

Behavioral Risk Factors: A Comparison of Latinos and Non-Latino Whites in San Francisco

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ABSTRACT

Objectives. The purpose of the study was to evaluate differences between Latino and non-Latino White adults in health-related behavioral risk factors.

Methods. Telephone interviews were conducted with 652 Latinos and 584 non-Latino Whites in San Francisco selected by random-digit dialing.

Results. Latino men and women, compared with their non-Latino White counterparts, were less likely to have consumed any alcoholic beverage in the previous month (59% and 29% vs 77% and 75%, respectively), consumed fewer drinks per week (6.6 and 3.0 vs 8.9 and 5.1, respectively), and were more likely to be sedentary (40% and 46% vs 17% and 23%). Latina women were less likely than non-Latina Whites to smoke cigarettes (8% vs 29%), to have ever had a Pap smear (76% vs 93%), and to have ever had a clinical breast examination (81% vs 96%). Multivariate analyses adjusting for sex, age, education, and employment confirmed univariate findings.

Conclusions. Behavioral risk factor profiles by ethnicity help emphasize priorities of health promotion programs for a community. Latino needs include maintenance of limited consumption of alcohol and cigarettes, promotion of regular physical activity, and increasing use of low-cost cervical and breast cancer screening tests. (*Am J Public Health*. 1994;84:971-976)

Introduction

Since 1981 the Centers for Disease Control and Prevention (CDC) and collaborating state health departments have been conducting telephone surveys about health behaviors. The surveys have evolved into the Behavioral Risk Factor Surveillance System, which now provides state-specific estimates of health risk behaviors and delivery of clinical preventive services for 45 states and the District of Columbia.¹ These data are used to monitor trends in behavior changes and in planning programs or legislation at the local or state level. Comparisons of health risk behaviors between Whites and African Americans have been reported,² and a survey in New York State compared Whites, African Americans, and Latinos on behavioral risk factors for cardiovascular disease.³ Other studies including large samples of Latinos have not been published.

Regional and national data on selected behavioral risk factors among Latinos, such as cigarette smoking, have been studied.⁴⁻⁷ In a recent national survey, the overall prevalence of cigarette smoking among US Latinos was 23%, compared with 25.6% for Whites and 26.2% for African Americans; however, this rate reflects a substantially lower smoking rate among Latina women (16.3%) than among Latino men (30.9%).⁸ With regard to alcohol use, Latinos have been found to have a pattern of higher abstention rates overall, but Latino men have been found to be more likely than others to use alcohol in excess, especially in binge patterns.⁹ In addition, national mortality data show that Latinos are more likely than non-Latino Whites to die from chronic liver disease.¹⁰ Results from the Hispanic Health and Nutrition Examina-

tion Survey (HHANES) have shown that, compared with non-Latino Whites, Latina women have a two- to threefold increase in the prevalence of overweight¹¹ and that Latinos overall have a two- to fourfold increase in the prevalence of diabetes¹² and a similar rate of hypertension.¹³ Data from two regional studies indicate that Mexican Americans lead more sedentary lives than non-Latino Whites.^{14,15} Finally, the HHANES and other surveys have found that 35% of Mexican Americans, 28% of Cuban Americans, and 22% of Puerto Ricans in the United States do not have any form of health insurance, compared with 10% of Whites and 18% of African Americans.¹⁶ Thus it is not surprising that Latinos report having had fewer medical examinations or recommended cancer screening tests.¹⁷

To determine local priorities in public health education for Latinos and other ethnic/racial groups, systematic needs assessments are required. We conducted a community survey among Latinos and non-Latino Whites living in the same census tracts of San Francisco to identify differences that may exist in the prevalence of selected behavioral risk factors.

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TABLE 1—Demographic Characteristics of Latino and Non-Latino Whites Interviewed for Behavioral Risk Factor Profile, San Francisco, 1989

	Latinos (n = 652)		Non-Latino Whites (n = 584)	
	No.	%	No.	%
Sex				
Male	274	42	291	50
Female	378	58	293	50
Age				
18–29 y	211	32	137	23
30–34 y	127	20	98	17
35–44 y	143	22	179	31
45–65 y	171	26	170	29
Mean age, y (SD)	37 (13)		39 (12)	
Education				
0–6 y	132	20	2	<1
7–11 y	150	23	17	3
12 y	176	27	131	22
≥13 y	183	28	429	73
Missing	11	2	5	1
Mean education, y (SD)	10.8 (4.2)		15 (2.8)	
Employed	437	67	415	71

Methods

All subjects were sampled from the 50 census tracts in San Francisco County in which at least 10% of the population was reported to be Latino in the 1980 US census.¹⁸ This sampling universe represented 67% (n = 55 541) of all Latinos (n = 83 373) and 29% (n = 98 250) of all non-Latino Whites (n = 337 118) living in San Francisco in 1980.¹⁸ Telephone prefixes corresponding to the census tracts were identified by means of a reverse telephone directory. A modified Mitofsky-Waksberg¹⁹ method for random-digit dialing was applied to identify eligible respondents.²⁰

A household was considered to be eligible if the person answering the telephone identified himself or herself as Latino/Hispanic or non-Latino Caucasian/White, or if that person identified the majority of residents in the household as belonging to one of these groups. Potential respondents were initially asked if they considered themselves or the majority of residents in the household to be Latino/Hispanic. One third of the participating Latino households were randomly chosen to respond to the 24-item behavioral risk factor questionnaire (the remainder responded to a shorter questionnaire on smoking behavior only). Within a given household, the adult between 18 and 65 years of age who had

most recently celebrated a birthday was invited to respond to the survey. Potential respondents who refused to participate were not replaced within a household. There were 40 refusals (6%) among Latinos, but refusal rates were not computed for non-Latino Whites. All initial refusals were called a second time and unavailable eligible respondents were called approximately 10 times before they were counted as refusals. Respondents who classified themselves as Latino but who were subsequently found not to be Latino by their responses on family background were excluded from the study.

The questionnaire was administered anonymously by trained, supervised, and experienced bilingual and bicultural Latino interviewers of both sexes after subjects gave verbal consent. Latino participants responded in Spanish (80.8%) or in English (19.2%). The survey instrument and a more detailed description of the interview procedure are available from the authors upon request.

Sex, age, education, employment in the previous 2 weeks, birthplace, and national background (for persons not born in the United States) of respondents were obtained. Latinos also completed a five-item acculturation scale and their scores were dichotomized into less (scores of 1 to <3) and more (scores of 3 to 5) acculturated groups.²¹ Smoking behavior

items were similar to those of earlier surveys.⁷ We selected 24 of the 55 questions (not including questions about demographics) from the 1989 Behavioral Risk Factor Survey (BRFS, provided by CDC) to include items on seat belt use, alcohol consumption, exercise, perceived weight status, and preventive practices. Part of the BRFS questionnaire was found to have acceptable to high item reliability and to be consistent among Whites, African Americans, and Latinos in New York State.³

On the basis of responses to the questionnaire, eight behavioral risk factors were identified as outcome (dependent) variables: (1) any use of alcohol in the previous month; (2) binge drinking (defined as having had five or more drinks on one occasion in the previous month); (3) driving a motor vehicle after having had too much to drink in the previous month; (4) current cigarette smoking; (5) infrequent use of seat belts (defined by a response of "sometimes," "seldom," or "never" to a question about how often belts were used); (6) sedentary life-style (defined as no leisure-time physical activity); (7) no routine medical checkup in the previous year; (8) never having had a blood cholesterol test. Additional behavioral risk factors for women were never having had a Pap test, never having had a clinical breast examination, and never having had a mammogram.

Descriptive data were analyzed by standard techniques. Proportions were compared by corrected chi-square tests and continuous variables were compared by analysis of variance. Proportions of behavioral risk factors were age-adjusted to the 1980 US census¹⁸ by the direct method.²² Ethnic differences (with non-Latino Whites as the referent) on behavioral risk factor rates were evaluated by logistic regression analyses adjusted for sex (women as referent), age (continuous), education (continuous), and employment (being employed as referent). Additional multivariate analyses of the Latino sample were adjusted for acculturation level (more acculturated as referent).

Results

The demographic characteristics of the 652 Latinos and 584 non-Latino Whites interviewed by telephone between June and August 1989 are shown in Table 1. A larger proportion of Latino respondents were women ($P < .01$) and were between 18 and 34 years of age ($P < .001$). Considerably fewer Latinos than non-

Latino Whites had graduated from high school ($P < .001$). Seventy-four percent of the Latino respondents scored as less acculturated, and 77% were born in Latin America. The foreign-born Latinos had been living in the United States for an average of 12.9 years. Thirty percent of the Latinos were of Mexican background, 53% were Central American, and 14% were from other Latin American countries or Spain.

Any Alcohol Use, Binge Drinking, and Drinking and Driving

Table 2 shows the proportions of respondents reporting the selected behavioral risk factors. A significantly lower proportion of Latinos than non-Latino Whites reported any use of alcohol in the previous month ($P < .001$ for both men and women). Latinos consumed significantly fewer drinks per week than their non-Latino White counterparts (6.6 vs 8.9 for men, 3.0 vs 5.1 for women; both P s $< .001$). Only 6% of Latino men and 0.5% of Latina women reported averaging more than two drinks per day, compared with 16% and 6%, respectively, of their non-Latino counterparts. Although there were no differences in reported binge drinking by ethnicity, a higher proportion of Latino than White men reported drinking and driving at least once. Six percent of Latino men reported having driven a motor vehicle two or more times in the previous month when they may have had too much to drink, compared with 1.3% of non-Latino White men ($P < .01$). Of the 16 Latinos who reported this behavior, 14 were men, 14 were born in Latin America, 13 were 34 years of age or younger, 11 had less than a high school education, and 11 were employed.

Smoking Behavior

The prevalence of smoking among Latina women was very low, although rates for men were similar for both ethnic groups. Latino smokers of both sexes reported smoking fewer than half as many cigarettes per day as non-Latino Whites ($P < .001$ for men, $P = .01$ for women).

Seat Belt Use, Perceived Overweight Status, and Sedentary Life-Style

The proportions of Latinos and non-Latino Whites who reported infrequent use of seat belts were similar (Table 2). However, 5 of the 36 Latinos, compared with none of the 40 non-Latino Whites, who never used seat belts reported driving

TABLE 2—Percentages* of Behavioral Risk Factors among Latino and Non-Latino Whites Interviewed, San Francisco, 1989

	Men		Women		OR ^b	95% CI
	Latino (n = 274)	White (n = 291)	Latina (n = 378)	White (n = 293)		
Used alcohol in previous month	59	77	29	75	0.31	0.23, 0.42
Binge drinking	33	32	11	17	0.81	0.58, 1.13
Drinking and driving	9	6	2	4	1.50	0.97, 2.20
Current smoking	26	30	8	29	0.37	0.26, 0.52
Mean cigarettes/day	8.8	18.5	6.6	16.1		
Infrequent use of seat belts	25	25	24	18	0.83	0.60, 1.16
Sedentary life-style	40	17	47	23	2.15	1.59, 2.91
No physician visit in previous year	34	37	16	18	0.71	0.52, 0.98
No cholesterol test ever	13	15	10	15	0.95	0.71, 1.26
No Pap smear ever	...	...	24	7	2.41	1.30, 4.45
No clinical breast exam ever	...	...	19	4	3.09	1.45, 6.59
No mammogram ever ^c	...	...	26	23	0.88	0.58, 1.34

*All proportions are age-adjusted to the 1980 US census by the direct method.

^bOdds ratio of Latinos reporting the behavioral risk factor compared with non-Latino Whites, adjusted for sex where appropriate, education, age, and employment.

^cOnly for women aged 35 years and older (n = 146 Latinas and 138 Whites).

at least twice when they may have had too much to drink.

The proportions of respondents who perceived themselves as overweight were similar for both ethnic groups (for men, 29% of Latinos and 25% of non-Latino Whites; for women, 46% of Latinas and 38% of non-Latina Whites). Latinos of both sexes were significantly less likely than non-Latino Whites to ever exercise and to report exercising daily. In both ethnic groups, similar proportions of self-perceived overweight respondents reported an exercise frequency of at least three times per week.

Medical Examinations and Cancer Screening Tests

After results were stratified by sex, similar proportions of Latinos and non-Latino Whites reported having visited a physician for a routine checkup in the previous year, having ever had a cholesterol blood test (Table 2), and having been told by a physician that they had diabetes or hypertension. Among respondents who were 45 years of age or older, fecal occult blood tests in the previous year were reported less often by Latinos than by their non-Latino counterparts (for men, 34% vs 53%; for women, 49% vs 62%). Latina women reported fewer lifetime Pap smears and clinical breast examinations than non-Latina Whites, and similar proportions of women in each

ethnic group reported ever having had a mammogram (Table 2).

Multivariate Analyses: Correlates of Behavioral Risk Factors

Multivariate logistic regression analyses showed that Latino ethnicity was a significant predictor for selected behaviors after adjustments were made for sex, education, age, and employment (Table 2). Latinos were more likely to abstain from alcohol (odds ratio [OR] = 3.6, 95% confidence interval [CI] = 2.7, 4.8; $P < .001$) and less likely to have consumed any alcoholic beverage in the previous month (OR = 0.31, 95% CI = 0.23, 0.42; $P < .001$), but none of the other alcohol-related behaviors were significantly associated with ethnicity. Latinos were also less likely to smoke cigarettes (OR = 0.37, 95% CI = 0.26, 0.52; $P < .001$) and more likely to be sedentary (OR = 2.15, 95% CI = 1.59, 2.91; $P < .001$). Finally, Latinas were less likely than non-Latina Whites to report ever having had a Pap smear (OR = 2.41, 95% CI = 1.30, 4.45; $P = .005$) or a clinical breast examination (OR = 3.09, 95% CI = 1.45, 6.59; $P = .003$).

Other demographic variables predicted behaviors independently of ethnicity. Men were more likely to have consumed any alcohol in the previous month (OR = 2.1, 95% CI = 1.7, 2.6), more likely to consume alcohol in a binge

TABLE 3—Percentages^a of Behavioral Risk Factors among Latino Men and Women Interviewed, by Acculturation Score, San Francisco, 1989

	Men		Women		OR ^b	95% CI
	Score <3 (n = 202)	Score 3–5 (n = 72)	Score <3 (n = 280)	Score 3–5 (n = 97)		
Used alcohol in previous month	54	72	22	46	0.41	0.27, 0.62
Binge drinking	35	28	9	17	0.83	0.51, 1.35
Drinking and driving	10	8	2	2	1.04	0.39, 2.79
Current smoking	26	27	7	12	0.61	0.36, 1.03
Mean cigarettes/day	8	10	6	8		
Infrequent use of seat belts	28	15	22	21	1.26	0.79, 2.03
Sedentary life-style	44	30	55	29	2.05	1.35, 3.12
No physician visit in previous year	38	25	13	19	1.25	0.78, 2.01
No cholesterol test ever	13	15	8	12	1.54	1.01, 2.34
No Pap smear ever	...	...	24	7	0.69	0.36, 1.33
No clinical breast exam ever	...	...	19	4	1.88	0.85, 4.15
No mammogram ever ^c	...	...	26	23	0.84	0.48, 1.46

^aAll proportions are age-adjusted to the 1980 US census by the direct method.
^bOdds ratio of less acculturated (score <3) Latinos reporting the behavioral risk factor compared with more acculturated (score 3–5) Latinos, adjusted for sex where appropriate, education, age, and employment.
^cOnly for women aged 35 years and older (n = 146).

pattern (OR = 3.3, 95% CI = 2.5, 4.5), more likely to drink and drive (OR = 2.7, 95% CI = 1.0, 4.0), less likely to use seat belts frequently (OR = 1.34, 95% CI = 1.02, 1.80), and less likely to be sedentary (OR = 0.75, 95% CI = 0.57, 0.97). Persons with less than a high school education were more likely to abstain from alcohol (OR = 1.4, 95% CI = 1.1, 1.9), more likely to drink and drive (OR = 1.96, 95% CI = 1.3, 2.9), more likely to smoke cigarettes (OR = 1.5, 95% CI = 1.1, 1.9), less likely to use seat belts (OR = 2.2, 95% CI = 1.6, 3.1), and more likely to be sedentary (OR = 2.6, 95% CI = 1.96, 3.50). Persons 35 to 65 years of age were less likely to smoke cigarettes (OR = 0.60, 95% CI = 0.46, 0.76) and more likely to be sedentary (OR = 1.5, 95% CI = 1.1, 1.9); women in this age group were more likely to have had at least one Pap test (OR = 2.6, 95% CI = 1.6, 4.2), more likely to have had at least one breast examination (OR = 1.8, 95% CI = 1.1, 3.0), and more likely to have had at least one mammogram (OR = 7.1, 95% CI = 5.0, 10.0).

Acculturation and Behavioral Risk Factors among Latinos

The effects of acculturation on selected self-reported behaviors among Latinos are shown in Table 3. A lower proportion of less acculturated men

(*P* = .01) and women (*P* < .001) reported consuming any alcoholic beverage in the previous month. There were no significant differences by acculturation for either sex in proportions of heavy drinking, binge drinking, drinking and driving, current smoking, or seat belt use. Less acculturated men (*P* = .003) and women (*P* < .001) were more likely to be sedentary. Less acculturated men, but not women, were less likely to have had a routine checkup in the previous year (*P* = .009).

Multivariate analyses showed that less acculturated Latinos were less likely to have consumed alcoholic beverages in the previous month (OR = 0.41, 95% CI = 0.27, 0.62) and to be sedentary (OR = 2.05, 95% CI = 1.35, 3.12). Male sex was the only significant predictor of cigarette smoking among Latinos (OR = 4.2, 95% CI = 3.8, 4.6), although less acculturation was nearly significant (*p* = .06).

Discussion

To effectively promote healthy behaviors among ethnic and racial groups in the United States, programs need to be based on the specific cultural and behavioral characteristics of each group.²³ This study contrasts the behavioral risk factor profiles of Latinos and non-Latino Whites in

San Francisco and provides information on which to base local programs. Compared with a statewide sample in California, this San Francisco sample reported somewhat higher prevalences of binge drinking, drinking and driving, and seat belt nonuse.²⁴ The proportions that reported smoking cigarettes, having had their cholesterol measured, and having had a mammogram were similar to those in the statewide sample.²⁴ Only a few substantial differences in behavioral risk factors between ethnic groups were found in our study: these differences were in the consumption of alcohol in the previous month, current smoking, sedentary life-style, and having had selected cancer screening tests.

The proportion of abstainers from alcohol was higher and the mean number of alcoholic drinks consumed per week was lower for both Latino men and Latina women. In an analysis of HHANES data, Markides and colleagues found that marriage was the principal demographic factor that consistently predicted less alcohol consumption among Mexican-American men.²⁵ Although we did not find higher rates of alcohol consumption among Latino men than among non-Latino Whites, our data indicate that a subset of less acculturated Latino men are more likely than non-Latino Whites to combine excessive drinking and driving. However, driving without a seat belt after having had too much to drink was an infrequent high-risk behavior in both ethnic groups, and the proportion reporting this behavior was similar to the 6.3% found among all men in California.²⁴ In the HHANES, Latinos with more years of education, higher incomes, and higher levels of acculturation reported higher alcohol consumption.²⁵

In contrast to the men, 70% of Latina women reported no alcohol use in the previous month, and only 3% averaged one or more drinks per day. Marks and colleagues also found low alcohol use among women from the three major Latino subgroups participating in the HHANES, especially among the less acculturated. This protective effect of traditional Latino culture may be an important element to incorporate into comprehensive health promotion campaigns focused on alcohol use. Markides et al. reported that increasing acculturation was associated with increased alcohol intake among Mexican-American women 20 to 39 years of age.²⁵ We found that less acculturated Latinos of both sexes were

less likely to consume alcoholic beverages, but the proportion of heavy drinkers was not related to acculturation.

The prevalence of sedentary life-style, defined as no leisure-time physical activity in the previous week, was higher among Latino men and women than among non-Latino Whites. The possible health advantages provided by regular physical activity include a lower likelihood of diabetes.²⁷ Given that diabetes is two to four times more prevalent among Mexican Americans than among Whites or African Americans,¹² the failure to realize the potential benefits of regular exercise may be of particular importance for Latinos.

Latinos were less likely than non-Latino Whites to report having received a medical examination in the previous year. Differences between ethnic groups were observed for fecal occult blood tests, Pap tests, and clinical breast examinations, but not for mammograms. We did not ask about health insurance status in our survey, and it is likely that these differences reflect the lower coverage rates that have been reported for Latinos.¹⁶ Analyses of the HHANES data have shown that access to health care was the most important predictor of use of preventive health measures for the three Latino subgroups surveyed.²⁸ Although there is controversy over the roles of regular medical examinations and annual fecal occult blood tests, there is no question about the benefits of screening for cervical²⁹ and breast³⁰ cancers. The proportions of Latina women in our sample who had ever had a Pap smear and who had ever had a clinical breast examination were similar to the proportions reported in the HHANES and other surveys and were considerably lower than those found for non-Latina White women.^{17,28}

Although the main objective of this study was to identify ethnic differences in behavioral risk factors, the importance of years of formal education was also highlighted by our data. We found more risk behaviors associated with fewer years of educational attainment, including drinking and driving, cigarette smoking, sedentary life-style, and nonuse of seat belts. Thus, we observed differences in risk behaviors by educational attainment and by ethnicity that were independent of each other. The different patterns of risk profiles by years of education within ethnic groups may have implications in the development of health promotion campaigns.³¹

There are several limitations of this study that should be considered in interpreting the results. First, responses to an interview administered over the telephone may not reflect actual behavior, and no validation of self-reports was conducted. A recent study found that comparable estimates were produced by the BRFSS and the Stanford Five-City Project Survey (supplemented by physiological data) for selected cardiovascular risk measures, but significant differences were found for measures of body weight.³² Second, subjects were eligible for this study if they identified themselves as belonging to one of the two ethnic groups and if they lived in a household with a telephone (92% to 96% of San Francisco households have telephones). Variations in self-categorization of ethnicity and in sample selection by random-digit dialing may have affected the results. Third, a comparison of Latino respondents with non-Latino Whites who live in the same census tracts may minimize potential differences in behavioral risk factors influenced by socioeconomic status. Finally, the variables identified as predicting behavioral risk factors need to be interpreted with caution because these results are based on a single cross-sectional survey.

The differences in behavioral risk factor profiles between Latinos and non-Latino Whites emphasize the importance of ethnic group-specific priorities. This is of particular importance in California, where more than 35% of the population is non-White.³³ These data indicate that health promotion programs for San Francisco Latinos should encourage Latinos to maintain low consumption of alcoholic beverages and cigarettes, should educate less acculturated Latino men about the risks of driving a motor vehicle while intoxicated, should promote more physical activity among Latinos of both sexes, and should facilitate the use of low-cost cervical and breast cancer screening tests for Latina women. It is important to conduct health promotion campaigns in Spanish, to use easily understood messages that are culturally appropriate, and to base these messages on research that identifies attitudes and values specific to the target audience. To further define health promotion needs, minority groups in selected states should be oversampled in behavioral risk factor surveys. □

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US Public Health Service/HCFCA Conference on Primary Care to Be Held in September

The US Public Health Service and the Health Care Financing Administration of the Department of Health and Human Services will convene the Second National Primary Care Conference on September 11 through 13, 1994, at the Fairmont Hotel in Dallas, Tex. The theme of the conference is "Making Primary Care Work Under Health Care Reform." The 2-day conference of panel discussions and plenary and break-out sessions will be attended by primary care and other health care practitioners; national, state, and local policymakers; health care administrators; researchers; educators; and consumers.

Unlike the First National Primary Care Conference that was convened 2 years ago in Washington, DC, and that centered on policy related issues, this conference will address very practical issues and questions. It will provide a national forum that focuses on the primary care changes that are already

occurring under state health care reform as they relate to primary care systems, workforce issues, and needs of the underserved. Actual case studies will be discussed with decisionmakers from health care provider organizations, academic health centers, and both the legislative and executive branches of government.

Cosponsors of the conference include the W. K. Kellogg Foundation, the Robert Wood Johnson Foundation, the Josiah Macy Jr. Foundation, the National Academy for State Health Policy, the Henry J. Kaiser Family Foundation, and the Pew Charitable Trusts.

A \$250 registration fee covers all conference costs, including materials, meals, reception, and special events. For additional information and to ensure that you receive the program brochure, contact Rose Salton, Social & Scientific Systems, 7101 Wisconsin Ave, Suite 1300, Bethesda, MD 20814; tel (301) 986-4870; fax (301) 913-0351.