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## Smoking among US Hispanic/Latino adults: The Hispanic Community Health Study/Study of Latinos

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### Abstract

**Background**—Prior national surveys capture smoking behaviors of the aggregate US Hispanic/Latino population, possibly obscuring subgroup variation.

**Purpose**—To describe cigarette use among Hispanic/Latino adults across subgroups of age, sex, national background, socioeconomic status, birthplace and degree of acculturation to the dominant US culture.

**Methods**—Cross-sectional survey of 16,322 participants in the Hispanic Community Health Study/Study of Latinos aged 18 to 74 years old, recruited in Bronx NY, Chicago IL, Miami FL and San Diego CA during 2008–2011.

**Results**—Prevalence of current smoking was highest among Puerto Rican persons (men 35.0%, women 32.6%) and Cuban persons (men 31.3%, women 21.9%), with particularly high smoking intensity as measured by pack-years and cigarettes/day among Cubans. Dominican persons had the lowest smoking prevalence (men 11.0%, women 11.7%). Persons of other national backgrounds had smoking prevalence that was intermediate between these groups, and typically higher among men than women. Non-daily smoking was common, particularly although not exclusively among young men of Mexican background. Persons of low socioeconomic status were more likely to smoke, were less likely to have quit smoking, and less frequently used over-the-counter quit aids as compared to those with higher income and education. Smoking was more common among individuals who were US-born and who had higher level of acculturation to the dominant US culture, particularly among women.

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**Conclusions**—Smoking behaviors vary widely across Hispanic/Latino groups in the US, with high prevalence of smoking among population subgroups with specific, readily-identifiable characteristics.

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In the US, cigarette smoking accounts for over 400,000 premature deaths and over \$96 billion in annual loss of productivity <sup>1</sup>. While smoking behaviors are known to differ across race and ethnicity groups in the US, no large recent tobacco use surveys reflect the present-day Hispanic/Latino population living in the US <sup>2–6</sup>. Existing nation-wide surveys (e.g., National Health Interview Survey <sup>2</sup> and Tobacco Use Supplement to the Current Population Surveys <sup>4</sup>) would indicate that the overall prevalence of smoking is relatively modest among US Hispanic/Latino adults, while likely obscuring important differences across groups. Using data from the NIH Hispanic Community Health Study/Study of Latinos (HCHS/SOL), we examined smoking behaviors among over 16,000 Hispanic/Latino adults living in four urban US regions. The goals of the present analyses were to describe smoking behaviors among Hispanic/Latino adults, while examining variation by age, sex, personal or family national background, and social and demographic variables including socioeconomic status and acculturation to the dominant US culture.

## Methods

### Participants

Participants in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL) included 16,415 adults, aged 18 to 74 years at the time of screening, living in Bronx, NY, Chicago, IL, Miami, FL, and San Diego, CA. Persons eligible for the study were community-dwelling men and women who self-identified as Hispanic or Latino and who were able to travel to a local study field center. Individuals who were institutionalized, on active military duty or who planned to move from the study area were excluded. Pregnant women were enrolled after the end of pregnancy.

Eligible participants were selected using a two-stage sampling approach. In the first sampling stage, a stratified-random sample of census block groups was selected within census tracts that were chosen to provide diversity within the study population with regard to socioeconomic status, nation of origin and family national background. In the second sampling stage, households were chosen at random within the randomly-selected census block groups, with over selection of households that matched with commercially available lists of Hispanic/Latino households. Household response rates ranged from ~ 30 to 40% within each field center. Of screened individuals who were eligible, 41.7% were enrolled.

### Data collection and variable definitions

Study examinations included completion of standardized clinical measurements and questionnaires, conducted between 2008 and 2011 by a bilingual interviewer in either English or Spanish. Lifetime history of cigarette smoking was elicited by the question, “Have you ever smoked at least 100 cigarettes in your entire life?” Use of cigars and pipes (ever use) was asked and analyzed separately from cigarette smoking. Other smoking-related variables included number of cigarettes per day, age at smoking initiation, and periods of smoking cessation. Individuals who reported having ever quit smoking for 6 months or

longer were queried about their ever use of smoking cessation aids such as nicotine gum, patches, and oral medications. Self-reported information was used to define current daily smokers, as well as intermittent or non-daily smokers who were defined as current smokers who did not report using cigarettes on a daily basis. Among current daily smokers, we estimated lifetime pack-years based upon age of smoking initiation, periods of quitting, and average lifetime cigarettes smoked per day. Reproducibility of smoking variables was assessed in a sample of 56 individuals through repeated study visits conducted a median of 42 days apart ( $\kappa = 0.93$  for smoking status, and intraclass correlation coefficient, ICC of 0.89 for age started smoking, 0.92 for current cigarettes per day, and 0.83 for lifetime average cigarettes per day). Acculturation was measured using a modified 10-item version of the Short Acculturation Scale for Hispanics (SASH), with 5 point Likert scale responses coded as an average overall summary score, and as subscales reflecting language preferences (6 items) and socialization practices and preferences (4 items)<sup>7</sup>. Higher SASH response values represent greater acculturation to the dominant US culture. The overall scale reliability was acceptable in the full sample (Cronbach's  $\alpha = .90$ ), and for both English- and Spanish-language versions ( $\alpha_{\text{English}} = .76$ ;  $\alpha_{\text{Spanish}} = .85$ ). The reliability of SASH was similar across Hispanic/Latino background groups (ranging from  $\alpha_{\text{South Americans}} = .85$  to  $\alpha_{\text{Mexicans}} = .89$ ). For analyses of Hispanic/Latino group defined by Latin American national background (defined either by personal or family place of origin), we categorized both US-born and non-US-born individuals into mutually exclusive groups based upon background.

### Statistical analyses

Weighted prevalences of smoking among men and women were computed using sample weights which were adjusted, trimmed and calibrated to the 2010 US Census population age and Hispanic/Latino background ("ethnicity") distributions for the four geographic areas of our study. Sample weights were also designed to correct for nonresponse, with adjustment for characteristics of the nonsampled population. Prevalence, intensity and cumulative exposure to cigarette smoking were estimated for gender- and national group-specific populations. Multivariable logistic regression was used to assess the association of smoking variables with gender, age, income, education, health insurance status, field center and Hispanic/Latino national background, as quantified by odds ratios (ORs) and 95 percent confidence intervals (CIs). We also identified variables associated with quitting smoking in an analysis that was limited to individuals who had ever reported smoking a total of 100 or more cigarettes. Among former smokers, we examined characteristics associated with having ever received prescription and over-the-counter smoking cessation products. For national background groups who were well-represented in two sites, we examined regional differences in smoking prevalences. Analyses were performed using SAS© version 9.3 (Cary, NC) in 2012–2013.

### Results

Included were 16,322 individuals after exclusion of 93 with incomplete smoking data. Mean age was 40.3 years among 6,532 men, 25.0% of whom were born within the 50 states. Mean age was 41.8 years among 9,790 women, 20.9% of whom were born within the 50 states. Approximately half of participants at the time of examination lacked health insurance, and

59.0% of men and 48.8% of women reported having an annual household income above \$20,000 (Table 1).

The age-standardized prevalence of current cigarette smoking was highest among men and women of Puerto Rican background (age-standardized prevalence 35.0% among men and 32.6% among women), followed by persons of Cuban background (31.3% among men and 21.9% among women). Analysis of age-specific prevalences revealed that over 40% of Puerto Rican men and women between the ages of 30 and 50 years of age were current smokers (Figure). Dominican men and women both had relatively low prevalence of current smoking (age-standardized prevalence 11.0% among men and 11.7% among women). Among the other groups, which had prevalences of current smoking that were intermediate between the groups mentioned above, smoking was more common among men than among women (age-standardized prevalences were Mexican, men 23.4% and women 10.4%; Central American, men 20.6% and women 8.5%; South American, men 15.8% and women 11.7%; multiple or other backgrounds, men 23.4% and women 20.3%). Among Mexican men, smoking prevalences were similar in Chicago and San Diego sites, whereas Mexican women in San Diego had significantly higher smoking prevalence than Mexican women in Chicago (12.1% versus 7.8%,  $P < 0.05$ ). Among Puerto Ricans, smoking prevalences were similar in the Bronx and Chicago sites (data not shown).

Analyses of current daily smokers revealed substantial variation in smoking intensity by national background (Table 2). Smoking intensity as defined by number of cigarettes smoked per day was highest among daily smokers who were of Cuban background. Half of Cuban men and over one-third of Cuban women who smoked daily reported that they consumed 20 or more cigarettes per day. As compared with other groups of daily smokers, Mexican men and women less commonly reported consuming 20+ cigarettes per day (7.1% among male daily smokers and 4.2% among female daily smokers).

A substantial number of individuals who were current smokers reported that they smoked cigarettes only on some days rather than daily (Table 3). This pattern of intermittent current smoking was most common among Mexican men (prevalence 15.5%), Central American men (9.8%) and Puerto Rican men (9.0%). Intermittent smoking was reported by participants in nearly all age, sex and national background groups although was most common among younger adults (Figure). Within several groups defined by national background, over one-fifth of intermittent smokers reported having smoked 20 or more days in the last month (Puerto Rican and South American men, and Dominican, Cuban, Puerto Rican and Central American women).

In multivariable adjusted models, the likelihood of being a current smoker was independently associated with male sex, age below 60 years, lower income and lower level of education (in particular, lacking a high school diploma but having 9+ years of schooling) each were independently associated with higher likelihood of being a current smoker ( $P < 0.05$ ) (Table 4).

Analyses that were limited to ever-smokers identified several characteristics associated with higher likelihood of quitting (e.g., being a former rather than a current smoker) (Table 5).

The likelihood of having quit increased across the age spectrum, with higher levels of income, with having had greater than a high school education, and with higher lifetime average cigarettes per day, although quitting was not significantly associated with gender or health insurance coverage.

Among former smokers, the proportion that had ever used prescription smoking cessation products was 5.5% among individuals with health insurance and 1.7% among those without health insurance ( $P_{\chi^2} = 0.002$ ). Use of over-the-counter prescription smoking cessation products was also more common among insured as compared with uninsured former smokers (5.8% versus 2.8%,  $P_{\chi^2} = 0.021$ ). After adjustment for health insurance status and other potential confounders, persons with higher income levels were significantly more likely than those with lower income levels to have used over-the-counter smoking cessation products ( $P < 0.050$ ), although income was not associated with the use of prescription smoking cessation products in multivariable analyses (data not shown).

After adjustment for demographics, socioeconomic status and health insurance status, individuals who were born within the 50 states or who were more acculturated to US culture as measured by high SASH scores were significantly more likely to be current smokers (Table 6). These associations were stronger and more consistent among women as compared with men.

Among men, lifetime prevalence of cigar smoking was 9.2% and lifetime prevalence of pipe smoking was 3.0%. Cigar smoking was most common among Puerto Rican men (12.9%), followed by Central American men (10.2%) and Mexican men (8.8%) with other groups having prevalence of 5% or below. Pipe smoking was reported by 5.0% of Central American men and by fewer than 3% among other groups. Among women, few had a lifetime history of cigar and pipe smoking (2.7% and 0.8%, respectively). Among those who had never smoked cigarettes, only 2% of men and <1% of women reported a history of cigar or pipe use.

## Discussion

Smoking prevalences among US Latino adults vary nearly three-fold comparing the national background groups with the most versus the least cigarette use. Contrasted against earlier studies, our data portray the evolving epidemiology of smoking among Hispanics and the burden of smoking relative to other US groups. In the 1982–1984 Hispanic Health and Nutrition Examination Survey (HHANES), 40% or more of Puerto Rican, Cuban and Mexican men were smokers, which equaled the prevalence among African Americans at the time and exceeded the prevalence among non-Hispanic whites<sup>5, 6</sup>. Today, Puerto Rican and Cuban men continue to have high smoking prevalence, which now exceeds that among US non-Hispanic whites by a considerable margin (35.0% and 31.1% among Puerto Rican and Cuban men in this study, respectively, versus 22.6% in 2010 for non-Hispanic whites)<sup>8</sup>. Women from Puerto Rican and Cuban groups, who in the 1980s had smoking prevalences that were similar or lower as compared with African Americans and non-Hispanic whites, now smoke more frequently than other groups (prevalences 32.6% among Puerto Ricans and 21.9% among Cubans, respectively, versus 19.6% among non-Hispanic Whites and 17.1%

among African Americans). In our present-day survey, Mexican and Central American men have smoking prevalence approximately equal to that among non-Hispanic whites and African Americans, while women in these groups are less likely to smoke than other major US race/ethnicity groups<sup>8</sup>. Other groups in our survey including Dominican and South American men and women, which have not been well-studied, have prevalence of smoking well below US national averages<sup>2</sup>.

Potential limitations of our study include the reliance upon self-report to measure tobacco use, which was shown to be reliable in a repeated measures study but not validated against biomarkers. Other products that we did not assess include spit tobacco and snuff. Although we provided weighted prevalence estimates that were adjusted for survey nonresponse, the moderate degree of nonresponse may have introduced selection bias, albeit by using door-to-door survey methods we avoided systematic biases associated with telephone surveys<sup>4, 6, 9, 10</sup>. As we did not recruit individuals living in rural or suburban locations, our cohort members may not be fully representative of US populations. On the other hand, almost half of the total US Hispanic/Latino population is contained within ten large metropolitan areas<sup>11</sup>, which encompass our four study regions.

Our findings have several implications for tobacco use prevention and cessation strategies among US Hispanic/Latino adults. First, Hispanic/Latino adults often report smoking intermittently rather than on a daily basis, and among some groups (Mexican, Central American) intermittent smokers almost equal or outnumber daily smokers<sup>12, 13</sup>. Among intermittent smokers, we documented substantial levels of cigarette exposure as measured by smoking days per month and number of cigarettes on smoking days. Physicians should recognize that intermittent smokers are likely to be at elevated risks of tobacco-related illnesses and therefore should actively screen for and intervene on this pattern of cigarette use. It is unclear whether this propensity for intermittent smoking among several Hispanic/Latino groups may reflect lower susceptibility to tobacco addiction, social conventions or other factors.

Second, the use of smoking cessation products was relatively low in this population as compared with previously reported population-based data<sup>14</sup>. This suggests the need for further research on availability, awareness and acceptability of quit aids in Hispanic/Latino communities.

Third, our data point to potential social and cultural influences that may affect smoking behaviors among Hispanic/Latino populations. We found that being born in the US (among women) and having greater level of acculturation to the dominant US culture (among both men and women) was associated with higher likelihood of smoking. This suggests vulnerability, particularly among women in our study, to acculturation stress, media or cultural influences in the US which may promote smoking. The association between acculturation and tobacco use in women may also reflect gender norms relating to smoking in Latin America with low prevalence among recently-arrived female immigrants. Albeit, on the whole, among migrant groups in the US prevailing smoking behaviors in their country of origin are only weakly associated overall with likelihood of being a smoker<sup>15</sup>. Of note, while place of birth was not associated with smoking among men, we observed an

association between greater acculturation and higher smoking prevalence among men. This contrasts with prior data showing that that more highly acculturated Hispanic/Latino men have relatively lower smoking prevalence<sup>6, 10</sup>. The difference in results may be explained by the fact that these prior studies were conducted at least a decade earlier and primarily enrolled Mexican and Central American men who, as compared with those in our study were younger and more likely to be US-born.

In summary, while the overall US-wide decline in smoking over recent decades demonstrates the feasibility of effective (although incompletely realized) tobacco control efforts, our data suggest that additional efforts are needed to reach the US Hispanic/Latino population. Prior experience shows that it can be difficult to predict the effect that macro-level tobacco control approaches will have in specific populations. For instance, compared with non-Hispanic Whites, Latinos nationwide are more likely (and African Americans less likely) to live in localities with smoke-free laws<sup>16</sup>, and Hispanic and African American smokers are particularly sensitive to increases in cigarette prices<sup>17,18</sup>. However, at the aggregate level, tobacco control policies such as clean indoor air laws and tax increases have appeared to benefit people from all race and ethnic groups similarly<sup>19</sup>. Our study suggests (as others have before) several tobacco control opportunities among Hispanics: socioeconomic and demographic variables can be used to target public health interventions towards groups at high risk of smoking initiation; physicians can address nondaily smoking as an important likely risk factor for smoking-associated illness; and steps are needed to increase the availability of smoking cessation aids in Latinos. Finally, while low smoking prevalence is a possible reason for longer life expectancy among immigrants in the US<sup>20</sup>, relatively less acculturated communities are at risk for worsening future epidemics of tobacco use should they become more like the mainstream US over time.

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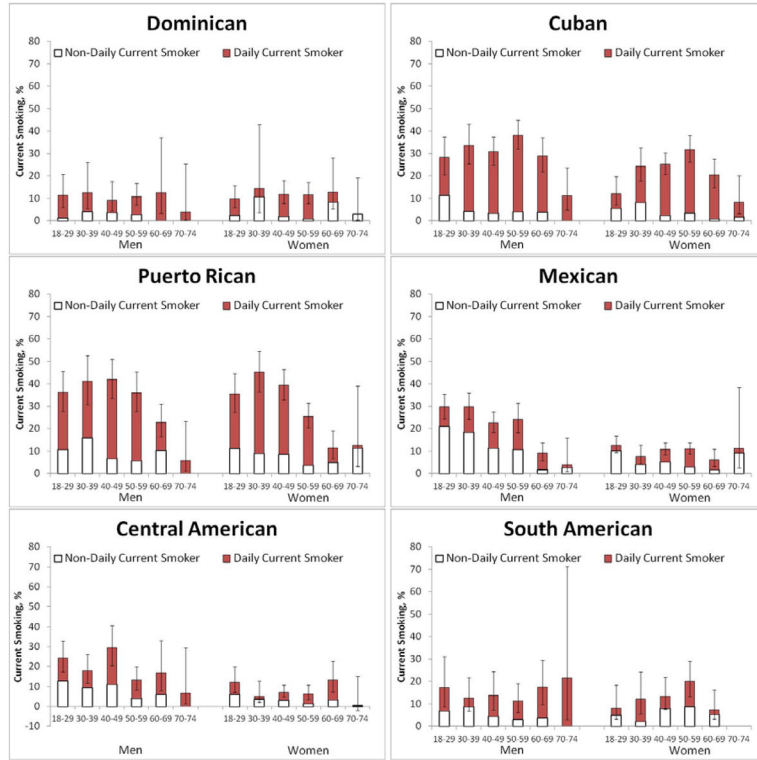
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**Figure. Prevalence of current and ever smoking by age, sex, and Latin American personal or family national background: the Hispanic Community Health Study/Study of Latinos** Current smoking was defined by self-reported use of cigarettes, either on a daily basis (red bars) or non-daily/intermittent basis (white bars), and ever smoking (blue bars) was defined as self-reported lifetime smoking of at least 100 cigarettes. Error bars represent 95% confidence intervals for the prevalence of any (daily or non-daily) smoking. Subjects included 15,322 adults aged 18 to 74 years living in Bronx NY, Chicago IL, Miami FL and San Diego CA who were recruited between 2008 and 2011.

Table 1

Characteristics of men and women participating in the HCHS/SOL.

	Men (N=6532)		Women (N=9790)	
	N	%	N	%
Age				
18–29 years	1240	28.8	1424	25.8
30–40 years	1112	23.9	1552	22.4
41–59 years	3110	34.5	5106	36.9
60+ years	1070	12.9	1708	14.8
History of coronary heart disease*	531	6.7	603	5.4
History of cancer	158	2.6	485	4.6
No health insurance	3323	52.5	4576	46.9
Income <\$10,000	747	11.5	1582	17.4
Income \$10,000–\$20,000	1827	29.5	3032	33.8
Income \$20,000–\$40,000	2178	34.4	2870	32.3
Income \$40,000–\$75,000	990	16.8	1022	12.5
Income >\$75,000	362	7.8	283	4.0
Less than 9th grade education	1375	16.6	2393	19.3
Some high school education	1032	17.0	1309	14.5
High school education	1807	30.2	2320	26.9
Some education beyond high school	1549	26.8	2613	29.4
Bachelor's degree or higher	668	10.9	925	11.0
<b>Personal or family national background and birthplace</b>				
Dominican				
Born in 50 states	60	1.6	77	1.7
Born outside of 50 states	449	6.6	886	9.9
Cuban				
Born in 50 states	53	1.5	66	1.4
Born outside of 50 states	1043	20.4	1181	17.0
Puerto Rican				
Born in 50 states	487	8.6	633	6.9
Born outside of 50 states	648	8.4	953	8.2
Mexican/Mexican-American				
Born in 50 states	460	9.8	611	8.0
Born outside of 50 states	1979	26.7	3406	30.2

	Men (N=6532)		Women (N=9790)		
	N	%	N	%	
Central American <sup>‡</sup>	Born in 50 states	37	0.5	42	0.6
	Born outside of 50 states	642	6.8	1002	6.9
South American <sup>‡</sup>	Born in 50 states	22	0.3	23	0.3
	Born outside of 50 states	414	4.4	611	5.0
Other or multiple backgrounds	Born in 50 states	132	2.6	146	2.0
	Born outside of 50 states	95	1.7	128	1.9

\* Myocardial infarction, angina, or coronary revascularization including coronary artery bypass graft, angioplasty, or stent

<sup>‡</sup> Central and South American national backgrounds represented included Nicaragua (n=547), Honduras (n=470), Ecuador (n=349), Guatemala (n=308), Colombia (n=280), Peru (n=147) and El Salvador (n=140).

Table 2

Smoking behaviors of current daily smokers among participants in the HCHS/SOL

	Daily current smokers, %*			Age at initiation, yrs			Cigarettes/day			Lifetime pack-years		
	N	Mean	SE	N	Mean	SE	10-19 cigs/day, %	20 cigs/day, %	Mean	SE		
<b>Men</b>												
<b>Overall</b>	1101	16.6	0.2	1101	12.1	0.4	30.8	27.1	19.5	1.0		
Dominican	40	16.6	0.6	40	7.7	1.2	12.1	9.4	15.4	3.9		
Cuban	315	16.1	0.3	315	17.1	0.6	30.9	50.3	31.3	1.5		
Puerto Rican	318	16.2	0.5	318	10.7	0.5	35.1	21.0	16.4	1.1		
Mexican	261	17.7	0.4	261	7.9	0.5	30.4	7.1	10.2	0.9		
Central American	82	17.5	0.7	82	12.7	2.9	25.0	23.5	12.0	1.4		
South American	42	17.7	0.8	42	9.6	1.7	32.5	15.6	15.2	2.8		
Other or Multiple	43	16.3	0.6	43	9.0	1.2	28.9	16.1	10.3	2.1		
		$P < 0.001$	$P = 0.026$		$P < 0.001$		$P < 0.001$		$P < 0.001$			
<b>Women</b>												
<b>Overall</b>	1055	17.7	0.3	1055	10.4	0.4	27.3	22.2	16.2	0.8		
Dominican	77	17.2	0.9	77	9.5	1.0	27.6	21.1	12.6	1.7		
Cuban	276	18.0	0.5	276	13.0	0.6	29.1	34.9	23.6	1.7		
Puerto Rican	355	16.01	0.3	355	10.3	0.5	29.3	20.8	14.8	1.0		
Mexican	222	19.8	1.5	222	6.8	0.9	21.0	4.2	10.1	1.8		
Central American	49	21.1	1.2	49	7.5	1.2	29.2	10.5	11.3	2.2		
South American	37	19.8	1.4	37	7.8	1.0	24.1	12.5	12.9	2.1		
Other or Multiple	39	17.0	0.9	39	9.9	1.5	21.5	23.8	8.3	1.4		
		$P < 0.001$	$P < 0.001$		$P < 0.001$		$P < 0.001$		$P < 0.001$			

*P* represents statistical tests comparing across groups defined by Hispanic national background (ANOVA or Rao-Scott Chi-squared tests)

\* Figures in the table are not standardized for age. Please refer to text and figure for age-standardized estimates of smoking prevalence

**Table 3**  
Smoking behaviors of current intermittent smokers among participants in the HCHS/SOL

	Intermittent smokers, %*		Age at initiation, yrs		Cigarettes/day on smoking days		Smoking days/month		
	N	Mean	SE	Mean	SE	Mean	SE	10 smoking days/mo, %	20 smoking days/mo, %
<b>Men</b>									
<b>Overall</b>	575	17.6	0.3	3.6	0.2	10.4	0.5	60.1	19.5
Dominican	16	19.2	1.5	3.8	0.8	8.7	0.9	80.2	5.5
Cuban	51	18.1	0.8	4.3	0.5	11.7	1.0	44.7	17.9
Puerto Rican	95	17.4	0.5	5.1	0.7	11.4	1.1	60.6	23.2
Mexican	294	17.6	0.4	3.1	0.3	9.6	0.7	62.6	18.0
Central American	68	17.4	0.6	4.1	0.7	10.8	1.0	56.7	18.9
South American	30	18.1	1.1	2.4	1.4	11.2	2.1	65.1	20.3
Other or Multiple	21	15.8	1.1	4.4	1.1	13.4	2.6	56.5	37.3
			$P=0.67$			$P=0.24$			$P=0.221$
<b>Women</b>									
<b>Overall</b>	428	18.7	0.3	3.1	0.2	11.3	0.8	60.0	24.1
Dominican	22	18.1	1.6	1.9	0.5	11.4	3.9	70.7	25.0
Cuban	42	20.0	0.7	4.1	0.8	15.7	1.2	37.9	38.8
Puerto Rican	92	17.4	1.5	3.7	0.4	13.7	1.6	47.5	29.5
Mexican	186	19.4	0.5	3.0	0.4	7.6	0.8	75.4	9.7
Central American	35	19.4	1.2	3.9	1.5	10.2	2.5	58.9	20.8
South American	33	19.4	1.0	2.3	0.3	8.7	1.1	67.8	4.4
Other or Multiple	18	16.6	0.6	2.4	0.3	18.4	4.6	35.2	63.6
			$P=0.016$			$P=0.015$			$P=0.004$

*P* represents statistical tests comparing across groups defined by Hispanic/Latino background (ANOVA or Rao-Scott Chi-squared tests)

\* Figures in the table are not standardized for age. Please refer to text and figure for age-standardized estimates of smoking prevalence

Association of current smoking with age, gender, socioeconomic status and health insurance coverage among participants in the HCHS/SOL

**Table 4**

	% current smokers	$P$ ( $\chi^2$ )	OR for current smoking*	95% CI	$P$
Female	16.4	<0.001	1	(Reference)	
Male	26.1		1.82	1.58 , 2.09	<0.001
Age 18–29	21.9	<0.001	1	(Reference)	
Age 30–40	22.4		1.04	0.82 , 1.32	0.753
Age 41–59 years	22.3		0.97	0.82 , 1.15	0.722
Age 60 years	14.1		0.46	0.36 , 0.6	<0.001
Income < \$10,000	27.7	<0.001	1	(Reference)	
Income \$10,000–\$20,000	22.8		0.75	0.62 , 0.9	0.002
Income \$20,000–\$40,000	19.0		0.58	0.48 , 0.7	<0.001
Income \$40,000–\$75,000	19.0		0.58	0.45 , 0.75	<0.001
Income > \$75,000	13.9		0.39	0.26 , 0.59	<0.001
Less than 9th grade education	18.6	<0.001	1	(Reference)	
Some high school education	30.3		1.47	1.18 , 1.84	0.001
High school education	23.2		1.04	0.84 , 1.27	0.735
Some education beyond high school	18.5		0.82	0.67 , 1.00	0.053
Bachelor's degree or higher	15.1		0.72	0.55 , 0.94	0.015
Has health insurance	19.7	0.006	1	(Reference)	
No health insurance	22.7		1.15	0.98 , 1.35	0.087
Bronx	22.2	<0.001	1	(Reference)	
Chicago	20.0		0.96	0.78 , 1.19	0.727
Miami	24.0		1.34	1.01 , 1.78	0.043
San Diego	18.0		1.11	0.85 , 1.45	0.450

OR, odds ratio

\* Adjusted for all variables in table, in addition to Hispanic/Latino background. Persons with missing values of covariates were excluded from the analysis. Sample size for Table 4 is 14379.

Among ever smoker HCHS/SOL participants, association of quitting with smoking intensity, demographic and socioeconomic characteristics

**Table 5**

	N	Among ever smokers, % quit	OR for having quit*	95% CI	P
Female	2594	44.0	1	(Reference)	
Male	3066	46.5	0.99	0.83 , 1.19	0.955
Age 18–29 years	628	27.4	1	(Reference)	
Age 30–40 years	821	39.5	1.64	1.16 , 2.31	0.005
Age 41–59 years	3199	49.5	2.58	1.94 , 3.43	<0.001
Age 60 years	1012	68.4	6.5	4.64 , 9.09	<0.001
Income < \$10,000	1020	40.3	1	(Reference)	
Income \$10,000–\$20,000	1826	42.3	1.17	0.91 , 1.5	0.217
Income \$20,000–\$40,000	1875	48.9	1.58	1.24 , 2.01	<0.001
Income \$40,000–\$75,000	716	47.8	1.5	1.09 , 2.07	0.013
Income > \$75,000	223	57.4	1.89	1.13 , 3.15	0.015
Less than 9th grade education	1232	52.4	1	(Reference)	
Some high school education	972	38.1	0.95	0.72 , 1.26	0.716
High school education	1464	39.9	0.94	0.73 , 1.22	0.639
Some education beyond high school	1469	48.8	1.31	1.03 , 1.69	0.031
Bachelor's degree or higher	523	55.3	1.39	0.99 , 1.95	0.057
Has health insurance	2903	48.2	1	(Reference)	
No health insurance	2757	43.0	0.85	0.71 , 1.02	0.076
Average cigarettes/day (per unit)			1.02	1.02 , 1.03	<0.001
Bronx	609	38.9	1	(Reference)	
Chicago	710	45.3	1.17	0.87 , 1.57	0.286
Miami	736	45.5	1.04	0.72 , 1.51	0.839
San Diego	851	52.1	1.09	0.76 , 1.58	0.635

OR, odds ratio

\* Adjusted for all variables in table, in addition to Hispanic/Latino background. Persons with missing data were excluded from the analysis.

**Table 6**  
Association of place of birth and acculturation with current smoking among participants in the HCHS/SOL

	Men (N=5922)					Women (N=8457)						
	Adjusted OR of smoking per 1 unit higher SASH or for those born in 50 states					Adjusted OR of smoking per 1 unit higher SASH or for those born in 50 states						
	Mean/%	SE	OR*	95% CI	P	Mean/%	SE	OR*	95% CI	P		
Overall SASH score	2.25	0.03	1.19	1.02	1.38	0.028	2.10	0.03	1.57	1.30	1.88	<0.001
Language acculturation score (subscale)	2.22	0.04	1.16	1.03	1.29	0.011	2.03	0.04	1.42	1.25	1.63	<0.001
Social acculturation score (subscale)	2.28	0.02	1.06	0.90	1.24	0.518	2.21	0.02	1.25	1.00	1.57	0.049
Born within 50 states	24%		1.21	0.93	1.58	0.157	20%		2.53	1.91	3.36	<0.001

OR, odds ratio. SASH, Short Acculturation Scale in Hispanics (Marín, G., Sabogal, F., VanOssMarín, B., Otero-Sabogal, F., Pérez-Stable, E. J. (1987). Development of a short acculturation scale for Hispanics. *Hispanic Journal of Behavioral Sciences*, 9, 183–205).

SASH responses were a Likert scale ranging from one to five, with higher values representing greater acculturation to the dominant US culture.

\* Adjusted for age, education, income, health insurance status, Hispanic/Latino national background, and field center. For analysis of place of birth, OR represents comparison of smoking prevalence among those born within the 50 states versus those who were foreign-born or born in Puerto Rico