Systematic Review

Impact of Cooking and Home Food Preparation Interventions Among Adults: A Systematic Review (2011–2016)

Marla Reicks, PhD; RD[1]; Megan Kocher, MLIS[2]; Julie Reeder, PhD; MPH; CHES[3]

ABSTRACT

Objective: To update a review of the impact of interventions for adults that included a cooking component on diet, health, and psychosocial outcomes.

Design: A total of 3,047 records were identified by searching MEDLINE, Agricola, Web of Science, and the Cochrane Central Register of Controlled Trials (January, 2011 to March, 2016). A total of 34 articles met inclusion and exclusion criteria for analysis. Study description and outcomes were extracted and synthesized to generate conclusions regarding impact.

Results: Less than half of the studies included a control group. The most common intended outcomes were improvements in fruit and/or vegetable intake and weight. The majority of studies showed positive dietary behavior changes and improvements in cooking confidence and knowledge. Limitations included the lack of a control group, no follow-up past after intervention, the use of nonvalidated assessment instruments, and small convenience samples.

Discussion: Findings were similar to a previous review regarding positive impact on dietary and cooking confidence outcomes. Clinical and weight outcomes were addressed in more studies included in the current review than in the previous 1; however, limitations were similar.

Conclusions and Implications: Intervention design and assessment tools need to be strengthened in intervention studies with cooking components.

Key Words: cooking, adults, systematic review, impact, diet, eating patterns, health promotion (*J Nutr Educ Behav*. 2017;■■:■■–■■.)

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INTRODUCTION

Recent reviews of cooking interventions generally supported the view that more frequent cooking at home and food preparation based on improved skills lead to better diet quality and improved health and weight status among adults.[1-6] These findings likely fueled interest in the development and implementation of interventions for adults in community and medical settings designed to improve cooking and food skills. These reviews provided some understanding about which outcomes are commonly addressed in cooking interventions to improve health and prevent chronic disease, their effectiveness or impact, and limitations.[1-6]

Rees et al[1] reviewed 13 community-based interventions among groups of adults conducted in the United Kingdom from 1995 onward for effectiveness in improved skills and knowledge about home cooking. Beneficial effects were noted for some studies, but overall evidence of effectiveness was judged to be inconclusive because of the lack of quality evaluation methods. Several other reviews reported more positive findings. Iacovou et al[2] reported results from 10 international studies of cooking interventions in community kitchens published between 1997 and 2010 involving adults and families. Positive effects were reported on improvements in participants' cooking skills, social interactions, and dietary intake. Another review of 9 community-based interventions to improve cooking skills among adults (2004–2016) described consistent improvement in confidence in cooking skills, with less consistent evidence for improvement in eating behavior.[3] Reicks et al[4] reviewed 28 studies for effectiveness of cooking interventions for adults (published between 1980 and 2011), with generally positive findings for dietary

[1]Department of Food Science and Nutrition, University of Minnesota, St. Paul, MN
[2]Library Science, University of Minnesota Libraries, St. Paul, MN
[3]State of Oregon Special Supplemental Nutrition Program for Women, Infants, and Children, Portland, OR

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Address for correspondence: Marla Reicks, PhD, RD, 225 Food Science and Nutrition, University of Minnesota, 1334 Eckles Ave, St Paul, MN 55108; Phone: (612) 624-4735; Fax: (612) 625-5272; E-mail: mreicks@umn.edu

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intake, knowledge and skills, and health outcomes. However, the lack of controlled studies, the wide variety of study populations, and the use of nonvalidated assessment tools were noted as factors that limited stronger conclusions.

Two reviews also characterized the variety of outcomes addressed in cooking interventions.[5,6] McGowan et al[5] presented information about specific cooking and food skills based on the intended outcomes of 41 previous cooking interventions. The theoretical basis and relationships to diet were also examined. Common intervention outcomes measured in these interventions were positioned within cooking skills including food preparation and cooking frequency, and general cooking confidence and cooking ability. Common food skills included planning food shopping, as well as purchasing and shopping behaviors. Common dietary outcomes measured were meal patterns and usual food selection. Raber et al[6] summarized the outcomes of 59 cooking interventions to prevent chronic disease within a conceptual framework involving 5 major constructs and a series of individual behaviors. The 5 major constructs included cooking frequency, skills and methods, minimal use of ingredients that guidelines suggested should be limited,[7] ingredient additions and replacements, and flavorings. Observational studies of the relationship among home cooking and diet, health, and social outcomes were also reviewed. Mills et al[8] reported results based on a narrative synthesis of 38 primarily cross-sectional studies. From these studies, a conceptual model was introduced that illustrated established and potential relationships between determinants of home cooking and various influential factors.

The last comprehensive review of the effectiveness of cooking or food preparation interventions covered 1980 to 2011 and resulted in 28 studies.[4] However, a number of interventions that included cooking components were published over the past 5 years, indicating that another comprehensive review of their effectiveness is warranted. Therefore, the purpose of this study was to review the impact of interventions for adults that included a cooking component, from January, 2011 to March, 2016, on diet, health, and psychosocial outcomes.

METHODS

Search Strategy

A team composed of 1 nutrition professor (MR) and 1 public health research analyst (JR), both of whom had expertise in community-based public health programs with cooking components, and 1 science librarian trained in systematic reviews (MK) conducted the review. The systematic review of literature focused on cooking and home food preparation interventions published between January, 2011 and March, 2016. The protocol for this systematic review is registered on PROSPERO (CRD42016036081). The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines[9] were used to conduct this review. The search strategy was developed and executed by a librarian (MK). Searches were performed in 4 electronic databases (MEDLINE, Agricola, Web of Science, and the Cochrane Central Register of Controlled Trials) for articles related to cooking interventions and diet- or health-related outcomes. Search terms included but were not limited to: *cooking*; *cookery*; *food preparation*; *health promotion*; *health education*; *self-efficacy*; *health behavior*; *body mass index*; *diabetes mellitus*; *overweight*; *health knowledge, attitudes, practice*; *choice behavior*; *health status*; *feeding behavior*; *diet*; *eating*; *health promotion*; *family health*; *nutrition*; *dietary habits*; *dietary outcome*; *skills*; *food habits*; *food intake*; *eating patterns*; and *dietary intake*. The complete MEDLINE search strategy can be accessed via the PROSPERO record. The MEDLINE strategy was adapted for the other databases. The search period was from January 1, 2011 to March 3, 2016. The authors selected 2011 as the start period because a previous review covered interventions before and including 2011.[4] All studies published in 2011 and included in the previous study were excluded from the current review.

Article Selection and Inclusion Criteria

The Figure illustrates the article search and selection process. Initial screening by title and abstract was performed using a reference management program (version 1.0, RefWorks, ProQuest LLC, Bethesda, MD, 2016) and was split among the 3 authors so that 2 researchers screened each reference. In cases of disagreement, the 2 researchers who had screened the article discussed it and reached an agreement. For studies selected through the initial screening, full-text articles were obtained for further evaluation. Again, the articles were distributed among the 3 authors so that 2 researchers read each article and assessed it for inclusion. Articles were included if they (1) were published in a peer-reviewed, English-language journal; (2) were original studies that included a cooking intervention component; (3) reported outcomes for adult populations; (4) reported outcome measures that applied to individuals who were participating in the cooking intervention; and (5) reported outcomes with quantitative measures. Articles were excluded if (1) they were not written in English; (2) they were published only as abstracts; (3) interventions targeted only at children; (4) they were not intervention studies (eg, cross-sectional, qualitative, or quantitative studies such as dietary assessment, attitude, and behavior surveys, focus group or individual interviews, case studies, reports, commentary, and formative development of programs); (5) they were intervention studies with an insufficient description of the cooking component; (6) they were intervention studies that did not include a cooking or food preparation component; (7) food preparation was described without evaluation measures; (8) food safety was the only reported outcome; and (9) outcomes from the cooking intervention were not related to cooking (eg, cooking as behavioral therapy).

In instances in which multiple articles reported on the results of the same study, all 3 authors reviewed the articles and discussed which article should be included based on comprehensiveness of reporting outcomes. The primary reason for exclusion at this stage was that articles were not about cooking interventions (eg, many articles related to cook stoves showed up in search results).