Research Article

Impact of Cooking and Home Food Preparation Interventions Among Adults: Outcomes and Implications for Future Programs

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Objective: Cooking programs are growing in popularity; however, an extensive review has not examined their overall impact. Therefore, this study reviewed previous research on cooking/home food preparation interventions and diet and health-related outcomes among adults and identified implications for practice and research.

Design: Literature review and descriptive summative method.

Main Outcome Measures: Dietary intake, knowledge/skills, cooking attitudes and self-efficacy/confidence, health outcomes.

Analysis: Articles evaluating the effectiveness of interventions that included cooking/home food preparation as the primary aim (January, 1980 through December, 2011) were identified via Ovid MEDLINE, Agricola, and Web of Science databases. Studies grouped according to design and outcomes were reviewed for validity using an established coding system. Results were summarized for several outcome categories.

Results: Of 28 studies identified, 12 included a control group with 6 as nonrandomized and 6 as randomized controlled trials. Evaluation was done postintervention for 5 studies, pre- and postintervention for 23, and beyond postintervention for 15. Qualitative and quantitative measures suggested a positive influence on main outcomes. However, nonrigorous study designs, varying study populations, and the use of nonvalidated assessment tools limited stronger conclusions.

Conclusions and Implications: Well-designed studies are needed that rigorously evaluate long-term impact on cooking behavior, dietary intake, obesity and other health outcomes.

Key Words: cooking, food preparation, intervention, diet outcomes, review (*J Nutr Educ Behav*. 2014;46:259-276.)

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INTRODUCTION

The importance of away-from-home meals and convenience foods in the American diet may relate to a lack of time to plan and prepare meals at home.[1] A recent review also implicates a lack of cooking skills and food preparation knowledge as barriers to preparing home-cooked meals.[2] The percentage of total household food dollars spent on food eaten away from home is now higher compared with 30 years ago (33% in 1970 to 47% in 2010).[3]

Consumption of fast food and food from away-from-home locations is associated with lower diet quality and obesity among adults.[4-8] National dietary intake data from 1994–1996 and 2003–2004 show that each meal away from home is related to an increase in calories by 130/d and a reduction in diet quality by 2 points on the Healthy Eating Index scale.[9] Food prepared at home provides fewer calories per eating occasion and, on a per-calorie basis, provides less total and saturated fat, cholesterol, and sodium, and more fiber, calcium, and iron compared with food prepared away from home.[10] Among low-income women, increased frequency of consuming foods prepared from scratch over a 3-day period is associated with an increase in fruit and vegetable, protein, vitamin C, iron, zinc, and magnesium intakes.[11]

Furthermore, time usage data show that time spent on food preparation and cleanup is less for the average household compared with 30 years ago. In 1995, time spent on food preparation and cleanup was about half (41 min/d) that spent in 1965 (85 min/d) by working women in the US.[12,13] More recent time usage data (2003–2004) also show that time spent in food preparation decreases as time spent working outside the home increases,[14] with a greater number of women in the US workforce (an increase of 44% from 1984 to 2009).[15] This rise in working women, an amplified perception of time scarcity,[1]

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and increased availability of convenience foods based on technological advances and societal demands contribute to the decline in cooking and home food preparation. An observational study of 64 home-cooked dinner meals shows that most meals contain processed, commercial foods possibly because of limited cooking skills.[16]

Several cross-sectional, observational studies show a relationship between food preparation skills among adults and associated outcomes. Among mothers of school-aged children, confidence in the ability to prepare a healthy meal is positively associated with healthfulness of the meal.[17] A survey of German adults indicates that ready-meal consumption (ie, consumption of complete, main course meals prepared externally) is inversely associated with cooking skills.[18] A high perceived value of food preparation is associated with greater intake of fruits and vegetables among women in Australia,[19] and when the main home cook is confident in preparing vegetables, households buy a greater variety of vegetables.[20]

Given the potential positive outcomes related to cooking skills, nutritionists and public health professionals are promoting cooking interventions as a way to improve health. For example, 1 large-scale cooking initiative known as Cooking Matters is under way in at least 45 states. Through the program, local chefs partner with community organizations to teach cooking skills.[21] Even though the programs are becoming more popular and well-established, an extensive review of the literature that examines the short- and long-term impacts of cooking interventions for adult populations is not available. A review of this type can provide information to improve the effectiveness of current programs and inform the development of new programs. The purpose of the current study was to review previous research on cooking/home food preparation interventions and diet and health-related outcomes among adults. Relevant studies include interventions that focus primarily on home food preparation/cooking as the primary aim. Studies are also reviewed to identify implications for practice and future research.

METHODS

The researchers identified relevant research studies published between January, 1980 and December, 2011 via searches of Ovid MEDLINE, Agricola, and Web of Science databases. The following terms were used in various combinations to perform searches: "intervention," "demonstration," "health promotion," "education," or "class"; and "food preparation," "home food preparation," "cooking or cookery"; and "food habits," "food intake," "eating patterns," "diet," "dietary intake," "dietary outcomes," or "skills." The search was limited to studies published in the English language and those involving adults (ie, primarily ≥ 18 years of age), including college students.

A total of 373 journal articles and 85 educational materials were retrieved. Educational materials included mostly books as well as visual aids (slide sets, filmstrips, videos, and transparencies), teaching kits, and government publications. Of the 373 journal articles, 54 were repeated in 2 or 3 databases, which left 319 for further review. The authors reviewed abstracts for all articles and excluded studies if they were not intervention studies (n = 209: those with a cross-sectional design with qualitative and quantitative methods such as dietary assessment, attitude, and behavioral surveys; focus group and individual interviews; and case studies). Articles were not included if they reported on studies that involved children as the target group, were reports or commentaries on recommendations or resources, or were review articles. Articles were also not included if they were intervention studies that did not have cooking or food preparation as the primary aim, or if only formative development of programs that involved cooking or food preparation was described without evaluation measures. After these exclusions (n = 306), the researchers included for further review 13 applicable studies that had cooking or home food preparation as the primary aim. Other potentially relevant studies were identified from bibliographies of these applicable studies. This study was exempt from institutional review board review because it involved a review of previously completed, published studies.

A total of 28 studies meeting the inclusion criteria were identified through this search strategy.[22-49] Intervention studies included cooking or home food preparation through cooking assignments,[22,23] cooking classes/demonstrations in community or clinical settings,[24-44,46-49] and viewing a cooking television show.[45] Studies were grouped according to design (intervention without control groups, nonrandomized control trials, and randomized control trials) and intended outcomes. One author extracted information from studies into a standardized table (Table 1) structured to provide objective information about the population, intervention duration, measures, and measurement tools and outcomes. A second author independently checked information extraction to ensure that consistent detailed information was included for each study.

The validity questions from a quality criteria checklist were used to critically appraise the validity of each study included in this review with respect to research design and implementation. The checklist was available as part of the Evidence Analysis process of the Academy of Nutrition and Dietetics Evidence Analysis Library and allowed for the rating of primary research studies as positive ("clearly addressed issues of inclusion/exclusion, bias, generalizability, data collection, and analysis"), negative ("these issues have not been adequately addressed"), or neutral ("neither exceptionally strong nor exceptionally weak").[50] The process to appraise study validity involved several steps in which an external reviewer first used the checklist to generate responses to all validity questions for 26 of the 28 studies (2 based on primarily qualitative evaluation methods were not included in this process[24,38]). Next, authors generated responses to all validity questions for 2 to 6 studies each for a total of 13 of the 26 studies. Finally, 1 author reviewed responses to the validity questions for all articles reviewed by the external reviewer and other authors, and generated an overall rating of positive, negative, or neutral for each study. Interrater reliability was determined for ratings of the 13 articles by the external reviewer and multiple authors based

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