



MEDIA, FESTIVAL, FARMERS'/FLEA MARKET, AND GROCERY STORE INTERVENTIONS

Lead to Improved Fruit and
Vegetable Consumption for
California Latinos

Desiree R. Backman,
Dr.P.H., R.D.

California Department of
Health Services

Public Health Institute

Gian C. Gonzaga, Ph.D.

Freeman, Sullivan & Co.

June 2003





ACKNOWLEDGEMENTS

The authors would like to thank those who were involved in the study. Michael Fierro, formerly with the Cancer Prevention and Nutrition Section of the California Department of Health Services, assisted in the development of the telephone surveys. Academicians from Loma Linda University School of Public Health reviewed the surveys to establish face validity. Representatives at Freeman, Sullivan & Co. conducted the baseline and follow-up telephone surveys and analyzed the data. Rosalba Sotelo Armijo, formerly with the Cancer Prevention and Nutrition Section of the California Department of Health Services, and Valencia, Pérez, and Echeveste Public Relations coordinated the implementation of the interventions. Researchers at Loma Linda University Center for Health Research reviewed the final research report. Funding for the study was provided by a grant from the National Cancer Institute and the Centers for Disease Control and Prevention. Funding for the interventions was provided by The California Endowment and the United States Department of Agriculture's Food Stamp Program.

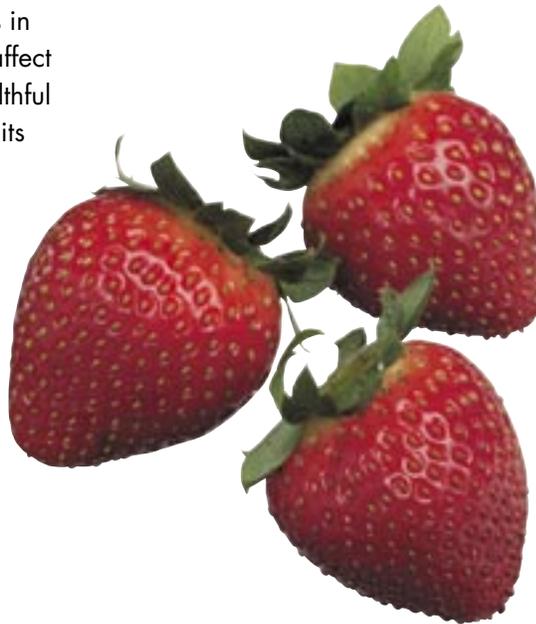


BACKGROUND

Latinos make up 32 percent of the California population and are a rapidly growing demographic group in the state and the nation.¹ In fact, by the year 2025, the Latino population is expected to increase to 43 percent in California. Numerous factors affect the health status of this population. Compared to non-Hispanic whites, Latinos have lower income levels, higher poverty rates, larger families, less health insurance coverage, lower education levels, and are considerably younger.^{2,3} Almost half (45 percent) of Latino adults are classified as overweight and more than 25 percent are obese.⁴ Excess weight contributes to heart disease, cancer, stroke, and diabetes, which are four of the top five leading causes of death among Latinos in California.⁵ The chronic diseases that affect this population can be reduced by healthful eating, which includes a diet rich in fruits and vegetables, and other lifestyle modifications.⁶

In 1997, a considerable drop in fruit and vegetable consumption was reported among California Latinos.⁷ Sixty-five percent of Latino adults were not eating the recommended 5 or more servings

of fruits and vegetables a day.⁷ To empower Latinos to increase their daily consumption of fruits and vegetables and ultimately reduce their risks of chronic diseases, the California Department of Health Services developed the *California Latino 5 a Day Campaign*. In 1999, the *California Latino 5 a Day Campaign* pilot tested various media and community-based approaches to improve fruit and vegetable consumption; and, in 2000, the National Cancer Institute and Centers for Disease Control and Prevention awarded a grant to formally evaluate the program.



**Heart disease,
cancer, stroke,
and diabetes**

are four of the top
five leading causes of
death among Latinos in
California.



METHODS

Chronic diseases that affect Latinos may be reduced by eating 5 or more servings of fruits and vegetables every day.

From June through September 2000, the *California Latino 5 a Day Campaign* evaluated the cumulative effect of its mass media and community-based interventions on fruit and vegetable consumption and factors that affect consumption among Latino adults, aged 18 to 65 years. For the sample of this study, 969 Latino adults were recruited at random by telephone. Six hundred and seventy-five participants completed interviews both before and after the campaign. Participants residing in Fresno, California were exposed to the *California Latino 5 a Day Campaign* for four months, while participants residing in Riverside/San Bernardino, California were not exposed to the program during that time. Table 1 shows the demographics of the study participants.

The *California Latino 5 a Day Campaign* interventions, which included mass media and community-based approaches, targeted mainly Latinos who were Spanish-speaking. During the study, television and radio advertisements promoting the *5 a Day* message were aired on seven top-rated Spanish-language stations (one

television and six radio) and one top-rated Latino-targeted English-language radio station, all in the Fresno media market. To complement the advertisements, a Spanish- and English-language *5 a Day* mobile billboard operated eight hours per day, five days per week throughout the course of the study. The mobile billboard was parked at festivals, farmers'/flea markets, supermarkets, and neighborhood grocery stores where *Latino 5 a Day* interventions were conducted and was driven throughout selected neighborhoods in the intervention community to expose Latino residents to the *5 a Day* message outside of their homes. The mass media intervention also included two media tours that were conducted in the Fresno media market. During the tours, bilingual *Latino 5 a Day* spokespeople conducted 22 interviews in June and July and 17 interviews in August and September. Interviews were given to Spanish-language and, to a lesser extent, Latino-targeted English-language television, radio, and print media. The purpose of the tours was to show Latinos how easy it could be to consume 5 or more servings of fruits and vegetables each day.

Table 1. Demographic characteristics of the study participants.

Intervention Community	Comparison Community
N = 338	N = 337
67% Female	70% Female
33% Male	30% Male
65% Interviewed in Spanish	79% Interviewed in Spanish
Average Age: 38 years	Average Age: 38 years
Average Household Size: 5	Average Household Size: 4

METHODS

The *California Latino 5 a Day Campaign* reached Latino adults with the *5 a Day* message through direct, community-level outreach at large Latino festivals, farmers'/flea markets, supermarkets, and neighborhood grocery stores. Bilingual *Latino 5 a Day* community health leaders operated *5 a Day* booths at six Latino festivals in the intervention community, where they reached 54,000 Latinos. The community health leaders conducted the fruit and vegetable prize-wheel game at each festival event, shared tips with Latino festival participants about how they could easily include 5 or more servings of fruits and vegetables into their daily diets, and distributed *5 a Day* nutrition education materials that build skills toward healthful eating. The community health leaders also operated *5 a Day* booths at 17 farmers'/flea market events, where they reached 51,000 Latinos. The community health leaders conducted food demonstrations at each farmers'/flea market event, provided samples of the recipes they prepared from the *California Latino 5 a Day Campaign's* "Healthy Latino Recipes Made With Love" cookbook, and distributed *5 a Day* nutrition education materials that build skills toward healthful eating. Lastly, *5 a Day* signs and information were placed throughout 61 supermarkets and neighborhood grocery stores in Fresno. On-site retail promotional events were also conducted at 11 of the 61 stores. These events were planned,

conducted, and promoted in partnership with the radio stations that aired the *5 a Day* advertisements. During the events, radio DJs broadcast live from the stores to encourage Latinos to join the event, and several community health leaders conducted the fruit and vegetable prize-wheel game and distributed *5 a Day* nutrition education materials, reaching 6,600 Latinos.

To determine whether the interventions were effective, baseline telephone interviews were conducted with the study participants in Fresno and Riverside/San Bernardino before the study (May 2000), and follow-up telephone interviews were conducted after the study (October 2000). The baseline and follow-up interviews measured changes in fruit and vegetable consumption among the study participants, as well as factors that influence fruit and vegetable consumption, including knowledge, attitudes, beliefs, intentions, and confidence in one's ability to make positive changes.





RESULTS

Exposure to the *California Latino 5 a Day Campaign*

More than 8 out of 10 (84 percent) of the study participants in Fresno heard or saw at least one of the media interventions and 40 percent of the participants experienced at least one of the community interventions during the four-month campaign. Table 2 shows significant increases in reported exposure among Spanish speakers in the intervention community to the media, community, and total exposure measures. There were also significant increases among English speakers in the intervention community to the media and total exposure measures. There were not, however, significant increases in the comparison community.



Table 2. Changes in participants' mean reported campaign exposure.

	Intervention Community (N = 338)	
	Spanish Speakers	English Speakers
	Change (Base, Follow, N)	Change (Base, Follow, N)
Media exposure ^a	+0.59* (2.81, 3.40, 187)	+0.46* (1.96, 2.42, 138)
Community exposure ^b	+0.63* (0.59, 1.22, 187)	+0.13 (0.40, 0.53, 138)
Total exposure ^c	+1.23* (3.40, 4.63, 187)	+0.58* (2.36, 2.94, 138)
	Comparison Community (N = 337)	
Media exposure ^a	+0.15 (2.49, 2.64, 215)	+0.23 (2.06, 2.29, 114)
Community exposure ^b	- 0.06 (0.44, 0.38, 215)	+0.01 (0.65, 0.66, 114)
Total exposure ^c	+0.08 (2.93, 3.01, 215)	+0.24 (2.71, 2.95, 114)

Notes. ^a Numbers in parentheses are based on a scale from 0 (no media exposure) to 7 (exposed to all media interventions). ^b Numbers in parentheses are based on a scale from 0 (no community exposure) to 10 (exposed to all aspects of the community interventions). ^c Numbers in parentheses are based on a scale from 0 (no exposure to the interventions) to 17 (exposed to all aspects of the interventions). **p* < .05.

RESULTS

Fruit and Vegetable Consumption

Table 3 shows the number of fruit and vegetable servings the participants reported consuming during the previous day at baseline and follow-up. Spanish-speaking participants in the intervention community reported a significantly greater increase in fruit and vegetable consumption than did Spanish speakers in the comparison community. In contrast, English-speaking

participants in the comparison community reported a greater increase in fruit and vegetable consumption than did English speakers in the intervention community. This result may likely be due to other English-language nutrition education campaigns that were taking place in the comparison community at the time of the study.

Consumption of fruits and vegetables increased significantly among Spanish-speaking Latinos in Fresno.

Table 3. Changes in fruit and vegetable consumption.

	Intervention Community					
	Spanish Speakers			English Speakers		
	Baseline	Follow-up	Difference	Baseline	Follow-up	Difference
Total Servings of Fruits and Vegetables	4.41	6.04	+1.63* ^a	4.37	4.80	+0.43
Comparison Community						
Total Servings of Fruits and Vegetables	4.05	5.05	+1.00*	4.06	5.86	+1.80*

Notes. * $p < .05$.

^aSignificant interaction, $p < .05$.

Correlations Between Campaign Exposure and Consumption and Factors that Influence Consumption

There were positive and significant correlations between exposure to the media and community interventions and fruit and vegetable consumption. Specifically, the more the participants in the intervention community were exposed to the media and

community interventions, the more they increased their fruit consumption ($r = .14, p < .05$) and total fruit and vegetable consumption ($r = .10, p < .07$). Although relevant to the results of the study, the latter finding was marginally significant.

RESULTS

As shown in Table 4, there were positive and significant correlations between exposure to the media and community interventions and the factors that influence fruit and vegetable consumption.

Specifically, the more the participants in Fresno were exposed to the *California Latino 5 a Day Campaign*, the more they:

- were aware of the *5 a Day* message,
- felt positive about eating *5 a Day*,
- desired to eat more fruits and vegetables,
- thought seriously about increasing their consumption of fruits and vegetables,
- planned to eat more servings of fruits and vegetables, and
- intended to eat *5 a Day*.



Table 4. Correlations between participants' exposure to the media and community interventions and changes in factors that influence fruit and vegetable consumption.

	Intervention Exposure Type		
	Media	Community	Total
Aware of <i>5 a Day</i> message (N = 338)	.26**	.17**	.26**
Feelings about eating 5 or more servings of fruits and vegetables (N = 306) ^a	.19**	.21**	.23**
Desire to eat more fruits and vegetables (N = 319) ^b	.18**	.03	.13*
Seriously thinking about eating more fruits and vegetables (N = 281)	.26**	.15*	.25**
Planning to eat more fruits and vegetables (N = 293)	.24**	.16**	.24**
Intending to eat 5 or more servings of fruits and vegetables (N = 308)	.25**	.20**	.27**

Notes. Sample sizes varied in each analysis due to missing data. ^a 1 = very positive, 4 = very negative. ^b 1 = very much, 4 = not at all. * $p < .05$. ** $p < .01$.

The more the participants in Fresno were exposed to the *California Latino 5 a Day Campaign* the more they...

intended to eat *5 a Day*.

CONCLUSIONS

The findings of the study suggest that the *California Latino 5 a Day Campaign* achieved substantial success. The media, festival, farmers'/flea market, and grocery store interventions reached the intended audience. Consumption of fruits and vegetables increased significantly among Spanish-speaking Latinos in the intervention community. For Fresno Latinos, there was a positive relationship between exposure to the campaign and factors that influence fruit and vegetable consumption, as well as consumption itself.

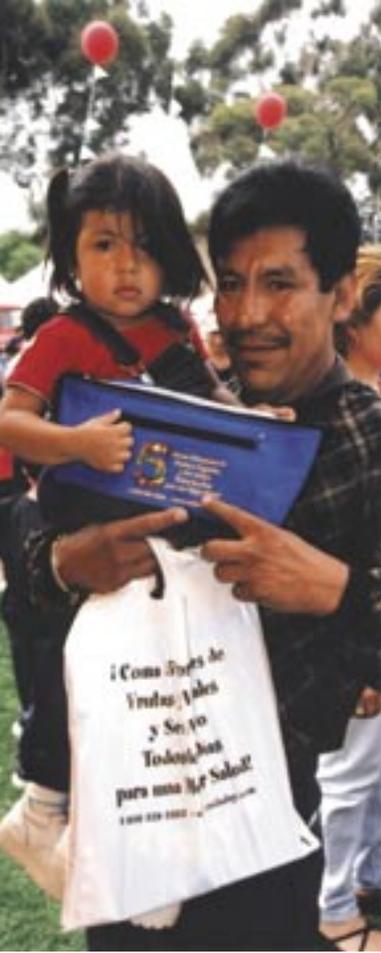
This study emphasizes the importance of designing campaigns that appeal to the cultural needs, norms, and lifestyles of the Latino population. To achieve the best possible results, the intervention approaches must reach Latinos in their homes, where they shop, where they eat, where they gather with other community members, and where they celebrate their cultural heritage.

The *California Latino 5 a Day Campaign* has taken steps to reach more communities with its effective program. Currently, the program is operating in selected counties in Central and Southern California. If resources become available, the *California Latino 5 a Day Campaign* will be operating nearly statewide by 2006. The success of the *California Latino 5 a Day Campaign* should also begin a process toward creating a national program that is designed to increase fruit and vegetable consumption among Latinos. In the United States, as in California, Latinos are the fastest-growing segment of the population. Careful interest should be taken to improve the overall health and well-being of this culturally rich and important group.



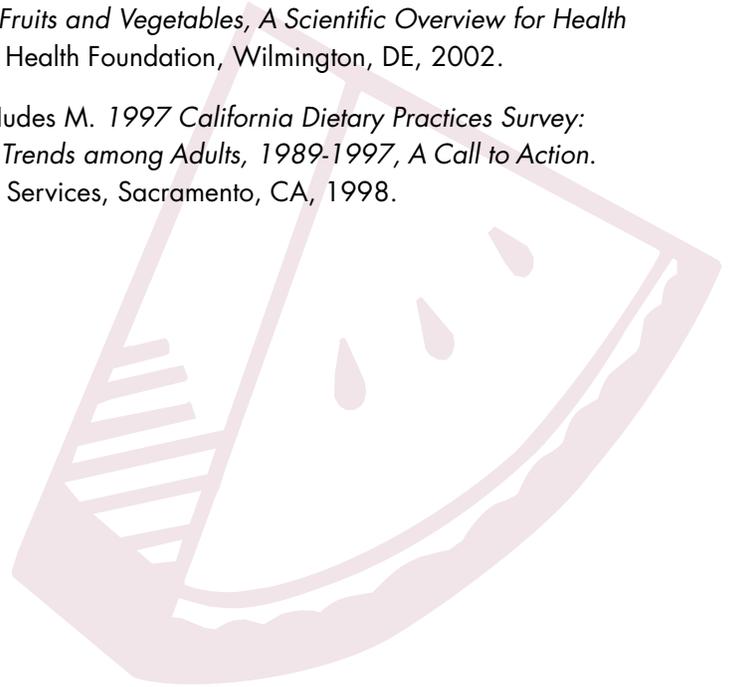
The study showed that, to achieve the best possible results, health campaigns must reach Latinos in their homes, where they shop, where they eat, where they gather with other community members, and where they celebrate their cultural heritage.





REFERENCES

1. U.S. Census Bureau, Census Bureau 2000. *Hispanic or Latino Origin for the United States, Regions, Divisions, States, and for Puerto Rico: 2000*. Table 1-5. Hispanic or Latino Origin for California: 2000. Summary File 1 and unpublished data. Internet Release Date: October 22, 2001.
2. Brown ER, Ponce N, Rice T, Lavarreda SA. *The State of Health Insurance in California: Findings from the 2001 California Health Interview Survey*. UCLA Center for Health Policy Research. Los Angeles, CA, 2002.
3. Therrien M, Ramirez RR. *The Hispanic Population in the United States: March 2000*. Current Population Reports, P20-535, U.S. Census Bureau. Washington DC, 2000.
4. *California Behavioral Risk Factor Survey, 2001 data*. Survey Research Group, Cancer Surveillance Section, California Department of Health Services, Sacramento, CA, 2002.
5. State of California, Department of Health Services, Death Records. *Leading Causes of Death by Race/Ethnic Groups and Sex: Table 5-12, 2000*.
6. Hyson D. *The Health Benefits of Fruits and Vegetables, A Scientific Overview for Health Professionals*. Produce for Better Health Foundation, Wilmington, DE, 2002.
7. Foerster SB, Gregson J, Wu S, Hudes M. *1997 California Dietary Practices Survey: Focus on Fruits and Vegetables, Trends among Adults, 1989-1997, A Call to Action*. California Department of Health Services, Sacramento, CA, 1998.



The *California Latino 5 a Day Campaign* is a statewide public health initiative that empowers Latino adults to consume 5 to 9 servings of fruits and vegetables and engage in at least 30 minutes of physical activity every day. The *Campaign* is administered in part by the Public Health Institute and is led by the California Department of Health Services in cooperation with the National 5 A Day Program.



For more information, visit us at www.ca5aday.com or call (916) 449-5400.

Mailing address:

California Latino 5 a Day Campaign
California Department of Health Services
Chronic Disease and Injury Control/
Cancer Prevention and Nutrition Section
PO Box 997413, MS 7204
Sacramento, CA 95899-7413

Funding for the study was provided by a grant from the National Cancer Institute and the Centers for Disease Control and Prevention. Funding for the interventions was provided by The California Endowment and the United States Department of Agriculture's Food Stamp Program, an equal opportunity provider and employer, helping limited income Californians buy more nutritious foods for a healthier diet.





California Department of Health Services

Public Health Institute

June 2003