Ability of Ethnic Self-Identification to Partition Modifiable Health Risk Among US Residents of Mexican Ancestry

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Understanding and reducing health disparities are public health priorities, but precise identification of subpopulations at greatest risk is a persistent obstacle to these efforts. For example, researchers commonly treat "Hispanic" as a unitary category, even though this group encompasses millions of people living in numerous unique cultural and political settings.[1] The importance of differentiating among Hispanic national origin groups is highlighted by the considerable variation in health behaviors, perceptions, and objective health outcomes across subpopulations.[2–4] Clearly bounded groups are critical to providing a coherent picture of Hispanic health.

Ethnic self-identification is one approach to differentiating Hispanic subpopulations.[5–7] Familiar ethnic self-descriptors such as Cuban, Puerto Rican, and Mexican American reflect both national identity and unique cultural contexts. These categories also demarcate health and health risk, including differences in health behaviors such as smoking,[8] rates of chronic medical conditions,[4] and patterns of health care use.[3] Thus, ethnic self-identity represents a useful, easily accessible method for partitioning Hispanic subpopulations in a manner that could help refine our understanding of ethnic health disparities.

Despite repeated calls for more-precise analyses of the Hispanic population, research examining subgroups is rare, in part because of the difficulty in obtaining sufficient numbers for meaningful analyses.[9] Indeed, one of the flagship public health surveys in the United States—the National Health and Nutrition Examination Survey—collects data on ethnic self-identity but provides only Mexican American or "other Hispanic" categories for analysis.[10] By contrast, the National Health Interview Survey[11] (NHIS) provides participants' responses to 9 different Hispanic national origin subcategories, permitting more-nuanced analyses of health differentials.

In our study, we capitalized on this more-precise measurement strategy and used ethnic

Objectives. We examined the relationship between ethnic self-identification and the partitioning of health risk within a Mexican American population.

Methods. We combined data from the 2000 to 2002 National Health Interview Surveys to obtain a large (N = 10 044) sample of US residents of Mexican ancestry. We evaluated health risk, defined as self-reported current smoking, overweight, and obesity, and compared the predictive strength of health risk correlates across self-identified Mexican and Mexican American participants.

Results. Self-identified Mexican participants were less likely to smoke (odds ratio [OR] = 0.70; 95% confidence interval [CI] = 0.60, 0.83; *P* < .001) and to be obese (OR = 0.66; 95% CI = 0.56, 0.77; *P* < .001) than were self-identified Mexican American participants. Within-group analyses found that sociodemographic predictors had inconsistent and even contradictory patterns of association with health risk across the 2 subgroups. Health risk was consistently lower among immigrants relative to US-born participants. Ethnic self-identification effects were independent of socioeconomic status.

Conclusions. US residents of Mexican ancestry showed substantial within-group differences in health risk and risk correlates. Ethnic self-identification is a promising strategy to clarify differential risk and may help resolve apparent discrepancies in health risk correlates in this literature. (*Am J Public Health.* 2008; 98:1971–1978. doi:10.2105/AJPH.2007.122754)

self-identification to partition health risk among a clearly defined subpopulation: US residents of Mexican ancestry. Understanding health among persons of Mexican origin is an important goal because this group represents 64% of the nearly 42 million Hispanic people living in the United States.[12] Moreover, US residents of Mexican descent show appreciable within-group variability in relation to language use, immigration, and length of time in the United States, and these factors predict key health risk indices such as adiposity[13–15] and smoking.[13,15–17]

The Hispanic self-descriptors in the NHIS include both "Mexican" and "Mexican American," permitting not only national origin differentiation but also potentially more-accurate partitioning of health risks. Although few studies have used these dimensions for comparisons, previous work shows that these 2 categories strongly stratify cigarette use,[18] language use, immigration (vis-a-vis its association with citizenship), and socioeconomic status (SES) among persons of Mexican ancestry.[19] Because these sociodemographic characteristics are strong health predictors in their own right, the

ostensibly unitary "Mexican American" ethnic classification could mask important within-group differences. Considering ethnic self-identification among persons of Mexican ancestry might help resolve apparent inconsistencies across studies,[20] more precisely differentiate health vulnerabilities, and provide a useful framework for effective public health interventions.

As noted previously, large samples of minority participants are required to partition health risks among ethnic subgroups.[9] Thus, the current study combined 3 years (2000–2002) of NHIS data to obtain a substantial sample (N=10 044) of US residents of Mexican descent. We examined smoking and body mass index (BMI; weight in kilograms divided by height in meters squared) as health risk indicators; the latter is considered an integrative proxy of cumulative exposure to diet and physical activity. These health markers are modifiable, account for substantial premature mortality in the United States,[21] and should be less sensitive than clinical conditions to sociodemographic variations in recognition and labeling.[20]

In addition to effects of ethnic self-identification, we examined language use and immigration in relation to BMI and smoking. In previous studies, researchers have evaluated aggregate constructs incorporating some[14,22] or all[23,24] of these markers, precluding analysis of their relative contributions. However, language competence and immigration have potentially powerful health[15,25] and economic consequences,[26] and their patterns or mechanisms of association with health may be distinct.

SES gradients in health tend to be less marked in Latino than in other populations.[27,28] At the same time, associations between sociocultural indicators such as immigration or language and health in Hispanic people are sometimes markedly attenuated when education and income levels are controlled.[20] Therefore, our study included multiple markers of SES (family income; respondent education level; and home ownership, an indicator of wealth) in analyses examining health risks associated with ethnic self-identification to determine its unique predictive utility. We evaluated Hispanic health risk diversity by partitioning the putatively unitary "Mexican American" social category while also attempting to delineate the social factors that might be associated with health in this context.[29]

METHODS

Overview of the National Health Interview Survey

The NHIS is an annual in-person survey of a probability sample of US households.[11] We examined adults 18 years and older who were surveyed in the combined 2000–2002 NHIS data. The conditional response rates for these surveys were 72.1%, 73.8%, and 74.3%, respectively. Sample adult respondents were weighted to represent the US population within each survey year. We adjusted the weights in the combined data file by multiplying each year's survey sample weights by its proportion of the combined 3-year sample size.[30] These survey years had the same design and the same public use variance estimation variables. Therefore, it was valid to treat the pooled data as a single year of data with a large sample size.[31] Participants were unique across these 3 survey years.

Sociodemographic Variables

Age (in 6 categories), gender, and SES were included as covariates in all analyses. We assessed SES on the basis of education (0–6 years, 7–11 years, high school graduate, and more than high school), annual family income (<\$20 000 or ≥\$20 000 per year), and home ownership (yes or no). Hispanic participants were asked to select a group that described their Hispanic origin or ancestry. The 2 categories used to define ethnic identity in our study were Mexican and Mexican American. A binary immigration variable reflected whether the respondent was born in the 50 United States or the District of Columbia. The interview was conducted in Spanish, English, or both, and we preserved these graded categories to examine the association between language and health risk. The following categories had a few missing cases: household income (6.5%), home ownership (3.5%), education (1.5%), language use (1.6%), and immigrant status (<1%). Casewise deletion would have resulted in a much larger proportion of discarded data, potentially leading to inefficient or biased regression estimates.[32] We used regression analysis, with demographic variables as predictors, to singly impute these missing values.

Health Risk Indicators

Smoking status was categorized as current smoker or current nonsmoker. A few (<1%) missing values were imputed as described in the previous "Sociodemographic Variables" section. Analyses with complete smoking cases were virtually identical to those with the imputed cases, so we reported odds ratios for smoking based on the full sample (N=10 044).

BMI was computed from self-reported height and weight and was divided into desirable (<24.9 kg/m^2), overweight (25.0–29.9 kg/m^2), or obese (>30 kg/m^2) categories. We imputed a small number (7%) of missing BMI values, but test statistics and statistical conclusions varied somewhat across imputed and nonimputed BMI. We therefore reported BMI analyses only for participants with complete BMI data (n=9346).

Relations Among Predictors

We assessed multicollinearity by regressing each predictor on every other predictor.[33] The prediction equation for immigration had the highest multivariate R^2 (0.57), which reflected the large bivariate correlation between immigration and ethnic identity ($r=-0.70$; $P<.001$). All other R^2 values were less than 0.50. To stabilize model estimates, we examined immigration and language use in ethnic-subgroup-specific analyses (i.e., Mexican and Mexican American participants examined separately). These models included both language use and immigration because they have been shown in previous research to have unique associations with smoking.[16] Language use was significantly correlated with ethnic identity ($r=-0.50$; $P<.001$) and immigration ($r=0.56$; $P<.001$), with effect sizes (approximately 25%–30% shared variance) suggesting that these indicators were not redundant.

Analyses

We first evaluated the health risks associated with ethnic self-identification in analyses that controlled for age, gender, and the 3 SES markers (education, income, and home ownership). We then added language use and immigration to these equations in separate models for the Mexican and Mexican American subgroups to determine whether the associations between these demographic markers and health risks differed within each group. We evaluated smoking status with logistic regression and adiposity with multinomial logit models. In analyses of adiposity, the desirable weight category was the referent group. Because previous research suggested that language use and immigration were more strongly related to smoking among women than among men,[34] ancillary, gender-specific analyses also were performed for this outcome. All tests were 2-tailed and considered statistically significant if P was less than .05. We conducted analyses with Stata 10.0 (Stata Corp, College Station, TX) and adjusted for the complex sampling design.

RESULTS

The 10 044 respondents represent an estimated 13 million adults in the United States. Table 1 shows descriptive statistics for age, education, wealth, income, language use, and health risk by ethnic identity, as well as logistic or ordered logit odds ratios (ORs) reflecting comparisons between ethnic groups. These data showed that US residents of Mexican descent were heterogeneous with regard to key

SES and ethnic markers and that ethnic self-identification meaningfully partitions sociodemographic and health variation among this commonly aggregated Hispanic subpopulation. In unadjusted models, ethnic self-identification was associated with both smoking and adiposity. Participants who identified as Mexican were less likely to smoke and less likely to be obese when compared with self-identified Mexican American participants (Table 1).

Ethnic Self-Identification as a Health Risk Predictor

Multivariate analyses assessing associations between ethnic identity and smoking and adiposity are presented in Table 2. The association of ethnic identity with smoking and obesity persisted when we simultaneously controlled for age, gender, and SES. In addition, being older and being male were associated with a greater likelihood of overweight and of obesity, whereas income was inversely associated with smoking and positively associated with both overweight and obesity in the full sample. Thus, when compared with Mexican Americans, individuals who self-identified as Mexican were less likely to report current smoking or obesity, even after we controlled for multiple sociodemographic factors.

Health Correlates Within Each Ethnic Self-Identification Group

Table 3 reports the odds of smoking and adiposity in models including immigration and language use, stratified within each ethnic self-identification group. These analyses also controlled for age, gender, and SES indicators.

Mexican Americans. For Mexican Americans, lower values on each SES indicator, as well as younger age, were associated with a greater likelihood of smoking. In addition, language use showed a strong dose–response group relation with smoking in this group. Specifically, an increase of 1 increment in the language-use variable was associated with 1.57 times greater odds of current smoking. Older age, male gender, and higher income were the most consistent predictors of higher odds of overweight and obesity among Mexican Americans. In addition, Mexican American participants who were born in the United States had increased odds of obesity relative to those who were not born in the United States.

TABLE 1—Demographic Characteristics of Hispanic US Residents of Mexican Ancestry (N = 10 044), by Ethnic Self-Identification: National Health Interview Surveys, United States, 2000–2002

	Ethnic Self-Identification		
	Mexican American (n = 4172), % (No.)	Mexican (n = 5872), % (No.)	OR[a] (95% CI)
Age, y			0.80*** (0.71, 0.89)
18–24	22.1 (744)	20.2 (953)	
25–34	22.6 (1034)	30.2 (1959)	
35–44	20.9 (886)	23.8 (1401)	
45–54	15.7 (638)	13.2 (727)	
55–64	8.7 (389)	6.8 (397)	
≥ 65	10.0 (481)	5.8 (435)	
Gender			1.23*** (1.09, 1.35)
Men	48.1 (1807)	53.0 (2819)	
Women	51.9 (2365)	47.0 (3053)	
Years of education			0.25*** (0.23, 0.28)
0–6	7.6 (381)	34.0 (2044)	
7–11	24.0 (1023)	32.0 (1862)	
High school diploma or GED	32.6 (1298)	17.8 (993)	
Some college or more	35.8 (1470)	16.2 (973)	
Missing	(35)	(111)	
Annual family income, $			0.59*** (0.52, 0.66)
< 20 000	24.2 (1324)	34.1 (2336)	
≥ 20 000	75.8 (2632)	65.9 (3104)	
Missing	(216)	(432)	
Home tenure			0.47*** (0.41, 0.54)
Rent	36.0 (1810)	54.3 (3527)	
Own home	64.0 (2362)	45.7 (2345)	
Missing	(150)	(201)	
Immigrant			0.03*** (0.03, 0.03)
Yes	13.7 (538)	84.2 (4885)	
No	86.3 (3632)	15.8 (984)	
Missing	(2)	(3)	
Language use during the interview			0.10*** (0.09, 0.12)
Spanish	6.3 (269)	44.6 (2680)	
Spanish and English	10.0 (393)	19.1 (1019)	
English	83.7 (3457)	36.3 (2061)	
Missing	(53)	(112)	
Smoking status			0.82*** (0.71, 0.93)
Never/Former	81.7 (3381)	84.5 (4900)	
Current	18.3 (772)	15.5 (927)	
Missing	(19)	(45)	
Body mass index (BMI), kg/m^2			
< 25	30.3 (1248)	33.8 (1803)	
25–30	37.8 (1492)	43.5 (2292)	1.03 (0.92, 1.15)
> 30	31.9 (1271)	22.7 (1240)	0.64*** (0.55, 0.74)
Missing	(161)	(537)	

Note. OR = odds ratio; CI = confidence interval; GED = general equivalency diploma. Nonmissing proportions were weighted to represent the US population.
[a]ORs are for binary or ordered regressions that used the demographic variable as the criterion and ethnic self-identification as the predictor. Ethnic self-identification was coded as follows: Mexican American = 0; Mexican = 1. Body mass index statistics used BMI < 25 kg/m^2 category as the referent.
***P < .001.

TABLE 2—Multivariate Odds Ratios (ORs) for Smoking, Overweight, and Obesity Among US Residents of Mexican Ancestry, by Ethnic Self-Identification and Sociodemographic Variables: National Health Interview Surveys, 2000–2002

| | Smoking (N = 10 044), OR (95% CI) | Adiposity (n = 9346) | |
		Overweight, OR (95% CI)	Obese, OR (95% CI)
Mexican[a] ethnic identity	0.70*** (0.60, 0.83)	1.05 (0.93, 1.18)	0.66*** (0.56, 0.77)
Age	0.99 (0.95, 1.04)	1.23*** (1.17, 1.29)	1.29*** (1.22, 1.36)
Male	2.51*** (2.17, 2.90)	1.80*** (1.59, 2.03)	1.25** (1.10, 1.43)
Education	0.97 (0.90, 1.04)	0.96 (0.91, 1.01)	0.94 (0.88, 1.00)
Income ≥ $20 000	0.84* (0.73, 0.97)	1.24*** (1.10, 1.39)	1.16* (1.00, 1.34)
Own home	0.79*** (0.69, 0.90)	1.10 (0.96, 1.26)	1.17* (1.01, 1.36)

Note. CI = confidence interval. Smoking was defined as current smoker (vs nonsmoker); adiposity categories were overweight (body mass index [BMI] = 25–30 kg/m^2) and obese (BMI > 30 kg/m^2 vs normal weight, BMI < 25 kg/m^2). BMI estimates were based on participants with complete BMI data (n = 9346). All estimates simultaneously controlled for every sociodemographic variable in the first column.
[a]Versus Mexican American.
*P < .05; **P < .01; ***P < .001.

TABLE 3—Sociodemographic Predictors of Smoking and Adiposity in US Residents of Mexican Ancestry, by Ethnic Self-Identification: National Health Interview Surveys, 2000–2002

| | Smoking, OR (95% CI) | Adiposity, OR (95% CI) | |
		Overweight	Obese
Mexican American			
Age	0.86*** (0.81, 0.93)	1.21*** (1.13, 1.30)	1.20*** (1.11, 1.29)
Male	1.99*** (1.58, 2.50)	2.30*** (1.93, 2.75)	1.63*** (1.31, 2.04)
Education	0.73*** (0.64, 0.82)	1.00 (0.90, 1.10)	0.89* (0.80, 0.99)
Income ≥ $20 000	0.72** (0.58, 0.88)	1.40** (1.14, 1.72)	1.31* (1.04, 1.65)
Own home	0.80* (0.65, 0.98)	0.91 (0.73, 1.13)	0.99 (0.81, 1.20)
Nonimmigrant	1.64** (1.15, 2.33)	1.21 (0.92, 1.59)	1.56** (1.17, 2.08)
Language use	1.57*** (1.24, 1.99)	0.87 (0.70, 1.08)	1.05 (0.89, 1.23)
Mexican			
Age	1.08* (1.01, 1.16)	1.27*** (1.18, 1.36)	1.37*** (1.27, 1.48)
Male	3.23*** (2.64, 3.96)	1.56*** (1.33, 1.82)	1.06 (0.87, 1.28)
Education	0.98 (0.89, 1.08)	0.97 (0.90, 1.04)	0.90* (0.82, 0.99)
Income ≥ $20 000	0.91 (0.73, 1.13)	1.17 (0.99, 1.37)	1.08 (0.89, 1.31)
Own home	0.74** (0.60, 0.92)	1.22* (1.02, 1.45)	1.26* (1.02, 1.56)
Nonimmigrant	1.73*** (1.34, 2.24)	0.91 (0.72, 1.17)	1.57** (1.17, 2.11)
Language use	1.11 (0.98, 1.26)	0.96 (0.86, 1.08)	0.98 (0.88, 1.10)

Note. OR = odds ratio; CI = confidence interval. Smoking was defined as current smoker (vs nonsmoker); overweight and obese were defined as a body mass index of 25 to 30 kg/m^2 and over 30 kg/m^2, respectively. Language use during the interview was coded as Spanish, English and Spanish, or English. All estimates simultaneously controlled for every sociodemographic variable in the first column.
*P < .05; **P < .01; ***P < .001.

Mexicans. Among self-identified Mexicans, older age, male gender, not owning one's home, and being born in the United States (relative to being born outside of the United States) were associated with higher odds of self-reported smoking. It is noteworthy that the age association with smoking was opposite to that observed among Mexican Americans, in that *older* age was significantly (but modestly) associated with greater odds of smoking. Socioeconomic factors were generally less predictive of smoking among Mexicans than among Mexican Americans.

Older age and owning a home were associated with both obesity and overweight among Mexican participants. Men were more likely to be overweight, and higher levels of education were associated with lower odds of obesity. Self-identified Mexicans who were born in the United States were more likely to be obese relative to Mexicans born outside the United States.

In summary, women, those who reported owning their own home, and those who immigrated to the United States were less likely to report current smoking across both ethnic self-identification groups. Language use, education, and family income were associated with smoking only among Mexican Americans. In general, fewer adiposity correlates were significant, with the most notable difference across ethnic self-identification groups being the positive association between home ownership and both overweight and obesity among Mexicans, an association not observed among Mexican American participants.

Ancillary Within-Gender Smoking Analyses

Mexican American. Gender-specific analyses of smoking found that for Mexican American women (n = 324 smokers), language use had a strong dose–response group relationship with smoking (OR = 2.20; 95% confidence interval [CI] = 1.47, 3.28), whereas immigration was not significantly related to smoking among Mexican American women (OR = 1.65; 95% CI = 0.92, 2.95). A contrasting pattern was observed among Mexican American men (n = 448 smokers), in whom those born in the United States were more likely to smoke relative to those men born outside of the United States (OR = 1.71; 95% CI = 1.08, 2.71), whereas language use was not significantly associated with smoking (OR = 1.32; 95% CI = 0.98, 1.78). Home ownership was unrelated to smoking among both genders, whereas age and education were significantly inversely associated with smoking for both men and women. A significant inverse association of income with smoking was observed

only among men (OR=0.63; 95% CI=0.48, 0.82).

Mexican. Gender-specific analyses in self-identified Mexican women (n=260 smokers) showed that US nativity predicted greater smoking risk (i.e., relative to non-US nativity; OR=2.39; 95% CI=1.47, 3.90), whereas smoking was not associated with language use among Mexican women (OR=1.25; 95% CI=0.95, 1.66). Mexican men (n=667 smokers) born in the United States were more likely to report smoking relative to their male Mexican counterparts who were born outside of the United States (OR=1.39; 95% CI=1.00, 1.94; *P*=.05), but language was not predictive of smoking (OR=1.07; 95% CI=0.93, 1.22). Among the other sociodemographic predictors, only home ownership showed a significant association with smoking among only men (OR=0.72; 95% CI=0.55, 0.93).

DISCUSSION

We examined the relationship between ethnic self-identification and the partitioning of health risks among a nationally representative sample of US residents of Mexican descent. Although differentiating self-reported Hispanic origin categories is an effective way to identify health risk more precisely,[2,16,35] our analyses showed that for the largest Hispanic minority group in the United States, the commonly used Mexican American ethnic classification masks substantial heterogeneity in sociodemographic characteristics and health risk. These data suggest that the simple, easily assessed rubric of within-ethnic-group self-identification can more precisely define health risks among persons of Mexican ancestry—precision that is necessary to advance health disparities research.[1,3,9,29]

Consistent with previous research,[3,4,19,35] we found important sociodemographic differences among self-identified Hispanic subpopulations. Mexican participants tended to have lower SES relative to Mexican Americans, as indicated by educational attainment, family income, and home ownership. Mexican participants were more likely to have immigrated to the United States, although nearly 16% of those who identified as Mexican were born in the United States and nearly 14% who described themselves as Mexican American were born

elsewhere, suggesting that ethnic self-identity and nativity are not interchangeable. Likewise, although Mexican participants more frequently completed the interview in Spanish (84%) relative to Mexican Americans (36%), language use varied within each ethnic subgroup. Thus, one's ethnic self-identification certainly denotes a specific pattern of sociodemographic characteristics, but this construct is not redundant with other commonly used variables such as language use and immigration. It is also noteworthy that the individual associations of immigration and language with adiposity were not affected by removing one or the other from multivariate models (data not shown).

Ethnic self-identification robustly stratified health risk among US residents of Mexican ancestry. Participants who identified as Mexican American were 43% more likely to report current smoking than were Mexican participants, a finding that is consistent with a previous analysis of NHIS data.[18] Furthermore, although the subgroups had similar proportions of individuals in the normal BMI range, Mexican Americans had substantially higher odds of having a BMI classified as obese. These important differences suggest that national survey studies that fail to differentiate among subgroups of US residents of Mexican descent may obscure substantial underlying heterogeneity in health risks. Importantly, the effects of ethnic identity were identified in analyses that controlled for demographic variables, including gender, age, and multiple socioeconomic factors. Thus, although sociodemographic factors were found to be predictive of BMI and smoking, the health implications of ethnic self-identity appear to be distinct from shared sociodemographic influences.

In addition to clarifying health risk, the ethnic self-identification dimension identified inconsistent and even conflicting patterns of association among key health-risk predictors. For example, although older age was associated with a higher risk for being overweight or obese in both subgroups (a finding consistent with previous research[36]), it predicted a lower probability of smoking among Mexican Americans and a higher probability of smoking among Mexicans. The education gradient in health risk also varied by self-identification; education was strongly protective for smoking among Mexican Americans but was not

associated with smoking among Mexicans. This divergence is very similar to a pattern previously reported in another sample.[37] Similarly, income predicted a lower risk of smoking but a higher risk of being overweight among Mexican Americans and was unassociated with health risk among Mexicans. By contrast, greater wealth (i.e., home ownership) was generally protective against smoking for both groups, presented a reverse SES gradient for overweight and obesity among Mexicans, but was unassociated with adiposity among Mexican Americans.

The varied patterns of association observed between SES and health risk in this study are consistent with results of other population-based studies of Hispanic people, which generally have shown weak SES health gradients in relation to health and risk factors.[28,35,38,39] These refined analyses may help elucidate why SES effects have been inconsistent or even paradoxical in previous studies[27,28] and underscore the need to examine clearly defined Hispanic subgroups and multiple SES markers to clarify how socioeconomic factors might relate to health among Hispanic subpopulations.[40]

In a similar vein, we found that language use during the interview was less consistently associated with health risks and that the pattern of association differed across ethnic self-identification. Among Mexican Americans, greater use of English was associated with a higher likelihood of smoking, whereas language did not predict smoking in participants who self-identified as Mexican. This pattern of results is particularly striking because language use was much less variable among Mexican Americans than among Mexicans. Additional analyses showed that removing immigration from multivariate models resulted in a significant positive association between language use and smoking among Mexicans (data not shown), suggesting that language may be less important than immigration status when explaining smoking differentials in this ethnic subgroup. Moreover, language was not strongly predictive of adiposity in either ethnic subgroup, and this pattern was insensitive to exclusion of immigration (data not shown).

Language is a commonly used cultural marker[1,35,41] that has been related to a host of health outcomes in Hispanic participants in previous research.[16,42–46] Language may have

been a less consistent indicator of health risk in our study when compared with previous research, given the simultaneous consideration of multiple sociodemographic indicators, including ethnic self-identity. In any case, the independent association of language use and immigration with health risk suggests that these variables should be evaluated independently.

Gender, wealth, and immigration showed more-consistent patterns of association with health risks than did language across ethnic self-identification categories. Male gender was associated with a greater likelihood of current smoking in both groups, but this was especially true among self-identified Mexicans in whom men were more than 3 times as likely to smoke as were women. Men also showed higher levels of overweight and obesity than did women within the Mexican American group, whereas gender had a weaker relation with adiposity, which was significant only in relation to overweight status within Mexican participants. Wealth was inversely associated with smoking in both groups and showed a consistent association with adiposity among only Mexican participants.

As observed in considerable previous research concerning smoking and adiposity,[14–16,47,48] as well as other health outcomes (e.g., mortality[15]), immigrants in our study were shown to have lower health risks compared with their US-born counterparts. The protective effect of non-US nativity was evident in both the Mexican and the Mexican American subgroups. The so-called healthy immigrant effect[15,49] has been attributed to a variety of factors, including immigrant self-selection (i.e., individuals who migrate are healthier or have better resources compared with those who remain in their countries of origin), selective return migration (i.e., the idea that unhealthy immigrants return to their country of origin), or more-healthful behaviors among immigrants before leaving their host countries.[50,51] Notably, however, the apparent health-protective effect of non-US nativity tends to decline as residents spend an increasing amount of time in the United States.[48,52,53] Indeed, this reversal has been identified in relation to many health outcomes, including BMI[48,52,54] and smoking.[55] For obesity, the source of the protective effect of foreign nativity may be clarified in the near future because children in Mexico

appear to be experiencing a US-style obesity epidemic.[56]

Strengths and Limitations

Our study had several strengths, including the examination of a large, representative sample of US residents of Mexican descent in which we simultaneously addressed multiple socioeconomic and sociocultural factors that have been shown to have health relevance in previous research and in which we focused on 2 key health-risk markers that were unlikely to be highly contaminated by health care access or sociodemographic variations in recognition or labeling. Nonetheless, the current findings also should be considered in light of several methodological limitations.

First, the study was limited by the cross-sectional design, which prohibits definitive conclusions about causality. A reverse influence of health-risk markers on predictive variables is unlikely in some cases (e.g., ethnic self-identity, nativity), but bidirectional associations are plausible, for example, in relation to SES and health risk. In addition, the strengths associated with large population-based surveys are counterbalanced by limitations associated with depth of measurement. The delineation of health risk and sociodemographic status identified according to ethnic self-identity is important, but our study could not elucidate the specific contexts, practices, or experiences that differentiated the Mexican and Mexican American subgroups. This more refined assessment of processes associated with ethnic self-identity is an important direction for future research.

Our data converge with other studies of objectively measured health risk,[57] but all of the data in the current study were self-reported and therefore were vulnerable to recall inaccuracies and distortion.[58] Finally, the health effects of sociocultural factors, including ethnic self-identity, language use, and nativity, may be moderated by age, gender, or SES. Investigating interaction effects was beyond the scope of our study but is an important direction for future research that continues to examine the health implications of ethnic self-identity.

Conclusions

Our study showed the heterogeneity of health risk among US residents of Mexican

ancestry and the utility of ethnic self-identification to partition SES, sociocultural characteristics, and health risk within this growing minority population. In a large, nationally representative sample of US residents of Mexican descent, participants who self-identified as Mexican or as Mexican American were shown to have distinct sociodemographic characteristics and patterns of health risk. In addition, correlates of health risk within each group were unique. Ethnic self-identification distinguishes more-refined and homogeneous Hispanic subgroups, which can facilitate understanding and ameliorating health disparities in the diverse US Hispanic population. ■

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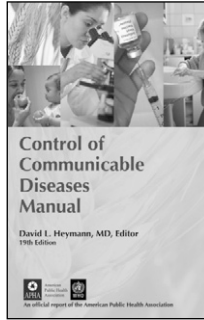
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