



¡Cocinar Para Su Salud!: Randomized Controlled Trial of a Culturally Based Dietary Intervention among Hispanic Breast Cancer Survivors



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ABSTRACT

Background There is a need for culturally relevant nutrition programs targeted to underserved cancer survivors.

Objective Our aim was to examine the effect of a culturally based approach to dietary change on increasing fruit/vegetable (F/V) intake and decreasing fat intake among Hispanic breast cancer survivors.

Design Participants were randomized to Intervention and Control groups. Diet recalls, detailed interviews, fasting blood, and anthropometric measures were collected at baseline, 3, 6, and 12 months.

Participants/setting Hispanic women (n=70) with stage 0 to III breast cancer who completed adjuvant treatment and lived in New York City were randomized between April 2011 and March 2012.

Intervention The Intervention group (n=34) participated in *¡Cocinar Para Su Salud!*, a culturally based nine-session (24 hours over 12 weeks) intervention including nutrition education, cooking classes, and food-shopping field trips. The Control group (n=36) received written dietary recommendations for breast cancer survivors.

Main outcome measures Change at 6 months in daily F/V servings and percent calories from total fat were the main outcome measures.

Statistical analyses Linear regression models adjusted for stratification factors and estimated marginal means were used to compare changes in diet from baseline to 3 and 6 months.

Results Baseline characteristics were the following: mean age 56.6 years (standard deviation 9.7 years), mean time since diagnosis 3.4 years (standard deviation 2.7 years), mean body mass index (calculated as kg/m²) 30.9 (standard deviation 6.0), 62.9% with annual household income ≤\$15,000, mean daily servings of all F/V was 5.3 (targeted F/V 3.7 servings excluding legumes/juices/starchy vegetables/fried foods), and 27.7% of daily calories from fat. More than 60% in the Intervention group attended seven or more of nine classes, with overall study retention of 87% retention at 6 months. At month 6, the Intervention group compared with Control group reported an increase in mean servings of F/V from baseline (all F/V: +2.0 vs -0.1; P=0.005; targeted F/V: +2.7 vs +0.5; P=0.002) and a nonsignificant decrease in percent calories from fat (-7.5% vs -4.4%; P=0.23) and weight (-2.5 kg vs +3.8 kg; P=0.22).

Conclusions *¡Cocinar Para Su Salud!* was effective at increasing short-term F/V intake in a diverse population of Hispanic breast cancer survivors.

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CURRENT GUIDELINES FOR CANCER SURVIVORS recommend a diet high in fruits and vegetables (F/V) and low in energy-dense foods, such as foods high in fats and sugars, in order to improve clinical outcomes.^{1,2} However, there are limited resources available

to cancer survivors to help them achieve these behavioral recommendations and few cancer survivors meet the recommendations. The American Cancer Society (ACS) reports that only 18% of breast cancer survivors eat the recommended 5 or more servings of F/V per day.³ Individuals of lower socioeconomic status are even less likely to adhere to the guidelines.⁴

It is well established that simply providing dietary recommendations to any patient population will not achieve sustained dietary change³ and there is a paucity of data on how to effectively motivate breast cancer survivors to adhere to dietary recommendations, especially in minority and low-income populations. To date, the majority of dietary interventions among cancer survivors have been targeted to the mainstream non-Hispanic white US population.^{5,6} There is a need for culturally relevant and appropriate nutrition programs targeted to underserved populations of cancer survivors.

Since 2011, Hispanics have become the largest minority population in the United States, representing a diverse constellation of nationalities, ethnicities, and cultural norms.⁷ Of the current estimated 12 million cancer survivors, an estimated 5% are Hispanic.⁸ Conducting intervention studies among Hispanic populations is particularly important because these groups may be at greater risk of breast cancer recurrence compared with non-Hispanic whites due to high rates of obesity,⁹ lower rates of physical activity,¹⁰ and poorer access to quality health care.¹¹ Although Hispanic women have a lower incidence rate of breast cancer than non-Hispanic white women, Hispanic women are 20% more likely to die of breast cancer than non-Hispanic white women who are diagnosed at a similar age and stage.¹² In addition, Hispanic subgroups may face specific barriers to achieving dietary change, including cultural norms, health literacy, language, and food access.

Study investigators partnered with the New York City-based nonprofit organization, Cook For Your Life (www.cookforyourlife.org), to develop and conduct a 3-month culturally based dietary intervention, *¡Cocinar Para Su Salud! (Cook For Your Health!)*, among Hispanic breast cancer survivors. Cook For Your Life had previously implemented single-session community classes in multiple New York City locations, without formal evaluation. Study investigators worked with Cook For Your Life community educators, including registered dietitian nutritionists (RDNs), other nutrition educators, chefs, and community organizers, to develop a longer curriculum with specific goals and a formal assessment of behavior change outcomes. The goal of the intervention was to test whether a focused approach to dietary behavioral change could be effective in assisting women to achieve and maintain the dietary guidelines put forth by the American Institute for Cancer Research (AICR) and ACS.^{1,2} As such, the intervention did not focus on changing other lifestyle behaviors included in the guidelines, including body size and physical activity. This article reports on the planned primary outcomes examining the effects of a culturally based approach to dietary change on increasing F/V intake and decreasing fat intake among Hispanic breast cancer survivors over 6 months. Long-term 12-month data will be presented in a future article and will explore predictors of dietary change.

METHODS

Study Design and Participant Recruitment

This study was a randomized controlled trial designed to examine the effects of a nine-session (24 hours over 12 weeks), culturally based dietary intervention vs standard written materials on change in F/V and total fat intake among Hispanic breast cancer survivors. Spanish-speaking women with a history of stage 0 to III breast cancer and who were at least 3 months post treatment (surgery, radiation, or chemotherapy; current hormonal therapy allowed) with no evidence of metastatic disease were recruited from the Columbia University Medical Center Breast Oncology Clinic between January 2011 and March 2012. Women were screened for the following eligibility criteria: aged 21 years or older; Hispanic descent and fluent in Spanish; no uncontrolled diabetes mellitus, defined as hemoglobin A1c >7%; no uncontrolled comorbidities (eg, hypertension); currently a nonsmoker (given the low likelihood of current smokers to engage in healthy lifestyle behaviors); mean intake of <5 servings of F/V per day as assessed by the Block Fruit/Vegetable/Fiber Screener¹³; access to a functional home or cell phone; and not currently active in a dietary change program. A detailed screening interview assessed medical history, reproductive history, family history, demographic information, physical activity, use of concomitant medications, and acculturation. Acculturation was assessed using the Short Acculturation Scale for Hispanics, which assesses acculturation based on language use, media, and ethnic-social relations.^{14,15} The study was approved by the Columbia University Medical Center and Columbia University Teachers College Institutional Review Boards (ClinicalTrials.gov NCT01414062). All participants provided written informed consent.

Baseline Data Collection

Once participants completed the screening questionnaire, eligible participants were contacted and scheduled for a baseline clinic visit to occur within 2 weeks before the dietary intervention program start date. This scheduling was necessary to allow women to enroll in the study in intervention group cohorts. Clinic visits took place at the Herbert Irving Center for Clinical and Translational Research at Columbia University Medical Center. During clinic visits, the following procedures were conducted: assessment of anthropometric measures by trained study staff using a standardized protocol (height was measured using a calibrated Genentech Accustat stadiometer, weight was measured using a calibrated SR Instruments SRscale, waist and hip circumferences were measured using a Gulick II tape measure [Country Technology]); fasting blood collection for planned future biomarker analysis, including carotenoids and tocopherols as markers of dietary intake, metabolic markers (eg, insulin, glucose, insulin-like growth factor-1), markers of inflammation (eg, C-reactive protein, interleukin 6), and DNA methylation; and completion of a detailed interviewer administered questionnaire, including questions related to stages of change, frequency of diet-related behaviors, social support, anxiety and depression, health behaviors, and psychosocial constructs. Health literacy and ability to read food labels was also assessed at this time using the Newest Vital Sign.¹⁶ Baseline dietary intake was assessed by an

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