

The Challenging Task of Measuring Home Cooking Behavior

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ABSTRACT

The link between home cooking and health is being actively explored in both observational and experimental studies. However, research on this topic is limited by the lack of cooking behavior metrics. Most existing assessment tools focus only on cooking frequency or one's ability to complete specific *a priori* food preparations. Cooking is a complex and multifaceted behavior that is influenced by culture, environment, and social norms. More flexible and adaptable measurement approaches are needed to elucidate the spectrum of cooking ability in the population and, in turn, develop meaningful recommendations and interventions.

Key Words: cooking, food preparation, behavior assessment (*J Nutr Educ Behav*. 2020;000:1–3.)

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INTRODUCTION

Cooking skills are an important and growing area in nutrition research, and the relationship between cooking and health is a current topic of investigation. Epidemiological evidence suggests cooking frequency is positively associated with diet quality,^{1,2} highlighting the potential impact of cooking education interventions to reduce diet-related disease. In turn, cooking education is increasingly popular, with community cooking programs increasingly offered in health centers, churches, schools, community centers, and even hospitals and medical schools.^{3–6} Promoting healthful food preparation may support practical nutrition education, but cooking at home is not always inherently healthy. Cooking is a complex and multifaceted behavior, and its relationship to diet quality depends very much on what is being prepared.^{1,7} Most existing assessment tools of adult food preparation, however, focus only on cooking frequency or one's ability to complete specific *a*

priori food preparations, limiting research on this topic.

A recent publication by Hagmann et al⁸ represents a valuable contribution to this field of research through its examination of self-perceived cooking skills and acquisition of such skills among a large sample of adults in Switzerland. The authors' use of a validated cooking skills metric was a strength. However, the measure itself (ie, self-perceived ability to complete *a priori* culinary targets) illustrates some of the inherent challenges of defining and measuring cooking skills, particularly as related to diet quality and health and in a diverse population, such as the US. The aim of this perspective is to explore these challenges and describe 2 novel tools of cooking behavior assessment.

DISCUSSION

Exclusive measures of cooking frequency or time spent cooking fail to differentiate between higher and lower quality meal preparations.^{2,9,10} More detailed measures of cooking

skills, behavior, and related psychosocial constructs are essential to move both observational and experimental research forward. However, developing broadly applicable home cooking measures is challenging. First, the concept of healthy vs unhealthy cooking is difficult to define and operationalize, as healthy cooking for 1 person may look very different than healthy cooking for another.^{11–13} Similarly, the act of cooking varies in definition across the population, with some conceptualizing an act as cooking only when scratch or raw ingredients are used or when heat is applied.¹⁴ Second, home food environments are influenced by structural (eg, overnight work schedules, access to grocery stores) and economic factors as well as social and cultural norms (eg, religious avoidance of certain food, norms around food preferences, and cultural culinary traditions)^{15–17}; therefore, measures must be flexible enough to remain relevant across different circumstances. Third, the validation of home cooking metrics is limited by the complexity of cooking behavior and the lack of a gold standard or objective measures.

Existing metrics of cooking mainly examine self-efficacy/confidence or behavioral capacity to complete tasks.^{18–22} For example, Laska et al¹⁸ and Larson et al¹⁹ measured self-reported frequency of helping prepare dinner; buying fresh vegetables; writing a grocery list; preparing a green salad; preparing a dinner with chicken, fish, or vegetables; and

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preparing an entire dinner for 2 or more people. Utter et al²⁰ examined cooking skills by assessing a combination of cooking frequency, frequency of preparing a meal with vegetables, and self-perceived cooking skill adequacy. Lavelle et al²¹ proposed a measure of cooking skill confidence that asked participants how good they were (on a scale of 1–7) at a number of specific tasks. The measure used by Hartmann et al²² evaluates self-reported cooking skill sufficiency and self-perceived ability to complete a series of culinary preparations including a hot meal without a recipe, gratin, soup, sauce, cake, and bread.⁸ Although this measure may be appropriate for use in Switzerland, these items are unlikely to resonate across more diverse populations such as the US. Although the article showed a weak correlation between their measure of cooking skills and diet quality, an alternative measure less tied to one's ability to perform certain tasks may have shown a stronger relationship. Furthermore, several of the cooking skills (eg, cake, bread, gratin, many hot meals) are not particularly healthy. In addition, a person may be a highly proficient cook but never cook gratins, cake, or bread. The measure by Hagmann et al⁸ has been used in other populations; Tani et al²³ adapted the measure for common Japanese food preparations including boiling eggs and vegetables, grilling fish, stir-frying meat and vegetables, and making miso soup. Measures that do not attempt to quantify the ability to do specific tasks/cook certain items but rather take a more adaptable approach to understanding cooking may be more effective in elucidating the spectrum of cooking quality in the population.

The Cooking and Food Provisioning Action Scale (CAFPAS) is a measure of food agency and is more sensitive to the intricacies of the cooking process including upstream (eg, time constraints, food access/environment) and downstream factors (eg, personal attitudes and self-efficacy).^{24,25} The 28-item scale includes 3 subscales (self-efficacy, attitude, structure). In an initial validation study, the CAFPAS had

high internal consistency (Cronbach $\alpha > 0.70$ for all 3 subscales and for the scale overall).^{26,27} Criterion validity was assessed in relation to the Food Involvement Scale ($r=0.65$), indicating strong criterion-related validity.²⁴ The CAFPAS has been effective in predicting differences in both cooking behaviors and diet quality in subsequent studies in different populations (adults, college students).^{25,28}

The CAFPAS measures one's agency, or self-efficacy, around food procurement and preparation without *a priori* identifying the specific cooking actions or skills. The CAFPAS measures attitudes, self-efficacy, and the ability to navigate structural barriers to food procurement and preparation. This approach recognizes that cooking skills and behavior are contextually dependent and avoids the need for the researcher to define *a priori* the kinds of food a person should be able to cook or how they should prepare them to be considered skilled. Higher food agency (as measured by CAFPAS) is associated with higher cooking frequency, higher scratch cooking, and better diet quality.^{25,28}

The Healthy Cooking Index (HCI) is another alternative metric based on a systematic review of observational and experimental research.²⁹ The HCI considers 19 broad, culturally flexible cooking practices with the potential to influence the biochemical composition of prepared food and downstream markers of nutritional health. The HCI codes +1/–1 for positive/negative behaviors demonstrated during a single food preparation event and generates an overall cooking quality score ranging from –9 to +10. The HCI has been applied successfully to observational data of home cooking events; higher HCI scores are associated with lower saturated fat and higher fiber, fruit, and whole grain contents of prepared meals. However, the participants were unable to correctly self-report their own HCI behaviors when compared with direct observation.⁷ The HCI is currently undergoing refinement for use as a self-report tool. The HCI is the only measure that has been compared with a ground truth assessment (direct

observation of home cooking), which suggests other cooking metrics may be subject to response bias if items are not carefully operationalized.

IMPLICATIONS FOR RESEARCH AND PRACTICE

These 2 tools represent early forays into meaningful home cooking measurement in the US. As a growing subfield of nutrition, researchers must move beyond the measurement of cooking skills as the ability to cook certain foods. The cooking equals healthy assumption; the structural and contextual factors that shape cooking behavior; and the mechanisms linking cooking, related practices, and health outcomes warrant further interrogation. The authors suggest that measures of cooking practices be constructed carefully, validated sensibly, and applied thoughtfully to diverse populations in tandem with objective measures of nutrition and health.

Available evidence suggests that cooking meals at home is, indeed, an important health behavior. However, more work is needed to identify food preparation practices and behavior patterns and how they are related to diet and downstream health outcomes. Valid and reliable measurement tools that recognize the contextually dependent, complex nature of cooking behavior and cooking skills are critical to this area of research.

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