Impact Questionnaire (CIQ). The Block Kids 2004 FFQ instrument (NutritionQuest 2014) is a semi-quantitative, validated FFQ that asks about frequency and portion consumption of 77 common food items. Completed FFQs were sent to be analyzed by NutritionQuest and the information provided included estimated macro and micronutrient intakes for each child. The CIQ consisted of 79 questions pertaining to

demographics, food purchasing, food preparation, intentions about food, outcome expectancies, self-efficacy, food knowledge, social support, and breakfast consumption that have been previously used in this population (Dodson et al 2009, Gittelsohn et al 2013). The survey was adapted from literature (Gittelsohn et al 2009) and field tested. Parents were interviewed about similar components in an Adult Impact Questionnaire (AIQ) as well as household income (data not reported in this study).

Youth food preparation data included frequency of food preparation by both the youth participant and the caregiver, a list of the foods prepared by the youth participant, and the food preparation method used for each food listed. During the data collection session, trained interviewers explained that food preparation included combining any two ingredients (such as cereal and milk), or the heating of a food item (such as baking frozen chicken nuggets). Participants were reminded to think about meals and snacks consumed over the past 7 days. They were asked: "In the past 7 days, how often did a member of your household prepare food for you?" with the answer options of never, 1 time per week, 2–3 times per week, 4–6 times per week, 1 time per day, or 2 or more times per day. They were then asked "In the past 7 days, how often did you prepare food for yourself or others (including making yourself lunch)?" with the same answer options. Youth were asked to recall all the foods they had prepared in the past 7 days and the method of preparation. Preparation methods included the following responses: fried, baked, microwaved, not cooked, or other (grilled, broiled, added boiling water, etc). Anthropometric data (height and weight) were collected using a Seca 213 Portable Measuring Rod stadiometer and a Tanita BF697W Duo Scale.

Data collectors were public health students and staff that underwent an extensive training and certification on each of the data collection instruments. Data were checked for error and missing data by the interviewer following the interview, a second party after the interview, entered by a third party, and finally cleaned. This study was approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board. Children and the caregiver received \$30 and \$20 respectively, in gift cards for interview participation. Written informed consent was gathered from both the child and caregiver.

Calculation of the Healthy Eating Index 2010 Scores

Overall diet quality was scored using the Healthy Eating Index (HEI) 2010 (Guenther et al 2010) based on the participants' Block Kids Food Frequency Questionnaire data. Output variables from the Block FFQ were coded in order to calculate the participants' HEI scores. Methods that were used to derive variables needed to produce HEI scores are described here.

Whole Fruit. Whole fruit was calculated by subtracting the juice consumption from total fruit consumption. **Dairy.** Nonfat portions of milk, cheese, and yogurt were summed for the dairy variable. The nonfat portion of milk was calculated by multiplying the milk intake by the nonfat portion, ie the cups of milk multiplied by 0.98 for two percent milk. Based on estimation from the USDA National Nutrient Database for Standard Reference (U.S. Department of Agriculture 2013) cheese was estimated as 26% fat, and yogurt was estimated as 1.5% fat. The values for milk, yogurt and cheese were then added together. **Total Protein Foods.** Meat, poultry, eggs, seafood, nuts, seeds, and soy were counted as total protein. The

Block FFQ provides soy foods output in cups. In order to convert cups of soy to ounces, the soy foods variable was multiplied by 222.8, the gram average of a cup of tempeh, soy sauce, miso, edamame, soybean, and tofu, (US Department of Agriculture 2013) then converted to ounces. Fat was not eliminated from protein sources as that information was unavailable from Block FFQ. **Greens and Beans.** As indicated by the HEI standards, if the protein intake was below the maximum standard of 2.5 ounces/1000 kcal, the beans and peas were counted in total protein foods and the amount not needed to meet the total protein foods standard was scored as the greens and beans category along with other dark green vegetables. **Empty Calories.** Alcohol consumption was not assessed in the Block FFQ and was therefore not included in the empty calorie category- only added sugars and solid fats were included. The remainder of the standards was followed as outlined by the Healthy Eating Index standards (Guenther et al 2013). The intake values were converted into per 1000kcal values. A score for each category was derived using proportions of the points for the maximum standard. Finally, each category score was added up for the total Healthy Eating Index score. An individual with a higher Healthy Eating Index Score is considered to have a better diet quality (Guenther et al 2013).

Statistical Analysis

Data Analysis was performed using STATA IC 13(StataCorp 2013) software. The youth were grouped by sex and age with younger participants as ages 9–12 and older participants as ages 13–15 to reflect possible differences in developmental abilities to prepare food and differences in dependence on a caregiver. Youth's responses were counted and categorized into the number of times another member of the household prepared food for them, the number of times the child prepared food for themselves, and the child's type of preparation methods. In order to calculate the frequency of food preparation by others and by the child in one week, the responses with ranges were averaged, for example, a food preparation question with the response "4–6 times per week" was counted as 5 times a week. The most conservative approach was taken for the response "2 or more times per day" and it was recorded as food preparation 14 times a week. Preparation method was examined within each age and sex group. The number of foods prepared with a method in an age and sex group was divided by the total foods prepared in the same group. For example the number of fried foods prepared by Males 13–15 was divided by the total number of foods prepared by Males 13–15. This resulted in the percent of foods prepared by using the methods of frying, microwaving, raw, baked and other.

Multiple linear regression analyses were performed to examine the relationship between child food preparation frequency and the outcome variable of individual total Healthy Eating Index 2010 scores, as well as the components of empty calories, sodium, and dairy. Participants with unreasonable caloric intake greater than 5,000 and less than 500 were eliminated. Elements of age, sex, frequency of household food preparation, and BMI percentiles were also considered in the model based on knowledge of the literature concerning these factors relationship to diet quality (Kumanyika 2008, Patrick and Nicklas 2005, Ebbeling, Pawlak and Ludwig 2002). Data was checked for normality and $p < 0.05$ was considered significant. Measures of model fit were assessed by the residual, q-q and kernel density plots.

RESULTS

Characteristics of Youth Food Preparation, Frequency of Preparation and Diet Quality

Our sample of African American youth frequently prepared food for themselves with a weekly average of 6.7 ± 0.33 times. Household and child preparation frequency did not differ significantly between any age or sex group (Table 2). Healthy Eating Index Scores were higher in males ages 13–15 compared to males 9–12 ($p < .05$). HEI scores in females ages 9–12 were significantly greater than males 13–15 ($p < .01$).

Foods Prepared

The ten most commonly foods prepared by youth in this sample is reflected in Table 3. Males 13–15 had four foods “tied” at the tenth place therefore all are seen in the table. Cereal was the most commonly prepared food for all age and sex groups however the frequency slightly differed with the frequency percentages ranging from 22.0% (Males 13–15) to 13.9% (Females 13–15). Males 9–12 prepared a total of 39 different types of foods, Males 13–15 prepared 33 different types of foods, Females 9–12 prepared 56 different types of foods, and Females 13–15 prepared 32 different types of foods. Most of the foods prepared were items that required basic skills, few ingredients, little equipment and the ingredients or foods could be found easily in an urban food environment comprised mainly of corner stores and carry-outs. Examination of the ratio of each cooking method in relation to the total foods prepared in each age and sex group showed that for all groups except for Females 13–15, raw preparation was the most commonly used. For both females and males of the younger age group, microwaving was a close second. For males 13–15, frying was the second most commonly used (Table 5).

Food Preparation and Healthy Eating Index Scores

No significant association was found between frequency of youth food preparation and total HEI score ($p = 0.59$) and no association was found between the frequency of youth food preparation and the HEI sodium ($p = 0.39$), empty calories ($p = 0.58$), or dairy scores ($p = 0.12$). (Table 4). Older age was associated with lower HEI scores ($p < 0.05$) and lower dairy score ($p = 0.01$) and sex was significantly associated with HEI scores with females having higher scores ($p < 0.5$) and males having higher dairy scores ($p < 0.01$).

DISCUSSION

This study sought to describe and examine the extent to which youth ages 9–15 are preparing food in the home and the type of cooking methods they use. On average, youth were preparing food for themselves about one time per day or about six to eight times per week. The frequency of youth food preparation in this sample substantially contributes to their diet which is consistent with previous research in Baltimore City and other urban settings (Kramer et al 2012, Dodson et al 2009, Ebbeling et al 2002, van der Horst, Ferrage and Rytz 2014).

The males and females in this population did not significantly differ in the frequency of food preparation which is inconsistent with traditional roles in the African American household

(Laska et al 2011, Kumanyika et al 2007, Lucan et al 2012). Although this finding may be due to the broad definition of ‘cooking’ used in this study (i.e. combination of any two foods, or heating of a food) and the younger age of the children. The most commonly prepared food was breakfast cereal which is not surprising as this is one of the more simple foods children could be preparing. The most commonly prepared foods ranged in nutritional quality with both higher fats foods such as hot pockets and French fries as well as lower fat foods such as oatmeal on the list. This list provides valuable insight into the types of foods low income urban African American youths are preparing.

In most groups raw preparation was most commonly used; however frying was also frequently seen within the older age groups. This is logical as frying is a more advanced method of cooking and would be more feasible for a young adolescent. The increase of frying in the older ages may contribute to younger ages having higher HEI scores. If youth are frequently preparing food with potentially high fat cooking methods, this will not improve their diet quality. In addition, if youth are cooking their own food they may be eating alone in their rooms or in front of a television (Dodson et al 2009) which could be leading to general unhealthy eating habits translating into a lower HEI score.

While child food preparation could be possible point for intervention, child food preparation frequency was not found to be associated with the total Healthy Eating Index scores or the components of dairy, sodium, and empty calories. Therefore increasing child cooking frequency may not be the best method to improve diet quality. The lack of association between HEI scores and greater food preparation may be related to the types of foods children are preparing, or may be an indication that other sources such as food they choose from their surrounding food environment, or the food prepared for them, have a larger impact on their diet quality. Older age was associated with a lower Healthy Eating Index Score. As children approach adolescence their diet may worsen as they gain greater dietary autonomy, choose more junk food and snacks between meals, and eat more foods away from home (Christiansen et al 2013, Jenkins and Homer 2005). Also the higher proportion of foods utilizing frying methods, may be adding additional fat to their diet.

Because youth in this sample were preparing foods an average of 6.7 ± 0.33 per week with caregivers preparing food for them an average of 9.14 ± 0.31 times per week, the caregiver preparation may also have a large effect on the HEI. Although frequency of preparation was not significantly associated with HEI scores, the actual food that the caregivers are preparing is unknown for this sample. In a previous study in Baltimore, having meals prepared by a caregiver was associated with higher BMI-for-age percentile for youth ages 10–15 but healthier cooking methods used by the caregiver was associated with reduced risk of overweight or obesity (Kramer et al 2012). Food preparation by the caregiver is also a complicated aspect of diet quality and obesity research with factors such as home greater availability of food preparation supplies (Appelhans et al 2014) being associated with greater food preparation but lower education attainment, higher levels of work-life stress, and low-levels of family function being associated with lower healthfulness of meals (Neumark-Sztainer et al 2012). Further research needs to be done on both the types of foods caregivers are preparing for youth and the affect that may have on what youth subsequently prepare for themselves.

An issue that must be taken into account when drawing conclusions from this data, is the food environment in Baltimore City. African-American lower-income neighborhoods have a lower availability of healthier food sources than white higher-income neighborhoods in Baltimore and across the country (Franco et al 2008, Powell et al 2006). A previous study in Baltimore with youth 10–16 years old found that youth were unlikely to go to food sources that were not within walking distance. When youth described these food sources, many indicated that fruits and vegetables were often not available (Christiansen et al 2013). Youth will only be able to prepare either what they purchase or what their caregiver purchases at the surrounding food sources, which in this situation is primarily corner stores, fast food restaurants and carry-out restaurants (Gittelsohn et al 2014). In addition, the foods they do prepare are therefore more frequently the convenience version possibly due to a lack of raw ingredients.

While a lack of cooking or food preparation skills, along with a lack of nutritional knowledge can be a barrier to more healthful eating (Plötz et al 2011), this study did not support that more frequent youth food preparation or food preparation methods are associated with better diet quality. When children help with food preparation, they may be more inclined to increase their intake of those foods (van der Horst et al 2014), so food preparation interventions should target the actual foods children are cooking, the skills and knowledge to prepared healthy foods and possibly caregiver food preparation as well. In addition, food access and the food environment should be taken into consideration when designing these interventions as this may be a larger driver for diet quality.

Strengths and Limitations

This study had a few limitations. The cross-sectional nature of the data does not permit us to establish a causal relationship between the variables examined. Unfortunately, many fruits and vegetables eaten on their own would not fit into the questionnaire definition of “food preparation.” Therefore, it is difficult to assess if children in this sample were choosing these foods at home or at the store to consume without “preparing” them. In addition, food purchasing and the surrounding food environment were not taken into consideration in this analysis. Both of these factors substantially contribute to youths’ diets (Surkan et al 2011, Dennisuk et al 2011). The main strength of this study is that it provided an in-depth look at youth food preparation in low-income, predominately African American urban households. This study provides valuable information about youth behavioral food preparation patterns that can be used in intervention development with regards to child food preparation, including teaching healthier versions of the foods children prepare.

CONCLUSIONS

Low-income African American youths are involved in food preparation and therefore contribute to their food consumption and diet quality. While the frequency of food preparation were not associated to overall better diet quality in this sample, this is not completely surprising upon closer examination of the foods they are preparing. The addition of nutrients in food preparation patterns of youth could be beneficial, however this analysis supported that the main factors contributing to diet quality is beyond what they are preparing

for themselves. The lack of finding of association between preparation and the empty calorie score may indicate that the main source of higher fat, higher sugar foods are from other food sources. If a food preparation education approach is taken, adding foods such as fruit and vegetables into the preparation habits of children could be beneficial to better their diet quality; however the food sources and accessibility must also be taken into account.

Examining other areas that contribute to youth diet quality also need to be considered when developing programs for improved diet quality and decreased childhood obesity in urban youth. Because youth are contributing to their diet through food preparation and they also have the autonomy to make their own food purchases (Surkan et al 2011, Dennisuk et al 2011), intervention programs should focus on a well-rounded approach to improving diet quality taking into consideration food preparation, food purchasing, and food availability. We are currently testing a cooking curriculum developed around foods children commonly ate and what they could find in an urban corner store. In our pilot, children were receptive to trying new foods and increased the types of foods they cooked. While this was a small sample of ten children, similar interventions may be helpful to improving diets of low income children.

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TABLE 1

DESCRIPTIVE CHARACTERISTICS OF LOW-INCOME AFRICAN AMERICAN CHILDREN (n=289)

Age	
Mean ±Standard Deviation	11.9±1.52
Sex	
% Female	53.6%
BMI Categories (%)	
Underweight	0.7
Normal Weight	53.3
Overweight	22.8
Obese	22.2

CHARACTERISTICS OF FOOD PREPARATION PER WEEK AND DIET QUALITY IN AFRICAN AMERICAN CHILDREN BY SEX AND AGE

TABLE 2

	Males Ages 9–12 n=80 (28%)	Males Ages 13–15 n=54 (19%)	Females Ages 9–12 n=100 (35%)	Females Ages 13–15 n=55 (19%)	Total
Frequency of Child Food Preparation ² Mean ±SD	6.35±0.65	7.83±0.79	6.65±0.55	6.58±0.76	6.7±0.33
Frequency of Household Food Preparation ³ Mean ±SD	8.9±0.59	8.10±0.72	9.73±0.54	9.32±0.72	9.14±0.31
Healthy Eating Index Score ⁴ Mean ±SD	55.3±1.14 ^b	51.7±1.39 ^{ab}	57.8±1.02 ^a	54.7±1.38	55.4±0.61

¹ Food Preparation defined as the combination of any two ingredients

² Child Food Preparation was any food prepared by the participant in the last 7 days

³ Household Food Preparation was any food prepared for the participant by a family member

⁴ Healthy Eating Index Scores are calculated by Block Kids Food Frequency Questionnaires

a= differences p<0.01

b= difference p<0.05

TEN MOST COMMONLY PREPARED FOODS BY LOW-INCOME AFRICAN AMERICAN CHILDREN AGES 9–15

TABLE 3

Males 9–12			Males 13–15		
Food Name	Frequency	Percent	Food Name	Frequency	Percent
Cereal ¹	36	20.8	Cereal ¹	28	22.0
Noodles	20	11.6	Sandwich ²	15	11.8
Pancakes	10	5.8	Noodles	13	10.2
Sandwich ²	10	5.8	Eggs	9	7.1
Eggs	9	5.2	Hot Dogs	5	3.9
Peanut Butter and Jelly	9	5.2	Peanut Butter and Jelly	5	3.9
Pizza	9	5.2	French Fries	4	3.1
Hot Pockets	7	4.0	Waffles	4	3.1
Bacon	5	2.9	Pizza	4	3.1
Oatmeal	5	2.9	Buffalo Wings	3	2.4
			Chicken	3	2.4
			Hot Pockets	3	2.4
			Pancakes	3	2.4
Females 9–12			Females 13–15		
Food Name	Frequency	Percent	Food Name	Frequency	Percent
Cereal ¹	42	17.5	Cereal ¹	17	13.9
Noodles	36	15.0	Noodles	11	9.0
Eggs	18	7.5	Eggs	10	8.2
Sandwich ²	13	5.4	Sandwich ²	9	7.4
Oatmeal	11	4.6	Chicken Nuggets	8	6.6
Pancakes	10	4.2	Pizza	7	5.7
Bacon	8	3.3	Chicken	6	4.9
Pizza	8	3.3	Pancakes	6	4.9
Peanut Butter and Jelly	7	2.9	French Fries	5	4.1

Males 9–12				Males 13–15			
Food Name	Frequency	Percent		Food Name	Frequency	Percent	
French Fries	6	2.5		Macaroni and Cheese	5	4.1	

¹ Includes all types of cereal

² Includes sandwiches made from lunch meat. Breakfast sandwiches, peanut butter and jelly, and grilled cheese sandwiches were counted as a separate category.

TABLE 4
CHILD FOOD PREPARATION FREQUENCY, HEALTHINESS OF FOOD PREPARATION SCORES AND ASSOCIATIONS TO HEALTHY EATING INDEX SCORES (n= 267)¹

	Total HEI Analysis			HEI Sodium			HEI Empty Calories			HEI Dairy		
	B	SE	P-value	B	SE	P-value	B	SE	P-value	B	SE	P-value
Age	-1.02	0.40	0.012*	0.07	0.11	0.54	-0.15	0.17	0.39	-0.25	0.09	0.01*
Sex (1=female, 0=male)	2.65	1.23	0.03*	0.74	0.33	0.03*	0.32	0.53	0.54	-0.77	0.29	0.008**
Child Food Preparation Frequency	-0.20	0.37	0.59	-0.06	0.10	0.58	0.007	0.16	0.96	0.14	0.09	0.12

Model is adjusted for age, sex, BMI percentile, and frequency of household food preparation

¹ Data was eliminated if unreasonable caloric intake greater than 5,000 or less than 500

* Significant at a p<0.05

** Significant at p<0.01

Table 5

Proportion of Cooking Methods Used Among Participants in Each Sex and Age Category

	Males 9–12	Males 13–15	Females 9–12	Females 13–15
% of Foods Using Frying Methods of Preparation	15	21	19	27
% of Foods Using Baked Methods of Preparation	7	7	9	15
% of Foods Using Microwaved Methods of Preparation	32	20	26	12
% of Foods Using Raw Methods of Preparation	34	38	28	22
% of Foods Using Other Methods of Preparation	13	15	17	24

Numbers represent percentages and therefore may not add to 100 due to rounding