Involvement in Meal Preparation at Home Is Associated With Better Diet Quality Among Canadian Children

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ABSTRACT

Objective: To examine the associations between home meal preparation involvement with diet quality and food group intake among children.

Methods: Grade 5 children aged 10–11 years (n = 3,398) were surveyed. Food intake was measured using the Harvard Youth/Adolescent Food Frequency Questionnaire, and diet quality was measured using the Diet Quality Index–International. Random effects regression models with children nested within schools were used to test for associations.

Results: Higher frequency of involvement in home meal preparation was associated with higher Diet Quality Index–International scores. Children who were involved in meal preparation daily ate 1 more serving/d of vegetables and fruit compared with children who never helped ($P < .001$). Similar significant differences, although small, were observed for intake of the other food groups.

Conclusions and Implications: Children who were more involved in home meal preparation also consumed healthier diets. Encouraging parents to involve their children in meal preparation could be a viable health promotion strategy.

Key Words: meal preparation, diet quality, food intake, children, health promotion (*J Nutr Educ Behav*. 2014;46:304-308.)

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INTRODUCTION

Poor dietary intake is associated with higher risk for chronic disease[1,2] and is recognized as a significant contributor to the obesity epidemic.[3] The importance of eating a healthy and balanced diet should be emphasized.[4,5] Canada's Food Guide (CFG) contains daily intake recommendations for each of the 4 food groups: vegetables and fruit, grain products, milk and alternatives, and meat and alternatives.[4] However, national survey data indicate that most Canadian children are not meeting CFG intake recommendations.[6]

There is growing interest in the influence of the home food environment on child dietary intake.[7] Availability of healthier foods at home,[8] participation in family meals,[8,9] parental encouragement,[10] and role modeling[8,10] are factors cited to facilitate healthier dietary intakes. Encouraging greater involvement in food-related activities in the home can foster family cohesion[11] and could be an effective strategy to improve child dietary intake because these activities present an opportunity for parents to role model healthy eating behaviors.[12] Furthermore, participation in such activities could foster increased interest in food and nutrition and increase a child's self-efficacy for choosing healthier foods.[13]

Previous studies reported that adults and adolescents who prepared meals more frequently at home ate higher-quality diets, where home meal preparation was associated with higher fruit and vegetable intake and with lower intakes of fat, fried foods, and sugar-sweetened beverages.[14-16] However, these studies were primarily conducted among older adolescents and adults.[14-16] The dynamics of the relationship linking food-related behavior to dietary intake among a younger population may differ because children tend to have less autonomy in food decision making compared with older adolescents, and their parents are usually the gatekeepers of food availability in the home.[17] As a part of efforts to inform health promotion programs among younger children, it is interesting to determine whether the observed associations between home meal preparation and food intake among adolescents can also be seen in younger children. The inclusion of a meal preparation component in nutrition education interventions targeting elementary school-aged children has previously been shown to be effective in promoting fruit and vegetable intake.[18,19] Nevertheless, there still remains a need to support these findings with data from population-level studies. Therefore, the purpose of this study was to examine the association between frequency of involvement in home meal preparation and quality of dietary intake among a provincially representative population of grade 5

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children (aged 10–11 years) in Alberta, Canada.

METHODS

Participants and Recruitment

This analysis was conducted using data collected among grade 5 children as part of the Raising Healthy Eating and Active Living Kids in Alberta (REAL Kids Alberta) project. Grade 5 students (aged 10–11 years) were selected because survey tools were previously validated with children in this age group.[20] Schools were selected using a 1-stage stratified random sampling design with stratification according to metropolitan (cities of Edmonton and Calgary), city (municipalities with population ≥ 40,000), or rural-town (municipalities with population < 40,000) regions. Schools with grade 5 students in Alberta (88% of all schools), with the exception of francophone, charter, private, and on reserve federal schools attended by children residing in First Nation reserves, were included in the sampling frame. Of the 164 schools selected, 151 schools (92%) agreed to participate. In spring, 2010, 5,597 home surveys containing parent consent forms were sent home, of which 3,656 parents (65%) provided parental consent for their child to participate in the survey. Trained evaluation assistants visited each school to administer student questionnaires. All evaluation assistants attended a 1-day training session before administering questionnaires in schools. During questionnaire administration, evaluation assistants read each question out loud and answered children's questions. A total of 3,398 completed surveys (61%) was collected after excluding children who were absent during data collection and children who chose not to complete the survey. The Health Research Ethics Board at the University of Alberta approved all study procedures.

Measures of Interest

Involvement in home meal preparation was measured according to the frequency with which children helped with food preparation at home, where higher frequency indicates higher involvement. Frequency of involvement in home meal preparation was measured by an unvalidated survey question adapted from the Project EAT questionnaire,[21] in which children were asked, "How often do you help prepare or cook food in your home?" Response options were "Never or almost never," "About once per month," "Between 1 and 3 times a week," "Once per day on most days," and "Several times in a day on most days." Evaluation assistants read the question aloud to children and also explained to children that helping prepare food does not include non–food-related activities such as setting the table.

Food group intake over the past year was measured using the validated 147-item Harvard Youth/Adolescent Food Frequency Questionnaire (FFQ), in which children were asked to indicate their usual intake frequency of a variety of foods over the past year.[20] Children were shown what constituted a typical serving of the food items and selected intake frequency from response options ranging from "Never/less than once per month" to "≥ 5 times per week" or "≥ 1/d." Average daily intakes of each of the 4 CFG food groups (vegetables and fruit, grain products, milk and alternatives, and meat and alternatives) were then calculated based on FFQ responses. Energy content of FFQ food items was determined using age-appropriate portion sizes consumed by a 10- to 11-year-old child and nutrient information from the 2007 Canadian Nutrient File.[22] The Diet Quality Index–International (DQI-I) was used as a measure of overall diet quality in this study.[23] The DQI-I is a composite measure score (range, 0–100) derived to measure overall diet quality based on the 4 aspects of variety, adequacy, moderation, and overall balance. These procedures are described in detail elsewhere.[24]

Children's demographic information, such as parent educational attainment and household income, was obtained from parent responses in the home survey. All survey instruments used in this study can be found on the REAL Kids Alberta project Web site.[25]

Data Analysis

All analyses were conducted with Stata (version 12.1; StataCorp, College Station, TX, 2011). Of the children who completed the survey, 155 (4.5%) with outlying observations of average daily energy intake (defined as energy intake of < 500 kcal and > 5,000 kcal) were excluded from analysis.[26] To accommodate the design effect, all analyses were weighted to represent provincial estimates of the grade 5 student population in Alberta. Data distributions were examined graphically for normality using histograms. Random effects regression models with children nested within schools were used to test for associations between diet quality, food group intake, and frequency of involvement in home meal preparation. Adjusted (marginal) means were estimated using the linear prediction method from fitted regression models by fixing covariates at the mean.[27] All regression analyses were adjusted for the confounding effects of gender, household income, parental education attainment, energy intake, and geographic residency. Results were considered statistically significant at $P \leq .05$.

RESULTS

Table 1 lists the children's demographics. A majority of the surveyed children (63%) reported helping with home meal preparation at least once weekly, whereas approximately 13% of surveyed children did not help with home meal preparation. Surveyed children had a mean DQI-I score of 63.0 (median, 63.5; range, 27.8–88.1). Approximately 70% of the children in this study did not meet CFG intake recommendations of 6 daily servings of vegetables and fruit (median intake, 4.2 servings), and 81% did not meet intake recommendations of 6 daily servings of grain products (median intake, 3.9 servings).[4]

Involvement with home meal preparation was positively associated with diet quality according to DQI-I scores among surveyed children, where children who were involved in meal preparation at least once per week or more had higher DQI-I scores compared with children who never helped (Table 2). Children who were more often involved in meal preparation at home reported eating more vegetables and fruit. Those children who reported being involved at least