RESEARCH ARTICLE

Undocumented Latino Immigrants and the Latino Health Paradox

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Introduction: Despite having worse healthcare access and other social disadvantages, immigrants have, on average, better health outcomes than U.S.-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 data from 2015 to 2020. Data were analyzed to test the relationships between citizenship/documentation status and physical and mental health among Latinos and U.S.-born Whites. Analyses were stratified by sex (male/female) and length of U.S. 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 than U.S.-born Whites. Despite having a higher probability of overweight/obesity, undocumented Latino immigrants did not have probabilities of reporting diabetes, high blood pressure, or heart disease different from those of U.S.-born Whites after adjusting for 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 than U.S.-born White women. Undocumented Latino men had a lower predicted probability of reporting serious psychological distress than U.S.-born White men. There were no differences in outcomes when comparing shorter- with longer-duration undocumented Latino immigrants.

Conclusions: This study observed that the Latino health paradox may express patterns for undocumented Latino immigrants that are different from those for other Latino immigrant groups, emphasizing the importance of accounting for documentation status when conducting research on this population.
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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 U.S. for longer periods or U.S.-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 epidemiologic paradox.[5−8] Research has shown that the effects of the Latino health paradox attenuate as immigrants live in the U.S. for longer periods, which may be attributable to increased exposure to

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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 U.S. society. Recent reports have called for a better understanding of the health needs of undocumented immigrants, especially because most undocumented immigrants have been long residing in the U.S. and are aging rapidly.[13,14] For instance, in 2017, two thirds of undocumented immigrants in the U.S. 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 behavioral risk factors, such as smoking, binge drinking, and fast-food consumption, than U.S.-born Latinos. However, these results were largely driven by undocumented Latina women, whereas undocumented Latino men had cardiovascular disease behavioral risk profiles comparable with those of U.S.-born Latino men.[16] Another study found that when time in the U.S. was unaccounted for, undocumented Latino immigrants had physical and mental health outcomes similar to those of legally authorized or U.S.-born Latinos. However, when accounting for time in the U.S., undocumented Latino immigrants, regardless of the length of U.S. residence, had higher blood pressure than shorter-duration documented immigrants but did not have blood pressure significantly different from that of U.S.-born Latinos. In addition, shorter-duration undocumented Latino immigrants had higher odds of worse self-reported health than U.S.-born Latinos.[17] On the basis of 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 U.S. 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). Owing to the use of restricted data, code was sent to the CHIS Data Access Center at the University of California Los Angeles 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 U.S. 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: U.S.-born non-Latino Whites (*n*=38,180, reference group), U.S.-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 the 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 4 conditions (yes/no). Self-reported health was collapsed into poor/fair versus good/very good/excellent. Overweight/obesity (yes/no) was measured as BMI $\geq$25 kg/m^2 on the basis of self-reported height and weight.

Psychological distress was measured with the 6-item Kessler Psychological Distress Scale.[22] A composite score ranging from 0 to 24 was constructed. Participants with scores $\geq$13 were classified as having serious psychological distress, and those with scores <13 were classified as not having serious psychological distress. The cut offs were chosen on the basis of a validity study of the Kessler Psychological Distress scale.[23]

Analyses were stratified by sex (male/female) and length of residence (<15 or $\geq$15 years in the U.S.). A modified citizenship/documentation status measure that accounted for length of residence was constructed. Participants were classified into 1 of 8 mutually exclusive groups: U.S.-born Whites (*n*=38,180), U.S.-born Latinos (*n*=12,741), naturalized Latinos with <15 years in the U.S. (*n*=404), naturalized Latinos with $\geq$15 years in the U.S. (*n*=4,168), lawful permanent resident Latinos with <15 years in the U.S. (*n*=767), lawful permanent resident Latinos with $\geq$15 years in the U.S. (*n*=2,115), undocumented Latino immigrants with <15 years in the U.S. (*n*=1,251), and undocumented Latino immigrants with $\geq$15 years in the U.S. (*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 years), 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 previous studies of the Latino health paradox have compared immigrants with U.S.-born Whites.[7,8,25] U.S.-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 that all participants were members of each citizenship/documentation group and that each observation retained its 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. Owing 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 rerun using the adapted citizenship/documentation status variable that accounted for variations in length of U.S. residence. Finally, 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 U.S.-born Whites, 20.8% was U.S.-born Latinos, 7.5% was naturalized Latinos, 4.7% was lawful permanent resident Latinos, and 4.8% was 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 with U.S.-born Whites. Undocumented Latino immigrants had a significantly lower predicted probability of reporting any health condition than U.S.-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 U.S.-born White women (*p*<0.01).

The predicted probability of undocumented Latino immigrants with asthma was 9.5 percentage points lower than that of U.S.-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 U.S.-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 than U.S.-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 that of U.S.-born White women. U.S.-born, naturalized, and lawful permanent resident Latinos had significantly higher predicted probabilities of having diabetes than U.S.-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 U.S.-born Whites and undocumented Latino immigrants regarding self-reported poor/fair health and among U.S.-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 U.S. <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) than U.S.-born Whites. Undocumented Latino immigrants who lived in the U.S. for ≥15 years did not have probabilities significantly different from those of U.S.-born Whites for any health outcome.

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

DISCUSSION

This study shows that undocumented Latino immigrants have a complex relationship with the Latino health paradox. Despite having a higher predicted probability of overweight/obesity than U.S.-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

Table 1. Descriptive Statistics by Citizen/Documentation Status, California Residents, 2015−2020

Variable name	Total (N=61,347)	U.S.-born Whites (n=38,180)	U.S.-born Latinos (n=12,741)	Naturalized Latinos (n=4,572)	LPR Latinos (n=2,882)	Undocumented Latinos (n=2,972)	p-value[a]
Age (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	
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 U.S. 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

Note: Data are shown as column percent.
Source: California Health Interview Survey.
[a]Significance calculated using Pearson chi-square tests.
LPR, lawful permanent resident; N/A, not applicable.

Table 2. Predicted Probabilities From Multivariable Analyses of Health Outcomes by Citizenship/Documentation Status and Sex

Outcomes	U.S.-born Whites, ME% difference (95% CI)	U.S.-born Latinos, ME% difference (95% CI)	Naturalized Latinos, ME% difference (95% CI)	LPR Latinos, ME% difference (95% CI)	Undocumented Latinos, ME% 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
	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)***

Table 2. Predicted Probabilities From Multivariable Analyses of Health Outcomes by Citizenship/Documentation Status and Sex (*continued*)

Outcomes	U.S.-born Whites, ME% difference (95% CI)	U.S.-born Latinos, ME% difference (95% CI)	Naturalized Latinos, ME% difference (95% CI)	LPR Latinos, ME% difference (95% CI)	Undocumented Latinos, ME% difference (95% CI)
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)

Note: Boldface indicates statistical significance (*$p<0.05$, **$p<0.01$, and ***$p<0.001$).
Source: California Health Interview Survey.
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 that 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. Sample was limited to only those who had data on citizenship and documentation status and other covariates, N=61,347 (males=27,316; females=34,031).
LPR, lawful permanent resident; ME, marginal effect.

care. However, they did 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 U.S. society.[31−33] Previous work found that higher ethnic density within neighborhoods provides 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 than U.S.-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 U.S. for <15 years had a significantly lower predicted probability of reporting any health condition than U.S.-born Whites, whereas those who lived in the U.S. 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 U.S.-born citizens, with longer duration in the U.S.[1] However, this study did not find differences in any outcomes among undocumented Latino immigrants who lived in the U.S. for <15 years and undocumented Latino immigrants who lived in the U.S. for ≥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 Pebley[17] also examined the relationships among citizenship/documentation statuses, length of U.S. residence, and physical and mental health outcomes among Latinos. Although 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 U.S. In contrast, this study observed that the Latino health paradox can exist and vary according to the length of U.S. 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 U.S. for an average of 20.4 years, whereas those who voluntarily left resided in the U.S. 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 U.S. and those who were forcibly removed or left voluntarily and examine how the length of U.S. residence serves as a mechanism for a multitude of experiences, including acculturative stress, healthcare access, and exposure to xenophobia and racism, among undocumented Latino immigrants.

Although the findings were adjusted for having a usual source of care, this does not necessarily guarantee the utilization of primary care services. Undocumented immigrants likely have high levels of undiagnosed and underdiagnosed conditions owing 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

Table 3. Predicted Probabilities From Multivariable Analyses of Health Outcomes by Citizenship/Documentation Status and Length of Residence

Outcomes	U.S.-born Whites (*n*=38,180), ME% difference (95% CI)	U.S.-born Latinos (*n*=12,741), ME% difference (95% CI)	Naturalized Latinos (<15 years) (*n*=404), ME% difference (95% CI)	Naturalized Latinos (≥15 years) (*n*=4,168), ME% difference (95% CI)	LPR Latinos (<15 years) (*n*=767), ME% difference (95% CI)	LPR Latinos (≥15 years) (*n*=2,115), ME% difference (95% CI)	Undocumented Latinos (<15 years) (*n*=1,251), ME% difference (95% CI)	Undocumented Latinos (≥15 years) (*n*=1,721), ME% 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)

Note: Boldface indicates statistical significance. (*p<0.05, **p<0.01, and ***p<0.001).
Source: California Health Interview Survey.
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 that 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. Sample was limited to only those who had data on citizenship and documentation status, N=61,347.
LPR, lawful permanent resident; ME, marginal effect.

Table 4. Predicted Probabilities From Multivariable Analyses of Latino Immigrants by Citizenship/Documentation Status and Length of Residence

Outcomes	Naturalized Latinos (<15 years), ME% difference (95% CI)	Naturalized Latinos (≥15 years), ME% difference (95% CI)	LPR Latinos (<15 years), ME% difference (95% CI)	LPR Latinos (≥15 years), ME% difference (95% CI)	Undocumented Latinos (<15 years), ME% difference (95% CI)	Undocumented Latinos (≥15 years), ME% 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)

Note: Boldface indicates statistical significance (*p<0.05 and **p<0.01).
Source: California Health Interview Survey.
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 that 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. Sample was limited to only those who had data on citizenship and documentation status, *n*=10,426.
LPR, lawful permanent resident; ME, marginal effect.

why, despite having a higher probability of overweight/obesity than U.S.-born Whites, undocumented Latinos did not have different predicted probabilities of reporting diabetes, high blood pressure, or heart disease from U.S.-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 U.S. residence. For instance, Barcellos et al.[45] found that undiagnosed disease explained one third and one fifth of the immigrant health advantage related to diabetes and hypertension among Mexican immigrants, respectively. 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. Previous research suggests that undocumented immigrants who returned to Mexico have a higher rate of heart disease than documented immigrants.[46]

This study has important research and public health implications. First, it shows 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 patterns for undocumented Latino immigrants different from those of 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 owing to their sensitive nature. CHIS is the only statewide 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. In addition, 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 ages<26 years and ages >50 years and the proposed expansion of Medi-Cal to all undocumented immigrants by 2024 have the potential to help.[47]

Limitations

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. Although 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] In addition, 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-report with respect to objective health measures.[49] Finally, these findings are unlikely to generalize to the entire U.S. 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.

CONCLUSIONS

Undocumented Latino immigrants had a higher predicted probability of overweight/obesity but did not have predicted probabilities of obesity-related chronic diseases different from those of U.S.-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. Furthermore, insignificant differences in all health outcomes among undocumented Latino immigrants who have lived in the U.S. for shorter and longer periods suggest that this group may share unique experiences related to assimilating to U.S. society that tempers any moderating effects of length of U.S. residence, which may not affect other immigrant groups.

REFERENCES

1. Antecol H, Bedard K. Unhealthy assimilation: why do immigrants converge to American health status levels? *Demography.* 2006;43(2):337–360. https://doi.org/10.1353/dem.2006.0011.
2. Hamilton TG, Hagos R. Race and the healthy immigrant effect. *Public Policy Aging Rep.* 2021;31(1):14–18. https://doi.org/10.1093/ppar/praa042.
3. Ortega AN, McKenna RM, Kemmick Pintor J, et al. Health care access and physical and behavioral health among undocumented Latinos in California. *Med Care.* 2018;56(11):919–926. https://doi.org/10.1097/MLR.0000000000000985.
4. Derose KP, Bahney BW, Lurie N, Escarce JJ. Review: immigrants and health care access, quality, and cost. *Med Care Res Rev.* 2009;66(4):355–408. https://doi.org/10.1177/1077558708330425.
5. Carter-Pokras O, Zambrana RE, Yankelvich G, Estrada M, Castillo-Salgado C, Ortega AN. Health status of Mexican-origin persons: do proxy measures of acculturation advance our understanding of health disparities? *J Immigr Minor Health.* 2008;10(6):475–488. https://doi.org/10.1007/s10903-008-9146-2.
6. Abraído-Lanza AF, Dohrenwend BP, Ng-Mak DS, Turner JB. The Latino mortality paradox: A test of the "salmon bias" and healthy migrant hypotheses. *Am J Public Health.* 1999;89(10):1543–1548. https://doi.org/10.2105/ajph.89.10.1543.
7. Gallegos ML, Segrin C. Family connections and the Latino health paradox: exploring the mediating role of loneliness in the relationships between the Latina/o cultural value of familism and health. *Health Commun.* 2022;37(9):1204–1214. https://doi.org/10.1080/10410236.2021.1909244.
8. Markides KS, Coreil J. The health of Hispanics in the southwestern United States: an epidemiologic paradox. *Public Health Rep.* 1986;101(3):253–265.
9. Daviglus ML, Pirzada A, Durazo-Arvizu R, et al. Prevalence of low cardiovascular risk profile among diverse Hispanic/Latino adults in the United States by age, sex, and level of acculturation: the Hispanic

community health study/study of Latinos. *J Am Heart Assoc.* 2016;5 (8):e003929. https://doi.org/10.1161/JAHA.116.003929.

10. Abraído-Lanza AF, Chao MT, Flórez KR. Do healthy behaviors decline with greater acculturation? Implications for the Latino mortality paradox. *Soc Sci Med.* 2005;61(6):1243–1255. https://doi.org/10.1016/j.socscimed.2005.01.016.

11. Finch BK, Hummer RA, Kol B, Vega WA. The role of discrimination and acculturative stress in the physical health of Mexican-origin adults. *Hisp J Behav Sci.* 2001;23(4):399–429. https://doi.org/10.1177/0739986301234004.

12. Morey BN. Mechanisms by which anti-immigrant stigma exacerbates racial/ethnic health disparities. *Am J Public Health.* 2018;108(4):460–463. https://doi.org/10.2105/AJPH.2017.304266.

13. Ortega AN, Bustamante AV, Roby DH. New directions for public health research on the health and health care of undocumented immigrants. *Am J Public Health.* 2021;111(11):1910–1912. https://doi.org/10.2105/AJPH.2021.306506.

14. Bustamante AV, Chen J, Félix Beltrán L, Ortega AN. Health policy challenges posed by shifting demographics and health trends among immigrants to the United States. *Health Aff (Millwood).* 2021;40 (7):1028–1037. https://doi.org/10.1377/hlthaff.2021.00037.

15. Lopez MH, Passel JS, Cohn Dv. *Key facts about the changing U.S. unauthorized immigrant population.* Washington, DC: Pew Research Center; April 13, 2021. https://www.pewresearch.org/fact-tank/2021/04/13/key-facts-about-the-changing-u-s-unauthorized-immigrant-population/ Published Accessed October 3, 2022.

16. Ortega AN, Pintor JK, Langellier BA, et al. Cardiovascular disease behavioral risk factors among Latinos by citizenship and documentation status. *BMC Public Health.* 2020;20(1):629. https://doi.org/10.1186/s12889-020-08783-6.

17. Young MT, Pebley AR. Legal status, time in the USA, and the well-being of Latinos in Los Angeles. *J Urban Health.* 2017;94(6):764–775. https://doi.org/10.1007/s11524-017-0197-3.

18. CHIS methodology documentation. UCLA Fielding School of Public Health. https://healthpolicy.ucla.edu/chis/design/pages/methodology.aspx. Updated September 22, 2021. Accessed October 3, 2022.

19. Vargas Bustamante A, Fang H, Garza J, et al. Variations in healthcare access and utilization among Mexican immigrants: the role of documentation status. *J Immigr Minor Health.* 2012;14(1):146–155. https://doi.org/10.1007/s10903-010-9406-9.

20. Ortega AN, Fang H, Perez VH, et al. Health care access, use of services, and experiences among undocumented Mexicans and other Latinos. *Arch Intern Med.* 2007;167(21):2354–2360. https://doi.org/10.1001/archinte.167.21.2354.

21. J Viana, N Ponce, T Porteny, T Hughes and M. Jans, Measurement error in citizenship and immigration status among Mexican-born respondents in the California Health Interview Survey, Paper presented at:, In: *American Public Health Association Annual Meeting,* 2017. https://apha.confex.com/apha/2017/meetingapi.cgi/Session/50740?filename=2017_Session50740.pdf&template=Word. Accessed February 28, 2023.

22. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med.* 2002;32(6):959–976. https://doi.org/10.1017/s0033291702006074.

23. Prochaska JJ, Sung HY, Max W, Shi Y, Ong M. Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and utilization. *Int J Methods Psychiatr Res.* 2012;21(2):88–97. https://doi.org/10.1002/mpr.1349.

24. Choi S, Kim G, Lee S. Effects of nativity, length of residence, and county-level foreign-born density on mental health among older adults in the U.S. *Psychiatr Q.* 2016;87(4):675–688. https://doi.org/10.1007/s11126-016-9418-2.

25. Ortega AN, Rosenheck R, Alegría M, Desai RA. Acculturation and the lifetime risk of psychiatric and substance use disorders among

Hispanics. *J Nerv Ment Dis.* 2000;188(11):728–735. https://doi.org/10.1097/00005053-200011000-00002.

26. Huh J, Prause JA, Dooley CD. The impact of nativity on chronic diseases, self-rated health and comorbidity status of Asian and Hispanic immigrants. *J Immigr Minor Health.* 2008;10(2):103–118. https://doi.org/10.1007/s10903-007-9065-7.

27. Iqbal S, Oraka E, Chew GL, Flanders WD. Association between birthplace and current asthma: the role of environment and acculturation. *Am J Public Health.* 2014;104(suppl 1):S175–S182. https://doi.org/10.2105/AJPH.2013.301509.

28. Ruhnke SA, Reynolds MM, Wilson FA, Stimpson JP. A healthy migrant effect? Estimating health outcomes of the undocumented immigrant population in the United States using machine learning. *Soc Sci Med.* 2022;307:115177. https://doi.org/10.1016/j.socscimed.2022.115177.

29. Alegria M, Sribney W, Woo M, Torres M, Guarnaccia P. Looking beyond nativity: the relation of age of immigration, length of residence, and birth cohorts to the risk of onset of psychiatric disorders for Latinos. *Res Hum Dev.* 2007;4(1):19–47. https://doi.org/10.1080/15427600701480980.

30. Alegría M, Canino G, Shrout PE, et al. Prevalence of mental illness in immigrant and non-immigrant U.S. Latino groups. *Am J Psychiatry.* 2008;165(3):359–369. https://doi.org/10.1176/appi.ajp.2007.07040704.

31. Schwartz SJ, Pantin H, Sullivan S, Prado G, Szapocznik J. Nativity and years in the receiving culture as markers of acculturation in ethnic enclaves. *J Cross Cult Psychol.* 2006;37(3):345–353. https://doi.org/10.1177/0022022106286928.

32. Schwartz SJ, Unger JB, Zamboanga BL, Szapocznik J. Rethinking the concept of acculturation: implications for theory and research. *Am Psychol.* 2010;65(4):237–251. https://doi.org/10.1037/a0019330.

33. Hatzenbuehler ML, Prins SJ, Flake M, et al. Immigration policies and mental health morbidity among Latinos: a state-level analysis. *Soc Sci Med.* 2017;174:169–178. https://doi.org/10.1016/j.socscimed.2016.11.040.

34. Eschbach K, Mahnken JD, Goodwin JS. Neighborhood composition and incidence of cancer among Hispanics in the United States. *Cancer.* 2005;103(5):1036–1044. https://doi.org/10.1002/cncr.20885.

35. Eschbach K, Ostir GV, Patel KV, Markides KS, Goodwin JS. Neighborhood context and mortality among older Mexican Americans: is there a barrio advantage? *Am J Public Health.* 2004;94(10):1807–1812. https://doi.org/10.2105/ajph.94.10.1807.

36. Fenelon A. Revisiting the Hispanic mortality advantage in the United States: the role of smoking. *Soc Sci Med.* 2013;82:1–9. https://doi.org/10.1016/j.socscimed.2012.12.028.

37. Arbona C, Olvera N, Rodriguez N, Hagan J, Linares A, Wiesner M. Acculturative stress among documented and undocumented Latino immigrants in the United States. *Hisp J Behav Sci.* 2010;32(3):362–384. https://doi.org/10.1177/0739986310373210.

38. Bacallao ML, Smokowski PR. Obstacles to getting ahead: how assimilation mechanisms impact undocumented Mexican immigrant families. *Soc Work Public Health.* 2013;28(1):1–20. https://doi.org/10.1080/19371910903269687.

39. Dominguez-Villegas R, Bustamante AV. Health insurance coverage in Mexico among return migrants: differences between voluntary return migrants and deportees. *Health Aff (Millwood).* 2021;40(7):1047–1055. https://doi.org/10.1377/hlthaff.2021.00051.

40. Xu KT, Borders TF. Does being an immigrant make a difference in seeking physician services? *J Health Care Poor Underserved.* 2008;19 (2):380–390. https://doi.org/10.1353/hpu.0.0001.

41. Rodríguez MA, Bustamante AV, Ang A. Perceived quality of care, receipt of preventive care, and usual source of health care among undocumented and other Latinos. *J Gen Intern Med.* 2009;24(suppl 3):508–513. https://doi.org/10.1007/s11606-009-1098-2.

42. Ro A, Bruckner TA, Huynh MP, Du S, Young A. Emergency department utilization among undocumented Latino patients during the COVID-19 pandemic. *J Racial Ethn Health Disparities.* In press. Online August 18, 2022. https://doi.org/10.1007/s40615-022-01382-8.

43. H Bernstein, D Gonzalez, M Karpman and S. Zuckerman, Amid confusion over the public charge rule, immigrant families continued avoiding public benefits in 2019, May 2020, Urban Institute; Washington, DC https://www.urban.org/sites/default/files/publication/102221/amid-confusion-over-the-public-charge-rule-immigrant-families-continued-avoiding-public-benefits-in-2019_3.pdf. Published May 2020. Accessed October 3, 2022.

44. T Nwankwo, SS Yoon, V Burt and Q. Gu, Hypertension among adults in the United States: National Health and Nutrition Examination Survey, 2011−2012, *NCHS Data Brief*, (133), 2013, 1−8, https://pubmed.ncbi.nlm.nih.gov/24171916/. Accessed February 28, 2023.

45. Barcellos SH, Goldman DP, Smith JP. Undiagnosed disease, especially diabetes, casts doubt on some of reported health 'advantage' of recent Mexican immigrants. *Health Aff (Millwood).* 2012;31(12):2727–2737. https://doi.org/10.1377/hlthaff.2011.0973.

46. Wilson FA, Stimpson JP, Pagán JA. Disparities in health outcomes of return migrants in Mexico. *Int J Popul Res.* 2014;2014:1–9. https://doi.org/10.1155/2014/468250.

47. Johnson B, Hashida C, Koushmaro L. *The 2022−23 budget: analysis of the Medi-Cal budget.* Sacramento, CA: The California Legislature's Nonpartisan Fiscal and Policy Advisor Legislative Analyst's Office; February 2022. https://lao.ca.gov/reports/2022/4522/medi-cal-budget-020922.pdf Published February 2022. Accessed December 11, 2022.

48. Finch BK, Hummer RA, Reindl M, Vega WA. Validity of self-rated health among Latino(a)s. *Am J Epidemiol.* 2002;155(8):755–759. https://doi.org/10.1093/aje/155.8.755.

49. Lee S, Alvarado-Leiton F, Vasquez E, Davis RE. Impact of the terms "*Regular*" or "*Pasable*" as Spanish translation for "fair" of the self-rated health question among U.S. Latinos: a randomized experiment. *Am J Public Health.* 2019;109(12):1789–1796. https://doi.org/10.2105/AJPH.2019.305341.