Culturally Sensitive Cooking Classes to Increase Healthy Cooking Confidence in the Latino Community

Christine Nguyen, Arram Noshirvan, Julia Tong, Jason Blanks, Bing Ling Wu, Morrell Chhay, Mariel Marquez, Angelica Juarez, Efrain Talamantes, Christopher Y. Itoh


**Abstract**

Cooking programs are one avenue to promote healthy eating. However, many cooking programs are a one size-fits-all approach and do not consider costs, time, accessibility, or cultural barriers to the recipes being taught. Healthy Bites is a cooking program developed by medical students, physician assistant students, and chefs to remedy this by redesigning recipes to be less than $3 per meal, fewer than 30 minutes to cook, inclusive of accessible ingredients, and tailored for Latin American dishes. In this descriptive work, we implemented the Healthy Bites (HB) program by recruiting Latino participants from free clinics and community centers in Sacramento County to measure their changes in confidence in various aspects of food preparation. We also assessed the utility of a collaborative, community-based student initiative to increase confidence and skills for medical and physician assistant students. Although we are limited by the number of participants, we report an increase in confidence for cooking cost effective foods, accessing healthy ingredients, cooking dishes that participants culturally identify with, and cooking in a timely manner. Our findings suggest that culturally tailored cooking courses can positively influence cooking behavior and training for healthcare professionals.

**Keywords:** food, eating behavior, nutrition education, community, interdisciplinary

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Diet is a modifiable risk factor for chronic diseases and is responsible for significant adult mortality (Danaei et al., 2009). Previous research suggests that cooking classes providing basic food preparation skills, safety practices, and nutrition education increases participant fruit and vegetable intake (Brown & Hermann, 2005). However, current interventions are not tailored to promote culturally, economically, and geographically sensitive recommendations, though studies show improvement in cooking self-efficacy had a positive correlation with healthy eating (Flego et al., 2013) and adults who had more food preparation skills were associated with lower ultraprocessed foods consumption in a cross-sectional analysis (Lam, Adams, & M.C.L., 2017). Furthermore, a randomized controlled trial, where cooking classes for housewives focusing on salt reduction led to reduced salt intake by family members, suggested that targeting the main food preparer may influence the diet of other family members (Takada et al., 2016). Leveraging off these models, our primary objective was to create a cooking program for the main food preparers of each household that promotes healthy cooking and eating. Specifically, we focused on Latino food preparers due to the high number of Latino patients in the local Sacramento community. By focusing on one population, we tailored our program to Latino cuisine to create cultural inclusiveness and promote longevity. Our secondary objective was to promote an interdisciplinary team to enhance medical education, specifically to understand social determinants of health and nutrition, become competent in our nutritional knowledge to better counsel patients on lifestyle changes, and to enhance important leadership skills. Integrating culinary medicine to medical education is a novel concept pioneered, in part, by SUNY- Upstate in 2003 and extended significantly by Tulane University School of Medicine, where a teaching kitchen led by a physician and a trained chef was integrated into medical school (La Puma, 2016). This program led to first and second year medical students creating community cooking classes (Birkhead et al., 2014).
The HB project brought together health care students from the University of California (UC), Davis School of Medicine and School of Nursing, as well as local community organizations (Clinica Tepati, Imani Clinic, and La Familia Counseling Center). Our program was initiated by medical and physician assistant students and focused on providing to our patients culturally tailored cooking classes at local community centers. At the UC, Davis School of Medicine, the focus on nutrition and patient education has been mainly student-led endeavors within seven student run clinics. However, most efforts are secondary preventions centered on educational lectures and video demonstrations in a classroom setting. Therefore, HB was created to incorporate hands on training for students as well as the patient population in need. This is to encourage student healthcare providers in developing healthy habits, as providers with healthy habits are more likely to counsel patients on preventative medicine and lifestyle modifications (Frank, 2004; Vickers, Kircher, Smith, Petersen, & Rasmussen, 2007). Thus, we expected the project to positively impact both students involved with the program now as well as their future patients. To better educate patients about the benefits of healthy choices, the students were responsible for learning about the nutritional facts of each ingredient, exploring substitution options, and customizing cost-effective recipes with the help of the chefs. The program aimed to build confidence in our future health care providers to give better one-on-one patient education.

Methods

Approval for this project was granted by the Institutional Review Board of UC Davis. Before the program, we surveyed patients about current cooking habits, staple foods they cook, their obstacles to eating healthier, and their interest in attending cooking classes. We also asked the community if they would be interested in this type of project, and if so, what they would like to see. Consulting and obtaining information from the participants directly ensures that we understand the needs of the Latino community. The results from this preliminary survey, provided by Latino patients, dictated much of our program. Before enrollment, a consent form and survey were administered at La Familia Counseling Center, Clinica Tepati, or Imani Clinic. Inclusion criteria included self-identification as Latino, the household’s main food preparer, and age greater than 18. Exclusion criteria included over age 90, inability to consent, and inability to perform physical actions. Volunteering Spanish translators were used throughout the process for verbal and reading translation.

The course consisted of six, one-hour cooking sessions, taught or translated in Spanish.

Two professional chefs were recruited as volunteers, one from Cordon Bleu Cooking Institute of Sacramento, and the other by recommendation from La Familia Counseling Center. The professional chefs spent 15 minutes explaining ingredients, health benefits, healthy alternatives, cooking advice, and cost. The next 30 minutes were dedicated to the chef teaching alongside participants, followed by the last 15 minutes for enjoying the meal. Surplus of fresh produce and storage containers were provided to participants to take home their prepared meal. Surveys were administered before and after each session. The team of medical and physician assistant students and the chef spent 30 minutes before and after class for ingredient preparation, set up, and clean up.

Participants were asked to rate their answer to each question with a number between 0 and 10. A response of “0” indicated the participant was not confident at all, and a response of “10” indicated the patient was extremely confident. Participants were surveyed before and after each cooking session. Scores were compared before the first cooking lesson and after the first and second cooking lessons using a paired t-test. Before and after each session, we measured waist circumference and BMI of each participant (Gatto, Martinez, Spruijt-Metz, & Davis, 2017). HB medical students (three first year medical students, five second year medical students) and physician assistant students (one first year physician assistant student, one second year physician assistant student) were surveyed at the end of the project. To measure increased incorporation of vegetables and fruits, we also administered a paper calendar that surveys patients’ daily decision to cook or not and what they ate.

Materials

To ensure ingredients used were readily available, ingredients were bought from local Latino or standard supermarkets in the Sacramento area (Delapa et al., 1990). The project also partnered with the Sacramento Food Bank to provide discounted ingredients; however, the costs were calculated from supermarket costs. Cooking supplies were donated or bought from thrift stores or online. For each class, each participant was provided a gas stove, along with all necessary ingredients and supplies. Recipe Selection Recipes, ingredients, and Latino flavors for each course were culturally appropriate for our participants (Romero-Gwynn et al., 1992). Each recipe followed the nutrition guideline put forward by
the Integrated Medicine department at UC Davis, containing less than 20% of calories per meal from fat with zero trans fats (Dhaka, Gulia, Ahlawat, & Khatkar, 2011), fewer milligrams of sodium than calories in the meal and no added sugar (Azaïs-Braesco, Sluik, Maillot, Kok, & Moreno, 2017; IOM, 2013). There was no calorie restriction per meal; however, meal portioning followed the “My Plate” guidelines put forth by the United States Department of Agriculture (“Choose MyPlate”, 2019). Recipes were tailored to cost less than $3 per portion per person, require only one pan or pot, and have a preparation/cook time of 30 minutes or less (Figure 1).

![Average Cost and Nutritional Breakdown of HealthyBites Recipes](image)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost/ person</td>
<td>3.1</td>
<td>0.42</td>
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<tr>
<td>Calories</td>
<td>268.4</td>
<td>56.35</td>
</tr>
<tr>
<td>Sodium (mg)</td>
<td>98</td>
<td>53.57</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>12.8</td>
<td>7.12</td>
</tr>
<tr>
<td>Cholesterol (mg)</td>
<td>3.6</td>
<td>2.07</td>
</tr>
<tr>
<td>Carbohydrates (g)</td>
<td>18.4</td>
<td>13.70</td>
</tr>
</tbody>
</table>

![Nutrition Facts](image)

Figure 1. Average cost per person and nutritional breakdown per serving for the eight recipes implemented in the HB classes (left) and example nutrition label from a HB recipe (Calabaza Espagueti Mexicana) with overlaid nutritional guidelines used in recipe selection and health education (right). There was no calorie restriction per meal. The goal for each meal was tailored to average $3 per person or less.

**Results**

Of the 29 patients that were recruited, 21 were excluded due to lack of transportation or schedule conflicts and 8 patients participated (Figure 2). Prior to the cooking program, 75% of the patients indicated difficulty in accessing and affording healthy ingredients and 63% indicated lack of healthy cooking skills and lack of time to cook healthy meals as barriers to healthy cooking.
Figure 2. Twenty-nine patients were recruited. One patient attended three cooking classes, five patients attended two cooking classes, and two patients attended one cooking class.

After one cooking session, participants’ confidence in cooking cost effective foods increased from 5.6±2.1 95% CI to 8.3±1.5, 95% CI \( p=0.02 \). A second cooking cost effective foods to 9.4±0.7, 95% CI \( p=.001 \) (Table 1). The HB medical students and physician assistant students surveyed at the end of the project exhibited an increase in confidence in nutrition counseling, understanding social determinants to healthy eating, and consideration in being involved with the local community as a future health care provider. Patient compliance with the daily calendar was poor, and we do not report this data.

### Discussion

Historically, it has been assumed that cooking skills are assets that are passed down from parents or guardians (Lavelle et al., 2019). Yet, due to commercialization and simplification of the cooking process by industry, cooking has been reduced significantly in the United States, with many products described as canned, precooked, prewashed, preserved, microwaveable, and so on (Pollan, 2013). Through this reductivist attitude to cooking, cooking skills have been lost and many detrimental health consequences have been associated with families solely relying on fast food or microwaved foods (Pereira et al., 2018). Therefore, our program strives to teach patients of the local Latino community essential cooking skills—from the purchase and selection of ingredients to preparing a healthy meal for a family. Cooking sessions with culturally competent didactics and recipes increased participants’ confidence in cooking, ability to cook affordable healthy dishes, and ability to access ingredients for healthy cooking. Although our study is limited by the sample size, there is an increase from baseline cooking session increased the confidence in measurements with one cooking class. After the second session, a subsequent increase was also seen in the confidence to access ingredients or materials, cook

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre-Session</th>
<th>Post-Session 1</th>
<th>Post-Session 2</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>How would you rate your confidence in cooking cost effective foods?</td>
<td>5.6±2.1</td>
<td>8.3±1.5</td>
<td>9.4±0.7</td>
<td>0.02</td>
</tr>
<tr>
<td>How would you rate your confidence in accessing ingredients or materials for cooking?</td>
<td>4.0±2.2</td>
<td>8.3±1.0</td>
<td>9.4±0.7</td>
<td>0.003</td>
</tr>
<tr>
<td>How would you rate your confidence in cooking dishes that you culturally identify with?</td>
<td>4.5±2.8</td>
<td>8.3±1.0</td>
<td>9.4±0.7</td>
<td>0.003</td>
</tr>
<tr>
<td>How would you rate your confidence in cooking dishes in a timely manner?</td>
<td>3.5±2.5</td>
<td>8.3±1.0</td>
<td>9.4±0.7</td>
<td>0.003</td>
</tr>
</tbody>
</table>

Table 1: Changes in cooking confidence before and after two cooking sessions.
dishes that one culturally identifies with, and cook dishes in a timely manner (Table 1). These results are consistent with past research, and may suggest that successful cooking classes with nutrition education programs could be created by a team of medical students, physician assistant students, and chefs (Reicks, Troholz, Stang, & Laska, 2014). The main limitation of this work was the low participant size, due to employment or accessibility. Maintenance of improved confidence post-cooking class intervention was not assessed. Because we informally observed that partnering with community centers and establishing good rapport with participants improved enrollment and retention, future directions include partnering with more community centers to increase participant turnout and expanding our program to include other demographics. One notable bias may arise from free ingredients were given to the participants; because price was a reported obstacle to healthier eating, the free vegetables and spices could have helped our patients increase their confidence in cooking healthier. If free healthy ingredients alone can encourage patients to eat healthier, La Familia Counseling Center and Student Run Free Clinics could consider providing patients with fresh ingredients (for example, after a nutrition consultation). Culinary medicine is an evidence-based field that integrates food and cooking with medicine to improve patients’ conditions and restore well-being. This has become a topic of interest due to the effects of highly processed foods, rising cost of health care, enthusiasm for food sustainability, among other reasons (La Puma, 2016). The HB program exposed future healthcare students to the importance of food and its effects on individual and community health and well-being. In addition, we observed that creating a community program via interdisciplinary teamwork between medical and physician assistant students is feasible and enhances medical education and service to underserved communities. From participants’ feedback, we believe that students can greatly benefit from starting community programs to have hands-on experience in networking and collaborating with other organizations, as well as develop leadership and research skills.

Although nutrition education and cooking classes have helped participants attain healthier lifestyles, the effects of increasing obesity rates are still challenging problems. Unlike LA Sprouts, one program focused on low-income Latino communities that offers a solution at reducing obesity rates by incorporating a 12-week gardening course with their nutrition and cooking intervention, resulted in fewer participants with metabolic syndrome and lower waist circumference and BMI (Gatto et al., 2017). We do not report any difference, most likely due to our program only being two months and participants only consecutively attended at most three consecutive cooking classes. Nevertheless, our program offered increased cooking and food preparation confidence in our patient population.

Conclusion

Culinary medicine is important as it has the potential to positively change patients to eat healthier. The HB project successfully increased confidence in different aspects of meal preparation in Latino patients from Sacramento County. The dietary changes that were taught may help improve many parts of their health, from cardiovascular to metabolic diseases. The feasibility and success of this program may also help other medical and physician assistant students to form interdisciplinary teams and initiate community programs. This may not only help the local communities that they serve but also encourage and better equip future healthcare providers with experience working with community organizations, research, and leadership.

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