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Title

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Journal

American Journal of Preventive Medicine, 65(2)

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Publication Date

2023-08-01

DOI

10.1016/j.amepre.2023.02.010

Peer reviewed



HHS Public Access

Author manuscript

Am J Prev Med. Author manuscript; available in PMC 2024 August 01.

Published in final edited form as:

Am J Prev Med. 2023 August ; 65(2): 296–306. doi:10.1016/j.amepre.2023.02.010.

Undocumented Latino Immigrants and the Latino Health Paradox

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Abstract

Introduction: Despite having worse health care access and other social disadvantages, immigrants have, on average, better health outcomes than US-born individuals. For Latino immigrants, this is known as the “Latino health paradox.” It is unknown whether this phenomenon applies to undocumented immigrants.

Methods: This study used restricted California Health Interview Survey (CHIS) data from 2015–2020. Data were analyzed to test the relationships among citizenship/documentation status and physical and mental health among Latinos and US-born Whites. Analyses were stratified by sex (male/female) and length of US residence (<15 years/ 15 years).

Results: Undocumented Latino immigrants had lower predicted probabilities of reporting any health condition, asthma, and serious psychological distress and had a higher probability of overweight/obesity compared to US-born Whites. Despite having a higher probability of overweight/obesity, undocumented Latino immigrants did not have different probabilities of reporting diabetes, high blood pressure, or heart disease than US-born Whites after adjusting for

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having a usual source of care. Undocumented Latina women had a lower predicted probability of reporting any health condition and a higher predicted probability of overweight/obesity compared to US-born White women. Undocumented Latino men had a lower predicted probability of reporting serious psychological distress compared to US-born White men. There were no differences in outcomes when comparing shorter and longer duration undocumented Latino immigrants.

Conclusions: This study observed that the Latino health paradox may express different patterns for undocumented Latino immigrants compared to other Latino immigrant groups, emphasizing the importance of accounting for documentation status when conducting research on this population.

Introduction

Despite worse patterns of access to care, studies have shown that recent immigrants tend to have better health profiles, on average, than immigrants who have been in the US for longer periods or US-born individuals, a phenomenon known as the healthy immigrant effect.¹⁻⁴ For Latino immigrants, this effect has also been referred to as the Latino health paradox or the Hispanic epidemiological paradox.⁵⁻⁸ Research has shown that the effects of the Latino health paradox attenuate as immigrants live in the US for longer periods of time, which may be attributable to increased exposure to anti-immigrant rhetoric and policies and adopting poor health behaviors such as consuming foods high in fat, sugar, and salt, smoking, and drinking alcohol.^{1,2,5,9-12}

Much remains unknown about how or whether the Latino health paradox applies to undocumented immigrants, who are particularly vulnerable not only because of their legal authorization status but also because they tend to live in enclaves and are often segmented from mainstream US society. Recent reports have called for a better understanding of the health needs of undocumented immigrants, especially as the majority of undocumented immigrants have been long residing in the US and are aging rapidly.^{13,14} For instance, in 2017, two-thirds of undocumented immigrants in the US had been living in the country for over 10 years.¹⁵ A recent study also found that undocumented Latino immigrants had lower odds of cardiovascular disease (CVD) behavioral risk factors, like smoking, binge drinking, and fast-food consumption compared to US-born Latinos. These results, however, were largely driven by undocumented Latina women whereas undocumented Latino men had CVD behavioral risk profiles comparable to US-born Latino men.¹⁶ Another study found that when time in the US was unaccounted for, undocumented Latino immigrants had similar physical and mental health outcomes compared to legally authorized or US-born Latinos. However, when accounting for time in the US, undocumented Latino immigrants, regardless of length of US residence, had higher blood pressure than shorter duration documented immigrants but did not have significantly different blood pressure than US-born Latinos. Additionally, shorter duration undocumented Latino immigrants had higher odds of worse self-reported health than US-born Latinos.¹⁷ Based on these findings, this study aimed to determine whether the Latino health paradox is consistent across citizenship/documentation statuses and whether the patterns varied by sex and length of US residence.

Methods

Study Sample

These analyses were conducted in 2022 and used pooled data from the restricted 2015–2020 waves of the California Health Interview Survey (CHIS). Due to the use of restricted data, code was sent to the CHIS Data Access Center at the UCLA Center for Health Policy Research for analyses. Additional information on the CHIS methodology has been described elsewhere.¹⁸ The Drexel University Human Research Protection Program deemed this study exempt from IRB approval.

Measures

To determine citizenship/documentation statuses, participants who were not born in the US were asked, “Are you a citizen of the US?” Foreign-born citizens were asked “When did you become naturalized?,” and foreign-born noncitizens were asked, “Are you a permanent resident with a green card?” Foreign-born noncitizens without a green card were classified as undocumented. Previous CHIS studies have used this approach to classify citizenship/documentation status,^{16,19,20} and a study showed that this approach results in only a 5% misclassification error.²¹ Participants’ race/ethnicity and immigration statuses were classified into the following mutually exclusive groups: US-born non-Latino Whites (n=38,180, reference group), US-born Latinos (n=12,741), naturalized Latinos (n=4,572), lawful permanent resident Latinos (n=2,882), and undocumented Latino immigrants (n=2,972).

Physical health was determined using the following measures: doctor ever told participant that they had asthma (yes/no), diabetes (yes/no), high blood pressure (yes/no), and any kind of heart disease (yes/no). An additional measure was constructed to assess whether participants reported having any of these four conditions (yes/no). Self-reported health was collapsed into poor/fair versus good/very good/excellent. Overweight/obesity (yes/no) was measured as body mass index ≥ 25 kg/m² based on self-reported height and weight.

Psychological distress was measured with the 6-item Kessler Psychological Distress Scale (K6).²² A composite score ranging from 0–24 was constructed. Participants with scores greater than or equal to 13 were classified as having serious psychological distress, and those with scores less than 13 were classified as not having serious psychological distress. The cutoffs were chosen based on a validity study of the K6 scale.²³

Analyses were stratified by sex (male/female) and length of residence (<15 or ≥ 15 years in US). A modified citizenship/documentation status measure that accounted for length of residence was constructed. Participants were classified into one of eight mutually exclusive groups: US-born whites (n=38,180), US-born Latinos (n=12,741), naturalized Latinos with <15 years in the US (n=404), naturalized Latinos with ≥ 15 years in the US (n=4,168), lawful permanent resident Latinos with <15 years in the US (n=767), lawful permanent resident Latinos with ≥ 15 years in the US (n=2,115), undocumented Latino immigrants with <15 years in the US (n=1,251), and undocumented Latino immigrants with ≥ 15 years in the US (n=1,721). The 15-years cut-off point was chosen because it has been used and accepted in previously published work.^{1,10,24}

Covariates included usual source of care other than the emergency department, age (18–34, 35–49, 50–64), marital status (married/not married), English language proficiency (speaks English well or very well/does not speak English well or at all), employment status (currently employed/not currently employed), education level (less than high school/high school graduate/more than high school), insurance status (currently insured/currently uninsured), federal poverty level (0–138%/139–200%/201–400%/>400%), urbanicity (urban/rural), and survey year.

Statistical Analysis

Analytic code was drafted in Stata BE 17 and sent to the CHIS Data Access Center for on-site analyses. Appropriate jackknife survey weights were used in all analyses. Study sample characteristics were described by citizenship/documentation status using bivariate descriptive analyses. Significant differences among groups were determined using Pearson chi-squared tests.

Logistic regression models were run to assess the relationships between the citizenship/documentation groups and health outcomes. In the models, non-Latino Whites were used as the reference because prior studies of the Latino health paradox have compared immigrants to US-born Whites.^{7,8,25} US-Born Latinos were included as a dummy variable in the models.¹⁶ Stata's grand margins command was used to estimate predicted probabilities for each citizenship/documentation group, which assumes all participants were members of each citizenship/documentation group and each observation retained their original covariate values. Stata's margins pwcompare option was used to perform a pairwise comparison of the predicted probabilities of each group using a t-test statistic. Due to multiple comparisons, Bonferroni-adjusted p-values from these pairwise tests were used.

Associations among the citizenship/documentation groups and health outcomes were measured adjusting for all covariates. These models were run on the full sample and stratified by sex. Models were re-run using the adapted citizenship/documentation status variable that accounted for variations in length of US residence. Lastly, an interaction model was run among only Latino immigrants to determine differences in outcomes among immigrants within the same citizenship/documentation group but with varying lengths of residence.

Results

The final sample was limited to Latinos and non-Latino Whites ages 18–64 years (n=61,577). Participants who did not have complete data for all measures of interest were excluded (n= 230, 0.4%), which left a final sample size of 61,347 participants. Table 1 shows the descriptive statistics for the entire sample and stratified by citizenship/documentation status. Approximately 62.2% of the sample was US-born Whites, 20.8% US-born Latinos, 7.5% naturalized Latinos, 4.7% lawful permanent resident Latinos, and 4.8% undocumented Latino immigrants. There were significant differences among the citizenship/documentation groups in all outcomes of interest and covariates except for sex.

Table 2 shows the predicted probabilities of all health outcomes of interest by citizenship/documentation status. Undocumented Latino immigrants had a health advantage for any health condition, asthma, and serious psychological distress compared to US-born Whites. Undocumented Latino immigrants had a significantly lower predicted probability of reporting any health condition compared to US-born Whites (-8.4% , $p<0.01$). Once stratified by sex, it was observed that the association was driven by undocumented Latina women, whose predicted probability for this outcome was 10.3 percentage points lower than that of US-born White women ($p<0.01$).

The predicted probability of undocumented Latino immigrants with asthma was 9.5 percentage points lower than US-born Whites ($p<0.001$). This relationship did not vary when stratified by sex among undocumented Latino immigrants. The predicted probability of serious psychological distress among undocumented Latino immigrants was 2.6 percentage points lower than that of US-born Whites ($p<0.05$). When stratified by sex, it was observed that the association was driven by males (-3.0 , $p<0.05$).

Undocumented Latino immigrants had a higher predicted probability for overweight/obesity compared to US-born Whites (8.4, $p<0.05$). The sex-stratified analyses showed that this finding was driven by undocumented Latina immigrant women, whose predicted probability of being overweight/obese was 13.2 percentage points higher than US-born White women. US-born, naturalized, and lawful permanent resident Latinos had significantly higher predicted probabilities of having diabetes compared to US-born Whites, but this relationship did not extend to undocumented Latino immigrants, despite having a significantly higher probability of being overweight/obese. There were no significant differences among US-born Whites and undocumented Latino immigrants regarding self-reported poor/fair health and among US-born Whites and any Latino citizenship/documentation group regarding high blood pressure or heart disease.

Table 3 shows that undocumented Latino immigrants who lived in the US <15 years had a significantly lower predicted probability of reporting having any condition (-9.0% , $p<0.05$) and a higher probability of being overweight/obese (10.7%, $p<0.05$) compared to US-born Whites. Undocumented Latino immigrants who lived in the US for ≥ 15 years did not have significantly different probabilities than US-born Whites for any health outcome.

Table 4 shows that both naturalized and lawful permanent resident Latinos who lived in the US ≥ 15 years had a significantly higher probability of being overweight or obese compared to those who had been in the US <15 years ($p <0.01$ and $p < 0.05$, respectively). Lawful permanent resident Latinos ≥ 15 years had a higher probability of reporting poor/fair health compared to lawful permanent resident Latinos <15 years ($p<0.05$). Neither of these relationships extended to undocumented Latino immigrants.

Discussion

This study demonstrates that undocumented Latino immigrants have a complex relationship with the Latino health paradox. Despite having a higher predicted probability of overweight/obesity compared to US-born Whites, undocumented Latino immigrants did not have

significantly higher probabilities of diabetes, high blood pressure, or heart disease after adjusting for having a usual source of care. They did, however, have lower probabilities of having any health condition, asthma, and serious psychological distress.

Others have found lower probabilities of any health condition, asthma, and psychiatric disorders among immigrants, and the odds increased with acculturation.^{25–30} Undocumented immigrants often reside in enclaves, which may promote resilience and serve as a protective factor despite structural and political barriers rooted in racism and xenophobia that stymie integration and assimilation into mainstream US society.^{31–33} Previous work found that higher ethnic density within neighborhoods provide health benefits for Latinos, which may help explain these findings.^{34,35} Differences in smoking behaviors may also explain these results. Undocumented Latino immigrants have lower odds of smoking compared to US-born individuals, and previous work has found that smoking explained most of the Latino mortality paradox among people of Mexican heritage.^{16,36}

Undocumented Latino immigrants who lived in the US <15 years had a significantly lower predicted probability of reporting any health condition compared to US-born whites, while those who lived in the US for 15 years did not. This supports the supposition that the effects of the Latino health paradox attenuate among undocumented immigrants to the level of US-born citizens, with longer duration in the US.¹ However, this study did not find differences for any outcomes among undocumented Latino immigrants who lived in the US <15 years and undocumented Latino immigrants who lived in the US 15 years, which may be attributable to shared assimilating experiences, such as additional challenges related to separation from families, traditionality, language difficulties, and discrimination.^{37,38}

Young and Pebley¹⁷ also examined the relationships among citizenship/documentation statuses, length of US residence, and physical and mental health outcomes. While they used direct blood pressure readings to determine high blood pressure and this study used a self-reported measure, the findings were similar.¹⁷ However, their findings related to other outcomes suggested the absence of the Latino health paradox for undocumented Latino immigrants and did not support the supposition that immigrant health declines with greater time in the US. In contrast, the current study observed that the Latino health paradox can exist and vary according to length of US residence among undocumented Latino immigrants regarding having any health condition, asthma, and serious psychological distress but not overweight/obesity.

A recent study found that Mexican deportees resided in the US for an average of 20.4 years, while those who voluntarily left resided in the US for an average of 13.2 years, which may contribute to why no differences in outcomes among undocumented Latino immigrants with varying lengths of residence were observed in this study.³⁹ Future research should examine health differences among undocumented Latino immigrants who remain in the US and those who were forcibly removed or left voluntarily and examine how length of US residence serves as a mechanism for a multitude of experiences including acculturative stress, health care access, and exposure to xenophobia and racism among undocumented Latino immigrants.

While the findings were adjusted for having a usual source of care, this does not necessarily guarantee utilization of primary care services. Undocumented immigrants likely have high levels of un- and underdiagnoses due to less frequent use of health care,²⁰ including receiving preventive care,^{40,41} likely resulting from lack of provider availability, affordability, fear of deportation, and mistrust of government.^{42,43} These factors may partially explain why, despite having a higher probability of overweight/obesity compared to US-born Whites, undocumented Latinos did not have different predicted probabilities of reporting diabetes, high blood pressure, or heart disease relative to US-born Whites. Moreover, diseases such as hypertension and diabetes often go undiagnosed,⁴⁴ which may explain why there were no significant differences across the citizenship/documentation groups regardless of sex or length of US residence. For instance, Barcellos et al. found that undiagnosed disease explained one-third and one-fifth of the immigrant health advantage related to diabetes and hypertension among Mexican immigrants, respectively.⁴⁵ This suggests that Mexican immigrants may not have as strong a healthy immigrant effect as previously observed when it comes to these diseases, which may also partly explain the findings. Finally, the lack of a health advantage for heart disease may also be related to migration history. Prior research suggests that undocumented immigrants who returned to Mexico have a higher rate of heart disease compared to documented immigrants.⁴⁶

This study has important research and public health implications. First, it demonstrates a need for data that can ascertain citizenship/documentation statuses so that more research and attention can be paid to undocumented immigrants. Indeed, the findings suggest that the Latino health paradox may have different patterns for undocumented Latino immigrants compared to other Latino immigrant groups, emphasizing the importance of accounting for documentation status when conducting research on this population. Unfortunately, data that can determine documentation status are limited due to its sensitive nature. CHIS is the only state-wide representative survey that collects information on place of birth and green card holding status, which allows for the measurement of citizenship/documentation statuses. Researchers interested in studying undocumented immigrants outside of California or on a national level will need to use estimates that may be subject to greater misclassification or poor representativeness. Additionally, public health efforts should focus on increasing access to primary health care for undocumented immigrants. The recent expansion of Medi-Cal (California's Medicaid program) benefits to undocumented immigrants under the age of 26 and over the age of 50 and the proposed expansion of Medi-Cal to all undocumented immigrants by 2024 have potential to help.⁴⁷

There are limitations that should be noted. First, after removing participants with incomplete data, a smaller sample of undocumented Latino immigrants was left, which affected the precision of our estimates. Second, Bonferroni-adjusted p-values were used to account for the multiple predicted probability comparisons. While this reduced the chances of obtaining falsely significant results, it may have diluted some statistically significant findings. Thus, this study provides conservative estimates. Third, CHIS is a repeated cross-sectional survey, and therefore temporality was not determined. Fourth, this study used self-reported measures for all outcomes, including health conditions and citizenship/documentation status, which may affect the validity of the findings. Previous research has found that self-reported health measures are less valid when predicting mortality risk among less acculturated Latinos.⁴⁸

As levels of acculturation increase among Latinos, self-reported health measures become more valid predictors of mortality.⁴⁸ Additionally, the Spanish-language version of the CHIS questionnaire used the term “regular” as a translation for the self-reported health response category “fair.” However, a study found that using the word “pasable” instead resulted in fewer Latino-White disparities, higher positive self-reported health among Latinos, and better distinction among those who reported positive versus negative self-reported with respect to objective health measures.⁴⁹ Lastly, these findings are unlikely to generalize to the entire US because California is unique in the size of its undocumented immigrant population and the health policy environment that supports access to health care for immigrants. Despite these limitations, the findings from this paper have significant implications for understanding the health of Latino immigrants and the role of the Latino health paradox.

Conclusion

Undocumented Latino immigrants had a higher predicted probability of overweight/obesity but did not have different predicted probabilities of obesity-related chronic diseases than US-born Whites, even after adjusting for having a usual source of care. These findings potentially complicate the relationship of the Latino health paradox with undocumented immigrants. Further, insignificant differences in all health outcomes among undocumented Latino immigrants who have lived in the US for shorter and longer periods of time suggest that this group may share unique experiences related to assimilating to US society that tempers any moderating effects of length of US residence, which may not affect other immigrant groups.

Acknowledgements

This research was supported by grants R01MD013866, R01MD016426, and R01MD014146 from the National Institute on Minority Health and Health Disparities (NIMHD) at the National Institutes of Health (NIH). No conflicts of interest were reported by the authors of this paper. No financial disclosures were reported by the authors of this paper.

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Table 1.

Descriptive statistics by citizen/documentation status, California residents, 2015–2020

Variable Name	Total (n=61,347)	US Born Whites (n=38,180)	US Born Latinos (n=12,741)	Naturalized Latinos (n=4,572)	LPR Latinos (n=2,882)	Undocumented Latinos (n=2,972)	p ^a
Age (in years)							< 0.001
18–34	38.5	32.2	61.4	16.2	23.1	36.7	
35–49	31.0	28.6	24.0	36.6	40.5	50.4	
50–64	30.5	39.2	14.6	47.2	36.4	12.9	
Sex							0.179
Male	50.3	50.7	50.8	46.9	48.9	51.4	
Female	49.7	49.3	49.2	53.1	51.1	48.6	
Marital status							< 0.001
Married	47.6	52.1	31.3	64.7	63.5	43.3	
Not Married	52.4	47.9	68.7	35.3	36.6	56.7	
English language proficiency							< 0.001
Speaks only English	53.0	91.6	39.7	7.8	2.5	1.0	
Speaks English well/ very well	32.4	8.3	58.5	62.4	35.4	29.9	
Does not speak English well or at all	14.6	0.1	1.8	29.9	62.1	69.2	
Employment							0.017
Currently employed	74.7	75.6	75.2	75.1	69.7	72.5	
Not currently employed	25.3	24.4	24.8	24.9	30.3	27.5	
Education							<0.001
Less than high school	18.9	4.2	9.7	39.4	60.8	61.5	
High school graduate	23.4	20.0	30.0	23.3	19.9	22.1	
More than high school	57.7	75.8	60.4	37.3	19.3	16.4	
Insurance status							<0.001
Currently insured	88.0	94.1	89.1	88.2	82.2	58.8	
Currently uninsured	12.0	5.9	10.9	11.8	17.8	41.2	
Federal poverty level (%)							<0.001
0–138	26.1	12.7	28.1	31.2	47.0	61.7	
139–200	18.2	12.0	20.1	26.9	29.5	23.2	
201–400	16.5	16.6	19.2	18.4	12.9	8.7	
>400	39.2	58.7	32.6	23.5	10.6	6.4	
Location							<0.001
Urban	88.8	85.1	92.2	92.6	88.3	92.5	
Non-Urban	11.2	15.0	7.8	7.4	11.7	7.6	

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Variable Name	Total (n=61,347)	US Born Whites (n=38,180)	US Born Latinos (n=12,741)	Naturalized Latinos (n=4,572)	LPR Latinos (n=2,882)	Undocumented Latinos (n=2,972)	p ^a
Usual source of care other than emergency department							<0.001
Had a usual source of care	80.8	87.1	78.7	84.0	71.5	60.2	
Did not have a usual source of care	19.2	12.9	21.3	16.0	28.5	39.8	
Length of US residence							<0.001
<15 years	23.5	N/A	N/A	9.1	25.0	39.7	
15 years	76.5	N/A	N/A	91.0	75.0	60.3	
Health outcomes							
Asthma	16.1	18.9	19.6	10.0	7.3	6.4	<0.001
Diabetes	7.6	5.3	6.2	14.2	15.3	8.7	<0.001
High blood pressure	20.9	22.1	15.9	27.6	26.5	18.6	<0.001
Heart disease	3.5	4.3	1.9	4.6	3.8	3.0	<0.001
Any health condition	36.9	39.3	34.3	40.3	37.3	28.6	<0.001
Overweight/obesity	65.3	57.5	66.8	76.9	76.7	75.0	<0.001
Poor/fair health	18.8	12.6	17.3	25.8	34.2	32.6	<0.001
Serious psychological distress	5.8	5.3	8.0	4.1	4.7	4.4	<0.001

Data are shown as column percent.

^aSignificance calculated using Pearson χ^2 tests.

LPR: Lawful permanent resident; US: United States

Source: California Health Interview Survey

Table 2:

Predicted probabilities from multivariable analyses of health outcomes by citizenship/documentation status and sex

Outcome	US Born Whites	US Born Latinos	Naturalized Latinos	LPR Latinos	Undocumented Latinos
	ME%	ME%	ME%	ME%	ME %
	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]
Asthma	17.6	18.7	11.7	9.0	8.1
	Ref.	1.1 [-1.5, 3.7]	-6.0 [-10.4, -1.6]**	-8.6 [-13.0, -4.2]***	-9.5 [-13.6, -5.4]***
Males	15.3	17.5	10.2	7.7	7.0
	Ref.	2.2 [-1.5, 5.9]	-5.1 [-10.3, 0.1]	-7.6 [-13.1, -2.2]***	-8.3 [-13.5, -3.1]***
Females	20.1	19.9	12.9	10.3	9.4
	Ref.	-0.2 [-4.2, 3.8]	-7.2 [-12.6, -1.8]**	-9.7 [-15.7, -3.8]***	-10.7 [-16.6, -4.8]***
Diabetes	5.3	9.7	9.4	10.1	8.4
	Ref.	4.3 [2.7, 6.0]***	4.1 [1.2, 7.0]***	4.7 [0.8, 8.7]**	3.0 [-0.1, 6.0]
Males	5.4	10.4	11.1	10.0	8.5
	Ref.	5.1 [2.4, 7.8]***	5.8 [1.5, 10.1]**	4.7 [-1.5, 10.8]	3.2 [-1.7, 8.0]
Females	5.4	8.7	7.9	9.9	7.9
	Ref.	3.4 [1.1, 5.7]***	2.6 [-0.6, 5.7]	4.6 [-1.8, 10.9]	2.5 [-1.3, 6.4]
High blood pressure	21.3	21.5	20.7	20.1	18.7
	Ref.	0.2 [-2.3, 2.6]	-0.6 [-6.7, 5.5]	-1.2 [-8.7, 6.3]	-2.6 [-8.3, 3.1]
Males	22.5	24.2	23.1	22.9	21.2
	Ref.	1.7 [-2.0, 5.4]	0.6 [-6.9, 8.0]	0.4 [-8.0, 8.8]	-1.3 [-9.3, 6.6]
Females	20.1	18.6	18.6	17.3	16.3
	Ref.	-1.5 [-5.1, 2.1]	-1.5 [-8.7, 5.7]	-2.8 [-14.2, 8.5]	-3.8 [-11.6, 4.0]
Heart Disease	4.0	2.7	3.4	2.9	3.6
	Ref.	-1.3 [-2.6, 0.0]*	-0.6 [-2.8, 1.5]	-1.1 [-4.3, 2.1]	-0.4 [-3.0, 2.2]
Males	4.2	2.8	4.0	3.8	4.3
	Ref.	-1.4 [-3.1, 0.4]	-0.2 [-3.6, 3.3]	-0.3 [-5.2, 4.5]	0.1 [-3.7, 4.0]
Females	3.8	2.5	2.8	2.0	3.0
	Ref.	-1.3 [-3.2, 0.6]	-1.0 [-3.8, 1.9]	-1.8 [-4.8, 1.2]	-0.8 [-4.4, 2.7]
Any health condition	37.8	39.8	35.5	32.5	29.4
	Ref.	2.0 [-1.1, 5.1]	-2.3 [-9.2, 4.7]	-5.3 [-12.5, 1.9]	-8.4 [-15.4, -1.4]**
Males	37.3	41.6	37.8	35.5	30.6
	Ref.	4.2 [-0.2, 8.7]	0.5 [-8.5, 9.5]	-1.8 [-11.0, 7.4]	-6.7 [-16.5, 3.2]
Females	38.4	37.9	33.2	29.5	28.1

Outcome	US Born Whites	US Born Latinos	Naturalized Latinos	LPR Latinos	Undocumented Latinos
	ME%	ME%	ME%	ME%	ME %
	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]
	Ref.	-0.5 [-5.2, 4.3]	-5.2 [-13.3, 2.9]	-8.8 [-18.2, 0.5]	-10.3 [-18.5, -2.1]**
Overweight/obese	59.7	71.3	69.0	67.3	68.3
	Ref.	11.6 [8.7, 14.6]***	9.3 [3.9, 14.8]***	7.7 [1.1, 14.3]*	8.6 [0.6, 16.7]*
Males	65.3	76.4	74.3	70.9	69.3
	Ref.	11.1 [7.0, 15.2]***	8.9 [2.1, 15.7]**	5.6 [-5.2, 16.4]	4.0 [-6.4, 14.4]
Females	53.6	66.2	64.1	63.9	67.1
	Ref.	12.5 [7.4, 17.7]***	10.5 [2.3, 18.7]**	10.3 [-1.1, 21.6]	13.5 [3.1, 23.8]**
Poor/fair health	16.6	21.1	19.4	20.0	18.7
	Ref.	4.6 [1.9, 7.2]***	2.8 [-1.2, 6.9]	3.4 [-2.9, 9.8]	2.1 [-2.3, 6.5]
Males	15.9	20.2	19.1	20.2	18.8
	Ref.	4.4 [0.0, 8.8]	3.2 [-2.5, 9.0]	4.3 [-4.5, 13.1]	2.9 [-3.0, 8.8]
Females	17.2	22.0	19.8	20.1	18.7
	Ref.	4.8 [1.4, 8.1]***	2.6 [-2.5, 7.8]	2.9 [-3.7, 9.5]	1.5 [-4.7, 7.7]
Serious psychological distress	6.3	6.5	4.7	4.8	3.7
	Ref.	0.2 [-1.6, 2.0]	-1.6 [-3.6, 0.5]	-1.5 [-3.8, 0.9]	- 2.6 [-5.1, -0.2]*
Males	5.5	5.9	4.0	4.0	2.5
	Ref.	0.4 [-1.8, 2.6]	-1.6 [-4.6, 1.5]	-1.5 [-3.9, 1.0]	-3.0 [-5.5, 0.4]*
Females	7.1	7.0	5.4	5.7	4.9
	Ref.	-0.1 [-2.5, 2.3]	-1.7 [-4.5, 1.2]	-1.4 [-5.7, 2.9]	-2.2 [-6.2, 1.9]

Results are shown as predicted probabilities calculated from multivariable logistic regressions that assessed the association between citizen/documentation status and the dichotomous health outcomes.

All models assumed all participants were members of the specified citizenship/documentation group and held marital status, health insurance, age, education, English language proficiency, employment, federal poverty level, urban/rural area, survey year, and usual source of care at their observed values Boldface indicates statistical significance

- * p < 0.05,
- ** p < 0.01,
- *** p < 0.001

Sample limited to only those who had data on citizenship and documentation status and other covariates, N=61,347 (Males=27,316; Females=34,031)

CI: Confidence Interval; LPR: Lawful permanent resident; ME: Marginal effects; Ref: Reference; US: United States

Source: California Health Interview Survey

Table 3:

Predicted probabilities from multivariable analyses of health outcomes by citizenship/documentation status and length of residence

Outcome	US born Whites (n=71,299)	US Born Latinos (n=15,353)	Naturalized Latinos (<15 years) (n=439)	Naturalized Latinos (15 years) (n=5,938)	LPR Latinos (<15 years) (n=2,523)	LPR Latinos (15 years) (n=804)	Undocumented Latinos (<15 years) (n=1,272)	Undocumented Latinos (15 years) (n=1,782)
	ME%	ME%	ME%	ME%	ME%	ME%	ME%	ME%
	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]
Asthma	17.6	18.7	8.6	12.0	9.5	8.8	7.2	8.7
	Ref.	1.1 [-1.8, 4.0]	-9.1 [-20.3, 21.9]	-5.6 [-10.5, 0.8] **	-8.1 [-16.1, -0.3] *	-8.8 [-14.0, -3.7] ***	-10.4 [-15.6, -5.2] ***	-8.9 [-14.3, -3.6] ***
Diabetes	5.3	9.6	7.8	9.5	7.5	10.5	8.8	8.2
	Ref.	4.3 [2.4, 6.2] ***	2.5 [-6.8, 11.8]	4.2 [0.9, 7.6] **	2.2 [-6.9, 11.2]	5.2 [0.5, 9.9] *	3.4 [-2.9, 9.8]	2.8 [-0.4, 6.1]
High blood pressure	21.3	21.5	15.6	21.1	16.6	20.9	19.3	18.4
	Ref.	0.1 [-2.6, 2.9]	-5.7 [-16.0, 4.6]	-0.2 [-7.3, 6.9]	-4.7 [-19.0, 9.5]	-0.4 [-8.2, 7.4]	-2.1 [-9.8, 5.7]	-3.0 [-10.3, 4.3]
Heart disease	4.0	2.7	4.1	3.3	2.0	3.1	3.9	3.4
	Ref.	-1.3 [-2.8, 0.1]	0.2 [-5.9, 6.2]	0.7 [-3.2, 1.9]	-2.0 [-5.1, 1.1]	-0.9 [-4.9, 3.1]	-0.1 [-4.9, 4.8]	-0.5 [-3.2, 2.1]
Any health condition	37.8	39.7	31.2	36.0	25.4	34.7	28.8	29.6
	Ref.	1.9 [-1.5, 5.4]	-6.6 [-19.7, 6.5]	-1.8 [-9.6, 6.0]	-12.4 [-26.2, 1.4]	-3.1 [-10.9, 4.7]	-9.0 [-17.3, -0.7] *	-8.1 [-17.5, 1.2]
Overweight/obesity	59.7	71.2	62.4	69.8	62.2	69.5	70.4	66.6
	Ref.	11.6 [8.2, 14.9] ***	2.8 [-6.7, 12.2]	10.2 [3.6, 16.7] ***	2.5 [-9.6, 14.7]	9.9 [1.3, 18.4] **	10.7 [1.3, 20.1] *	7.0 [-3.3, 17.2]
Poor/fair health	16.6	21.0	12.8	20.1	15.0	21.6	17.0	19.5
	Ref.	4.4 [1.5, 7.4] ***	-3.8 [-13.3, 5.6]	3.5 [-1.5, 8.5]	-1.7 [-9.3, 6.0]	4.9 [-2.8, 12.7]	0.4 [-5.6, 6.4]	2.9 [-2.8, 8.6]
Serious psychological distress	6.3	6.5	4.6	4.8	3.7	5.3	3.4	3.9
	Ref.	0.2 [-1.8, 2.2]	-1.7 [-7.0, 3.6]	-1.5 [-4.0, 0.9]	-2.6 [-5.6, 0.4]	-1.0 [-4.3, 2.3]	-2.9 [-6.4, 0.5]	-2.4 [-5.6, 0.8]

Results are shown as predicted probabilities calculated from multivariable logistic regressions that assessed the association between citizen/documentation status and the dichotomous health outcomes.

All models assumed all participants were members of the specified citizenship/documentation group and held marital status, health insurance, age, education, English language proficiency, employment, federal poverty level, urban/rural area, survey year, and usual source of care at their observed values

Boldface indicates statistical significance

*
p < 0.05,

**
p < 0.01,

p < 0.001

Sample limited to only those who had data on citizenship and documentation status, N=61,347

CI: Confidence Interval; LPR: Lawful permanent resident; ME: Marginal effects; Ref: Reference; US: United States

Source: California Health Interview Survey

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Table 4:

Predicted probabilities from multivariable analyses of Latino immigrants by citizenship/documentation status and length of residence

Outcome	Naturalized Latinos (<15 years)	Naturalized Latinos (15 years)	LPR Latinos (<15 years)	LPR Latinos (15 years)	Undocumented Latinos (<15 years)	Undocumented Latinos (15 years)
	ME%	ME%	ME %	ME%	ME%	ME%
	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]	Difference [95% CI]
Asthma	7.2	10.0	7.6	7.3	5.5	7.3
	Ref.	2.8 [-2.4, 8.0]	Ref.	-0.3 [-4.6, 4.1]	Ref.	1.9 [-0.8, 4.5]
Diabetes	10.8	13.0	10.2	14.2	11.4	11.2
	Ref.	2.2 [-5.9, 10.2]	Ref.	4.0 [-3.9, 11.9]	Ref.	-0.3 [-5.0, 4.5]
High blood pressure	18.4	25.4	19.7	25.5	23.3	23.2
	Ref.	7.1 [-0.4, 14.5]	Ref.	5.9 [-1.6, 13.3]	Ref.	-0.1 [-6.2, 5.9]
Heart disease	4.7	3.9	2.3	3.7	4.5	4.1
	Ref.	-0.8 [-5.8, 4.3]	Ref.	1.4 [-1.3, 4.0]	Ref.	-0.5 [-3.5, 2.5]
Any health condition	35.6	37.5	29.4	36.9	34.0	33.6
	Ref.	1.9 [-4.9, 8.6]	Ref.	7.5 [-0.1, 15.0]	Ref.	-0.4 [-7.0, 6.3]
Overweight/obesity	69.6	79.0	68.9	77.8	75.3	73.9
	Ref.	9.4 [3.5, 15.3]**	Ref.	8.9 [2.1, 15.8]*	Ref.	-1.4 [-6.3, 3.4]
Poor/fair health	21.5	30.0	25.3	32.8	29.2	31.6
	Ref.	8.4 [-1.4, 18.2]	Ref.	7.5 [1.5, 13.5]*	Ref.	2.4 [-3.7, 8.5]
Serious psychological distress	4.6	4.4	4.0	5.4	3.5	4.1
	Ref.	-0.2 [-3.7, 3.3]	Ref.	1.4 [-1.1, 3.9]	Ref.	0.6 [-2.0, 3.3]

Results are shown as predicted probabilities calculated from multivariable logistic regressions that assessed the association between citizenship/documentation status and the dichotomous health outcomes.

All models assumed all participants were members of the specified citizenship/documentation group and held marital status, health insurance, age, education, English language proficiency, employment, federal poverty level, urban/rural area, survey year, and usual source of care at their observed values

Boldface indicates statistical significance

* p < 0.05,

** p < 0.01,

*** p < 0.001

Sample limited to only those who had data on citizenship and documentation status, n=10,426

CI: Confidence interval; LPR: Lawful permanent residents; ME: Marginal effects; Ref: Reference; US: United States

Source: California Health Interview Survey