

Supplemental Online Content

Pérez-Stable EJ, Panigrahi A, Coreas SI, et al. Diabetes and hypertension risk across acculturation and education levels in Hispanic/Latino adults. *JAMA Health Forum*. 2025;6(3):e250273. doi:10.1001/jamahealthforum.2025.0273

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This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Additional weighted, age-standardized measures of acculturation and socioeconomic status that are not shown in main Table 1, but used for sensitivity analyses, stratified by heritage at Visit 1: Hispanic Community Health Study/Study of Latinos (n=11,623), (2007-2011)*

Characteristics	Heritage**													
	Total** n=11,623		Central American n=1,207		Cuban n=1,645		Dominican n=1,021		Mexican n=4,806		Puerto Rican n=1,801		South American n=795	
	% ^a	95% CI	% ^a	95% CI	% ^a	95% CI	% ^a	95% CI	% ^a	95% CI	% ^a	95% CI	% ^a	95% CI
Age , mean (SE)	43.1	(42.5,43.7)	41.7	(40.6,42.9)	49.2	(48.1,50.3)	41.9	(40.6,43.3)	40.1	(39.3,40.9)	45.2	(44.0,46.4)	44.2	(42.5,45.9)
Years in US														
Less than 6 years	16.9	(15.3,18.6)	19.6	(16.4,22.7)	38.2	(34.1,42.4)	16.8	(13.4,20.1)	11.2	(9.3,13.2)	4.7	(2.9,6.6)	16.3	(12.1,20.5)
6 years or more	83.4	(81.8,85.1)	80.7	(77.7,83.8)	61.9	(57.7,66.0)	84.0	(80.7,87.4)	88.8	(86.9,90.8)	95.3	(93.4,97.1)	83.7	(79.5,87.9)
Less than 10 years	27.4	(25.4,29.5)	31.9	(27.9,35.9)	52.4	(47.8,57.1)	26.1	(21.9,30.2)	22.0	(19.6,24.4)	6.9	(4.7,9.2)	37.6	(31.8,43.4)
10 years or more	72.6	(70.5,74.6)	68.1	(64.1,72.1)	47.6	(43.0,52.2)	73.9	(69.8,78.1)	78.0	(75.6,80.4)	93.1	(90.8,95.4)	62.4	(56.6,68.2)
Years lived in the U.S., mean (SE)	20.7	(19.1,21.4)	16.4	(15.6,17.3)	12.9	(11.6,14.2)	17.8	(16.8,18.8)	21.9	(21.2,22.7)	33.7	(32.7,34.7)	15.5	(14.3,16.6)
Immigrant Generation^b														
First generation	78.5	(76.9,80.0)	93.8	(91.8,95.8)	90.6	(87.6,93.5)	90.2	(87.5,92.9)	76.6	(74.3,78.9)	51.4	(48.1,54.8)	93.9	(91.1,96.8)
Second generation and beyond	21.5	(20.0,23.1)	6.2	(4.2,8.2)	9.4	(6.5,12.4)	9.8	(7.1,12.5)	23.4	(21.1,25.7)	48.6	(45.2,51.9)	6.1	(3.2,8.9)
Language Preference														
Spanish	77.5	(75.7,79.2)	89.0	(86.1,91.9)	90.5	(87.7,93.3)	82.8	(79.5,86.2)	81.1	(79.0,83.3)	41.6	(37.2,46.0)	89.1	(85.8,92.5)
English	22.5	(20.8,24.3)	11.0	(8.1,13.9)	9.5	(6.7,12.3)	17.2	(13.8,20.6)	18.9	(16.7,21.0)	58.4	(54.0,62.8)	10.9	(7.6,14.3)
Acculturation SASH Scale^b (1-5)														
Low <2	58.3	(56.4,60.3)	72.9	(68.6,77.1)	74.8	(70.9,78.7)	65.0	(60.8,69.1)	59.9	(57.6,62.3)	22.2	(19.1,25.2)	63.3	(59.3,67.4)
Moderate 2-2.9	18.1	(17.0,19.3)	16.0	(13.0,19.1)	13.1	(10.5,15.8)	20.2	(16.7,23.8)	20.3	(18.3,22.2)	17.9	(15.3,20.6)	24.8	(20.7,29.0)
High ≥3	23.5	(21.8,25.2)	11.1	(8.1,14.1)	12.0	(8.5,15.5)	14.8	(11.7,17.9)	19.8	(17.9,21.8)	59.9	(56.4,63.4)	11.8	(8.8,14.9)
Ethnic identification														
Low (1.0-2.9)	15.5	(14.4,16.6)	10.2	(8.0,12.3)	9.2	(6.9,11.4)	13.8	(11.0,16.5)	17.6	(15.8,19.3)	21.9	(18.7,25.1)	15.6	(12.4,18.8)
Moderate (3.0)	47.0	(45.7,48.4)	47.7	(43.8,51.6)	50.6	(47.1,54.1)	43.1	(39.2,47.2)	47.8	(45.7,50.0)	45.6	(42.0,49.2)	41.7	(37.0,46.3)
High (3.1-4.0)	37.5	(36.1,38.8)	42.1	(38.3,45.9)	40.2	(36.6,43.9)	43.1	(39.3,46.9)	34.6	(32.7,36.6)	32.5	(29.4,35.6)	42.8	(38.0,47.6)
Education (4-level)														
Less than high school	32.5	(30.9,34.1)	39.2	(35.3,43.1)	20.5	(17.9,23.1)	39.8	(35.8,43.9)	37.5	(34.6,40.4)	36.4	(32.3,40.6)	20.4	(16.5,24.3)
High school graduate or equivalent	26.8	(25.6,28.0)	22.8	(19.9,25.7)	28.7	(25.4,32.1)	21.5	(18.3,24.8)	27.7	(25.9,29.5)	26.8	(23.8,29.8)	26.4	(22.5,30.4)
College (trade, vocational, associate, bachelor)	37.3	(35.7,39.0)	34.6	(30.6,38.6)	46.8	(43.0,50.6)	35.8	(31.8,39.8)	31.8	(29.1,34.5)	33.7	(30.1,37.4)	48.6	(43.8,53.4)
Post-College (master, professional, doctorate)	3.4	(2.6,4.2)	3.4	(1.7,5.0)	4.0	(2.7,5.3)	2.8	(1.5,4.1)	3.0	(1.6,4.4)	3.0	(1.6,4.5)	4.6	(2.7,6.5)

Household Income														
< \$10,001	15.1	(13.8,16.4)	14.9	(11.5,18.2)	18.3	(15.4,21.2)	18.1	(14.9,21.3)	10.7	(9.0,12.5)	21.5	(17.6,25.5)	10.2	(7.5,12.9)
\$10,001 - \$20,000	31.7	(30.1,33.4)	36.3	(31.7,40.8)	34.1	(30.1,38.1)	36.1	(31.6,40.6)	28.6	(25.8,31.4)	30.5	(26.8,34.2)	36.7	(31.7,41.6)
\$20,001 - \$40,000	33.1	(31.6,34.7)	35.6	(31.2,40.1)	32.4	(28.7,36.2)	33.4	(29.3,37.6)	36.3	(33.8,38.8)	26.4	(22.8,30.0)	32.1	(27.4,36.9)
\$40,001 - \$75,000	14.6	(13.2,16.1)	10.9	(8.1,13.7)	10.0	(7.6,12.5)	10.5	(7.2,13.7)	17.6	(15.2,20.0)	14.9	(12.3,17.6)	14.5	(10.5,18.5)
> \$75,000	5.4	(4.3,6.5)	2.3	(1.2,3.4)	5.1	(2.4,7.9)	1.9	(0.8,3.0)	6.7	(5.0,8.5)	6.6	(4.8,8.5)	6.5	(3.4,9.6)
Health Insurance Type														
No health insurance	48.1	(46.2,50.1)	65.5	(60.9,70.1)	59.3	(55.8,62.8)	25.8	(21.8,29.8)	54.5	(51.8,57.2)	18.8	(15.8,21.9)	57.7	(52.9,62.5)
Public insurance only	21.6	(20.2,23.0)	12.8	(10.5,15.0)	23.8	(20.9,26.8)	35.2	(31.1,39.4)	12.5	(10.6,14.3)	40.4	(36.2,44.6)	12.8	(9.5,16.1)
Any private insurance	24.5	(22.6,26.5)	16.3	(12.8,19.7)	12.7	(9.8,15.6)	35.2	(30.9,39.5)	25.0	(22.3,27.6)	37.1	(33.3,40.9)	23.6	(19.3,27.8)
Unknown insurance type	5.8	(5.0,6.6)	5.5	(3.9,7.1)	4.2	(2.7,5.6)	3.8	(1.9,5.6)	8.1	(6.6,9.5)	3.7	(2.5,4.9)	5.9	(2.8,9.0)
Employment														
Retired and unemployed	10.2	(9.5,10.9)	7.2	(5.4,9.1)	8.3	(7.2,9.4)	12.3	(10.3,14.4)	8.3	(7.2,9.4)	17.1	(15.4,18.9)	7.4	(5.3,9.5)
Not retired and unemployed	39.8	(38.3,41.4)	34.9	(31.3,38.4)	47.2	(43.4,51)	39.5	(34.5,44.6)	36.7	(34.5,39)	44.1	(40.4,47.7)	31.9	(26.9,36.9)
Employed part-time (≤ 35 hrs/wk)	16.8	(15.9,17.8)	22.8	(19.7,25.9)	13.3	(11.2,15.4)	17.2	(13.8,20.5)	19.3	(17.7,20.9)	10.0	(7.8,12.3)	26.5	(22.2,30.8)
Employed full-time (> 35 hrs/wk)	33.2	(31.9,34.5)	35.1	(31.5,38.7)	31.3	(28.1,34.4)	31.0	(26.7,35.2)	35.7	(33.5,37.9)	28.8	(25.4,32.2)	34.2	(30.3,38.2)
Current Occupation														
Non-skilled worker	27.0	(25.1,28.9)	27.1	(22.9,31.3)	13.6	(10.5,16.6)	28.7	(22.4,34.9)	35.1	(31.6,38.5)	22.4	(17.5,27.4)	20.7	(15.1,26.3)
Service worker	20.5	(18.3,22.6)	32.4	(27.9,36.8)	35.8	(30.3,41.3)	18.4	(14.5,22.3)	14.0	(11.1,16.8)	9.1	(6.5,11.7)	30.1	(23.7,36.4)
Skilled worker	21.6	(19.7,23.5)	13.0	(9.3,16.8)	15.5	(11.8,19.1)	26.5	(21.2,31.8)	24.5	(21.4,27.6)	26.2	(21.4,31.1)	17.2	(13.1,21.3)
Professional/Admin/Office staff	13.7	(11.8,15.6)	13.0	(9.4,16.5)	12.5	(8.4,16.7)	7.7	(4.9,10.4)	13.3	(10.3,16.2)	21.0	(16.2,25.9)	14.1	(10,18.1)
Other occupation	17.2	(15.5,18.9)	14.6	(10.9,18.2)	22.7	(18.7,26.7)	18.8	(14.4,23.2)	13.2	(11.2,15.3)	21.2	(15.8,26.7)	18.1	(13.4,22.7)
Assets – House / Apartment / Mobile home														
Owned, without mortgage or loan	6.7	(5.8,7.6)	3.6	(2.2,5.1)	4.7	(3.3,6.1)	2.4	(0.8,3.9)	10.1	(8.4,11.8)	5.6	(3.5,7.7)	5.3	(3.0,7.6)
Owned, with mortgage or loan	20.9	(18.7,23)	13.1	(10,16.2)	14.9	(11.7,18.1)	7.9	(4.2,11.6)	31.3	(28.1,34.4)	16.1	(13.0,19.2)	24.3	(19.1,29.5)
Rented	70.0	(67.5,72.4)	80.5	(77,84.1)	78.5	(74.9,82.1)	86.3	(81.7,91)	56.7	(53.1,60.3)	75.4	(71.6,79.1)	66.7	(61.3,72.2)
Occupied without payment	2.5	(2.1,2.9)	2.7	(1.5,4.0)	1.9	(1.3,2.5)	3.4	(2.0,4.9)	2.0	(1.4,2.6)	2.9	(1.8,4.1)	3.7	(2.0,5.4)
Perceived SES Ladder ^c (1-10)														
Low (1 - 3)	30.5	(29,32.1)	31.1	(27.4,34.8)	34.2	(31.1,37.4)	45.8	(41.4,50.2)	26.7	(24.0,29.4)	31.1	(27.7,34.6)	22.3	(18.3,26.4)
Average (4 - 6)	57.7	(56.4,59.1)	59.5	(55.5,63.6)	58.7	(55.8,61.7)	47.0	(42.9,51.1)	59.5	(57.2,61.9)	54.4	(50.5,58.2)	62.9	(58.2,67.6)
High (7 - 10)	11.8	(10.7,12.9)	9.4	(6.8,12.0)	7.0	(4.9,9.2)	7.2	(5.0,9.4)	13.8	(12.1,15.6)	14.5	(11.6,17.5)	14.8	(10.7,18.8)

Perceived SES Ladder, mean (SE)	4.4	(4.3,4.5)	4.3	(4.1,4.4)	4.1	(4.0,4.3)	3.8	(3.7,4.0)	4.6	(4.5,4.7)	4.4	(4.3,4.6)	4.7	(4.5,4.9)
Segmented Groups ^d														
Low Acculturation, Low SES	23.2	(21.9,24.5)	34.0	(30.1,38.0)	16.1	(13.9,18.3)	32.7	(28.8,36.6)	28.9	(26.4,31.4)	11.5	(9.4,13.6)	18.8	(15.1,22.5)
Low Acculturation, High SES	35.2	(33.3,37.1)	38.8	(35.3,42.3)	58.7	(54.9,62.6)	32.3	(27.8,36.7)	31.0	(28.5,33.6)	10.7	(8.6,12.7)	44.5	(40.3,48.8)
High Acculturation., Low SES	9.3	(8.3,10.3)	5.1	(3.5,6.8)	4.4	(2.8,6.0)	7.1	(5.0,9.3)	8.6	(7.3,10.0)	24.7	(20.6,28.8)	1.8	(0.7,2.9)
High Acculturation, High SES	32.4	(30.6,34.1)	22.0	(18.1,26.0)	20.8	(17,24.6)	27.9	(23.9,31.9)	31.5	(29.2,33.8)	53.1	(48.7,57.6)	34.9	(30.7,39.1)

Note: SASH = Short Acculturation Scale for Hispanics, SE = standard error, SES = socioeconomic status
*Analyses were weighted to account for complex sampling and study design of HCHS/SOL, age-standardized to the 2010 US Census population, and restricted to participants that completed Visit 1 and Visit 2 of HCHS/SOL.

**p values for all groups <.0001
^aPercentages based on non-missing values.

^bParticipants were asked to respond on a 5-point Likert-type scale from 1=Only Spanish and 5=Only English to the following: (1) “In general, what language(s) do you read and speak?” (2) “What was the language(s) you used as a child?” (3) “What language(s) do you usually speak at home?” (4) “In which language(s) do you usually think?” (5) “What language(s) do you usually speak with your friends?” (6) “In general, what language(s) are the movies, T.V. and radio programs you prefer to watch and listen to?” The average of the 6 questions indicates the degree of language-based acculturation, with a higher value reflecting greater acculturation.

^cParticipants were shown a 10-step ladder and asked to respond to the following: “Where would you place yourself on this ladder? Please show the step where you think you stand at this time in your life, relative to other people in the United States?”

^dLow versus high acculturation was determined by a two-level Acculturation SASH Scale variable. Low versus high SES was determined by using educational attainment as a proxy measure, with less than high school level as low SES and greater than or equal to high school level as high SES.

eTable 2. Weighted predicted probabilities from modeling incident diabetes and incident hypertension for segmented groups using selected measures of perceived SES and income stratified by heritage as a sensitivity analysis: Hispanic Community Health Study/Study on Latinos (n=11,623), ([2008-2011], [2014-2017])¹

		Heritage				
	Total n=11,623	Central American n=1,207	Cuban n=1,645	Dominican n=1,021	Mexican n=4,806	Puerto Rican n=1,801
Segmented Groups ²	Incident Diabetes (95% CI) ³					
Low Perceived SES, Low Income	0.15(0.13,0.17)	0.08(0.03,0.19)	0.11(0.07,0.18)	0.13(0.05,0.30)	0.13(0.08,0.21)	0.14(0.06,0.32)
Low Perceived SES, High Income	0.11(0.08,0.15)	0.06(0.02,0.19)	0.07(0.03,0.18)	0.04(0.01,0.15)	0.11(0.05,0.21)	0.12(0.04,0.31)
High Perceived SES, Low Income	0.14(0.12,0.16)	0.09(0.04,0.19)	0.17(0.11,0.25)	0.08(0.04,0.17)	0.11(0.06,0.17)	0.10(0.04,0.24)
High Perceived SES, High Income	0.13(0.11,0.15)	0.08(0.03,0.17)	0.10(0.06,0.15)	0.04(0.01,0.12)	0.11(0.06,0.19)	0.14(0.06,0.30)
Segmented Groups ²	Incident Hypertension (95% CI) ³					
Low Perceived SES, Low Income	0.17(0.14,0.21)	0.16(0.10,0.23)	0.21(0.12,0.34)	0.14(0.08,0.24)	0.12(0.08,0.16)	0.28(0.15,0.46)
Low Perceived SES, High Income	0.16(0.11,0.22)	0.09(0.02,0.32)	0.25(0.11,0.48)	0.09(0.03,0.27)	0.11(0.07,0.18)	0.19(0.07,0.43)
High Perceived SES, Low Income	0.16(0.14,0.19)	0.10(0.06,0.16)	0.17(0.08,0.32)	0.20(0.11,0.34)	0.14(0.11,0.18)	0.17(0.08,0.31)
High Perceived SES, High Income	0.13(0.11,0.15)	0.10(0.05,0.18)	0.18(0.09,0.32)	0.17(0.09,0.32)	0.08(0.06,0.11)	0.17(0.08,0.31)

Note. CI = confidence interval, SES = socioeconomic status

¹Analyses were weighted to account for complex sampling and study design of HCHS/SOL, age-standardized to the 2010 US Census population, and restricted to participants that completed Visit 1 and Visit 2 of HCHS/SOL.

²Perceived SES was dichotomized as low versus high based on the perceived SES scale of 1-10, with values of 1-3 categorized as low perceived SES and values of 4-10 categorized as high perceived SES. Income was dichotomized as low versus high based on self-reported income with <\$30,000 categorized as low income and ≥\$30,000 categorized as high income.

³Regression models were adjusted for age, gender, health insurance status, study site, family history of diabetes/hypertension respectively, obesity, poor diet, physical activity, and birthplace (with the exception of models for (a) Cuban and Dominican heritage, which did not adjust for study site for incident diabetes, (b) Mexican heritage, which did not adjust for study site, and (b) Central American heritage, which did not adjust for birthplace for incident hypertension).

eTable 3. Weighted predicted probabilities from modeling incident diabetes and incident hypertension for segmented groups using selected measures of years lived in the US and perceived SES stratified by heritage as a sensitivity analysis: Hispanic Community Health Study/Study on Latinos (n=11,623), ([2008-2011], [2014-2017])¹

	Total n=11,623	Heritage				
		Central American n=1,207	Cuban n=1,645	Dominican n=1,021	Mexican n=4,806	Puerto Rican n=1,801
Segmented Groups ²	Incident Diabetes (95% CI) ³					
<10 Years in US, Low Perceived SES	0.14(0.11,0.17)	0.12(0.07,0.20)	0.11(0.07,0.17)	0.12(0.04,0.27)	0.12(0.07,0.19)	0.18(0.05,0.46)
<10 Years in US, High Perceived SES	0.14(0.08,0.23)	0.08(0.02,0.28)	0.17(0.07,0.35)	0.11(0.02,0.44)	0.11(0.04,0.27)	0.16(0.02,0.7)
≥10 Years in US, Low Perceived SES	0.14(0.13,0.15)	0.07(0.04,0.11)	0.13(0.09,0.19)	0.10(0.04,0.20)	0.13(0.09,0.20)	0.10(0.04,0.23)
≥10 Years in US, High Perceived SES	0.14(0.11,0.17)	0.12(0.07,0.21)	0.12(0.05,0.26)	0.04(0.02,0.11)	0.15(0.10,0.22)	0.08(0.03,0.2)
Segmented Groups ²	Incident Hypertension (95% CI) ³					
<10 Years in US, Low Perceived SES	0.14(0.11,0.17)	0.08(0.05,0.15)	0.18(0.09,0.32)	0.09(0.04,0.18)	0.12(0.07,0.20)	0.21(0.08,0.45)
<10 Years in US, High Perceived SES	0.13(0.08,0.20)	0.06(0.01,0.24)	0.24(0.08,0.52)	0.09(0.01,0.48)	0.08(0.03,0.17)	0.35(0.05,0.86)
≥10 Years in US, Low Perceived SES	0.17(0.15,0.19)	0.12(0.08,0.17)	0.19(0.11,0.32)	0.17(0.10,0.28)	0.13(0.08,0.20)	0.21(0.10,0.37)
≥10 Years in US, High Perceived SES	0.11(0.09,0.14)	0.12(0.06,0.22)	0.09(0.03,0.25)	0.14(0.07,0.27)	0.08(0.04,0.14)	0.12(0.05,0.27)

Note. CI = confidence interval, SES = socioeconomic status

¹Analyses were weighted to account for complex sampling and study design of HCHS/SOL, age-standardized to the 2010 US Census population, and restricted to participants that completed Visit 1 and Visit 2 of HCHS/SOL.

²Years in the US was dichotomized as <10 years versus ≥10 years based on self-report and used as the measure of acculturation. Perceived SES was dichotomized as low versus high based on the perceived SES scale of 1-10, with values of ≤5 categorized as low perceived SES and values >5 categorized as high perceived SES.

³Regression models were adjusted for age, gender, health insurance status, study site, family history of diabetes/hypertension respectively, obesity, poor diet, physical activity, and birthplace (with the exception of models for (a) Cuban and Dominican heritage, which did not adjust for study site for incident diabetes and (b) Central American heritage, which did not adjust for birthplace for incident hypertension).

eTable 4. Weighted predicted probabilities from modeling results of incident diabetes and incident hypertension in segmented groups (using main analysis variables of SASH language score and education), stratified by <10 years and ≥10 years lived in the US as a sensitivity analysis: Hispanic Community Health Study/Study on Latinos (n=11,623), ([2008-2011], [2014-2017])¹

	Total n = 11,623	<10 Years in the US n = 2,629	10 or more years in the US n = 8,941
Segmented Groups²	Incident Diabetes (95% CI)³		
Less Acculturated, Lower SES	0.17(0.14,0.19)	0.20(0.12,0.33)	0.21(0.17,0.25)
Less Acculturated, Higher SES	0.14(0.12,0.17)	0.17(0.10,0.29)	0.18(0.14,0.23)
More Acculturated., Lower SES	0.14(0.11,0.16)	0.11(0.04,0.25)	0.18(0.15,0.22)
More Acculturated, Higher SES	0.11(0.09,0.13)	0.12(0.04,0.31)	0.15(0.12,0.18)
Segmented Groups²	Incident Hypertension (95% CI)³		
Less Acculturated, Lower SES	0.18(0.15,0.21)	0.16(0.09,0.25)	0.21(0.18,0.25)
Less Acculturated, Higher SES	0.15(0.12,0.18)	0.13(0.07,0.22)	0.18(0.15,0.22)
More Acculturated., Lower SES	0.19(0.15,0.23)	0.31(0.14,0.54)	0.21(0.17,0.25)
More Acculturated, Higher SES	0.10(0.08,0.12)	0.07(0.02,0.22)	0.12(0.10,0.15)

Note. CI = confidence interval, SES = socioeconomic status

¹Analyses were weighted to account for complex sampling and study design of HCHS/SOL, age-standardized to the 2010 US Census population, and restricted to participants that completed Visit 1 and Visit 2 of HCHS/SOL.

²Acculturation level was dichotomized as low versus high based on the SASH-language subscale from 0-5, with values 0-1.9 categorized as low acculturation and values 2-5 categorized as high acculturation. SES was dichotomized as low versus high using educational attainment as a measure of socioeconomic status, with high school level or less categorized as low SES and some college or more as high SES.

³Regression models adjusted for age, gender, health insurance status, study site, family history of diabetes/hypertension respectively, obesity, poor diet, physical activity, and birthplace.

Table 5. Weighted predicted probabilities from modeling incident diabetes and incident hypertension at Visit 2 using variables at Visit 2, as a sensitivity analysis, in segmented groups stratified by heritage: Hispanic Community Health Study/Study on Latinos (n=11,623), ([2008-2011], [2014-2017])¹

		Heritage				
	Total n=11,623	Central American n=1,207	Cuban n=1,645	Dominican n=1,021	Mexican n=4,806	Puerto Rican n=1,801
Incident Diabetes (95% CI)³						
Segmented Groups at visit 2²						
Less Acculturated, Lower SES	0.20(0.18,0.24)	0.07(0.03,0.17)	0.16(0.10,0.26)	0.21(0.08,0.44)	0.21(0.13,0.32)	0.14(0.06,0.30)
Less Acculturated, Higher SES	0.18(0.14,0.22)	0.09(0.03,0.23)	0.16(0.09,0.27)	0.18(0.06,0.43)	0.17(0.10,0.28)	0.07(0.02,0.24)
More Acculturated., Lower SES	0.15(0.13,0.18)	0.02(0.01,0.08)	0.16(0.09,0.27)	0.04(0.01,0.18)	0.15(0.09,0.24)	0.12(0.05,0.26)
More Acculturated, Higher SES	0.11(0.09,0.14)	0.06(0.02,0.20)	0.07(0.04,0.13)	0.11(0.04,0.27)	0.11(0.06,0.18)	0.07(0.03,0.18)
Age at visit 2, years						
45	0.85(0.80,0.88)	0.87(0.70,0.95)	0.87(0.77,0.94)	0.83(0.59,0.94)	0.82(0.73,0.89)	0.89(0.79,0.95)
55	0.89(0.85,0.92)	0.91(0.74,0.97)	0.91(0.81,0.96)	0.88(0.62,0.97)	0.87(0.77,0.93)	0.93(0.83,0.97)
65	0.92(0.88,0.95)	0.94(0.78,0.99)	0.94(0.85,0.98)	0.91(0.64,0.98)	0.90(0.80,0.95)	0.95(0.87,0.98)
Sex						
Female	0.15(0.13,0.17)	0.05(0.02,0.13)	0.12(0.08,0.18)	0.14(0.06,0.31)	0.15(0.10,0.22)	0.08(0.03,0.19)
Male	0.17(0.15,0.20)	0.06(0.02,0.15)	0.15(0.10,0.22)	0.10(0.04,0.26)	0.16(0.10,0.25)	0.11(0.05,0.24)
Health Insurance Status at visit 2						
No insurance	0.15(0.12,0.17)	0.04(0.01,0.12)	0.13(0.09,0.20)	0.12(0.04,0.34)	0.14(0.09,0.22)	0.08(0.03,0.20)
Any insurance	0.17(0.15,0.19)	0.07(0.03,0.16)	0.14(0.09,0.21)	0.12(0.05,0.26)	0.17(0.11,0.25)	0.12(0.05,0.25)
Center						
Bronx	0.15(0.12,0.18)	0.05(0.02,0.13)	-	-	0.19(0.10,0.32)	0.06(0.03,0.13)
Chicago	0.18(0.16,0.21)	0.09(0.03,0.23)	-	-	0.15(0.10,0.22)	0.10(0.04,0.20)
Miami	0.11(0.10,0.13)	0.03(0.01,0.10)	-	-	0.12(0.03,0.33)	0.05(0.02,0.16)
San Diego	0.21(0.17,0.24)	0.06(0.02,0.19)	-	-	0.18(0.13,0.25)	0.25(0.04,0.72)
Family history of diabetes						
No	0.14(0.12,0.16)	0.04(0.02,0.12)	0.13(0.09,0.19)	0.09(0.03,0.25)	0.13(0.08,0.20)	0.09(0.04,0.21)
Yes	0.18(0.16,0.21)	0.07(0.03,0.16)	0.13(0.09,0.21)	0.15(0.07,0.32)	0.18(0.12,0.27)	0.11(0.05,0.22)
Obese at visit 2 (BMI ≥30kg/m²)						
No	0.11(0.1,0.13)	0.03(0.01,0.07)	0.08(0.06,0.13)	0.09(0.03,0.20)	0.11(0.07,0.18)	0.07(0.03,0.16)
Yes	0.22(0.2,0.25)	0.11(0.05,0.24)	0.21(0.13,0.30)	0.16(0.06,0.37)	0.21(0.14,0.30)	0.14(0.06,0.28)
Poor diet quality⁴						
No	0.14(0.12,0.16)	0.05(0.02,0.12)	0.14(0.09,0.21)	0.12(0.05,0.27)	0.14(0.09,0.20)	0.07(0.03,0.15)
Yes	0.18(0.15,0.21)	0.06(0.02,0.17)	0.13(0.08,0.19)	0.12(0.03,0.36)	0.18(0.09,0.32)	0.14(0.06,0.30)
Any physical activity⁵						
Inactive	0.16(0.14,0.19)	0.04(0.01,0.12)	0.13(0.08,0.19)	0.15(0.05,0.38)	0.15(0.09,0.24)	0.09(0.04,0.21)
≥Low activity	0.16(0.14,0.18)	0.07(0.03,0.16)	0.14(0.09,0.21)	0.09(0.04,0.20)	0.16(0.10,0.24)	0.11(0.05,0.22)
Nativity						
Foreign Born	0.15(0.13,0.17)	0.08(0.04,0.13)	0.11(0.08,0.15)	0.10(0.04,0.21)	0.16(0.11,0.24)	0.05(0.01,0.19)
US/Territory Born	0.17(0.15,0.20)	0.04(0.01,0.19)	0.16(0.07,0.33)	0.15(0.03,0.48)	0.15(0.09,0.24)	0.19(0.11,0.31)
Incident Hypertension (95% CI)³						
Segmented Groups at visit 2²						
Less Acculturated, Lower SES	0.18(0.15,0.21)	0.15(0.09,0.22)	0.24(0.13,0.41)	0.20(0.09,0.41)	0.09(0.05,0.15)	0.28(0.14,0.48)
Less Acculturated, Higher SES	0.14(0.11,0.17)	0.09(0.04,0.18)	0.22(0.11,0.37)	0.15(0.06,0.33)	0.06(0.03,0.10)	0.20(0.08,0.43)
More Acculturated., Lower SES	0.20(0.16,0.24)	0.15(0.07,0.30)	0.18(0.07,0.38)	0.23(0.09,0.46)	0.11(0.06,0.18)	0.22(0.1,0.41)
More Acculturated, Higher SES	0.11(0.08,0.13)	0.14(0.08,0.24)	0.13(0.06,0.25)	0.13(0.04,0.33)	0.05(0.03,0.09)	0.13(0.05,0.29)

eTable 5. Weighted predicted probabilities from modeling incident diabetes and incident hypertension at Visit 2 using variables at Visit 2, as a sensitivity analysis, in segmented groups stratified by heritage: Hispanic Community Health Study/Study on Latinos (n=11,623), ([2008-2011], [2014-2017])¹

		Heritage				
	Total n=11,623	Central American n=1,207	Cuban n=1,645	Dominican n=1,021	Mexican n=4,806	Puerto Rican n=1,801
45	0.97(0.95,0.98)	0.99(0.96,0.99)	0.97(0.94,0.99)	0.99(0.96,0.99)	0.95(0.90,0.98)	0.91(0.76,0.97)
55	0.98(0.97,0.99)	0.99(0.98,0.99)	0.99(0.97,0.99)	0.99(0.98,0.99)	0.97(0.94,0.99)	0.94(0.80,0.99)
65	0.99(0.98,0.99)	0.99(0.99,0.99)	0.99(0.98,0.99)	0.99(0.99,0.99)	0.99(0.96,0.99)	0.97(0.84,0.99)
Sex						
Female	0.14(0.12,0.16)	0.12(0.07,0.20)	0.17(0.09,0.30)	0.13(0.06,0.26)	0.07(0.04,0.11)	0.21(0.10,0.38)
Male	0.16(0.14,0.19)	0.13(0.08,0.21)	0.21(0.11,0.36)	0.23(0.10,0.46)	0.08(0.05,0.13)	0.20(0.09,0.38)
Health Insurance Status at visit 2						
No insurance	0.14(0.11,0.16)	0.13(0.07,0.21)	0.21(0.11,0.35)	0.15(0.05,0.38)	0.06(0.03,0.11)	0.18(0.07,0.39)
Any insurance	0.17(0.15,0.19)	0.13(0.08,0.20)	0.17(0.09,0.31)	0.20(0.10,0.37)	0.09(0.06,0.14)	0.22(0.12,0.38)
Center						
Bronx	0.19(0.16,0.23)	0.13(0.07,0.22)	-	-	0.13(0.06,0.27)	0.30(0.17,0.49)
Chicago	0.13(0.11,0.16)	0.13(0.07,0.23)	-	-	0.07(0.04,0.12)	0.28(0.14,0.49)
Miami	0.18(0.15,0.21)	0.16(0.11,0.23)	-	-	0.05(0.01,0.24)	0.20(0.05,0.52)
San Diego	0.11(0.09,0.14)	0.10(0.03,0.26)	-	-	0.07(0.04,0.11)	0.09(0.03,0.25)
Family history of hypertension						
No	0.12(0.1,0.14)	0.10(0.06,0.16)	0.14(0.07,0.28)	0.13(0.05,0.28)	0.06(0.04,0.11)	0.18(0.08,0.34)
Yes	0.19(0.16,0.21)	0.16(0.10,0.25)	0.25(0.15,0.39)	0.23(0.10,0.45)	0.09(0.05,0.14)	0.23(0.11,0.42)
Obese at visit 2 (BMI ≥30kg/m²)						
No	0.11(0.1,0.13)	0.09(0.05,0.15)	0.14(0.07,0.26)	0.11(0.05,0.25)	0.06(0.03,0.09)	0.15(0.07,0.30)
Yes	0.2(0.18,0.23)	0.18(0.11,0.27)	0.25(0.14,0.40)	0.26(0.11,0.48)	0.10(0.06,0.16)	0.27(0.13,0.46)
Poor diet quality⁴						
No	0.15(0.13,0.17)	0.11(0.08,0.16)	0.19(0.10,0.34)	0.13(0.06,0.25)	0.10(0.08,0.13)	0.22(0.10,0.40)
Yes	0.15(0.13,0.19)	0.14(0.07,0.27)	0.18(0.10,0.32)	0.23(0.08,0.52)	0.05(0.02,0.13)	0.19(0.08,0.38)
Any physical activity⁵						
Inactive	0.15(0.13,0.18)	0.14(0.08,0.24)	0.18(0.09,0.32)	0.20(0.08,0.42)	0.07(0.04,0.12)	0.24(0.11,0.44)
≥Low activity	0.15(0.13,0.17)	0.12(0.08,0.18)	0.19(0.11,0.33)	0.15(0.07,0.30)	0.08(0.05,0.13)	0.17(0.08,0.32)
Birthplace						
Foreign Born	0.15(0.13,0.17)	-	0.19(0.15,0.25)	0.22(0.12,0.37)	0.08(0.05,0.13)	0.24(0.07,0.57)
US/Territory Born	0.15(0.12,0.18)	-	0.18(0.05,0.48)	0.13(0.04,0.39)	0.07(0.04,0.12)	0.17(0.11,0.25)

Note. CI = confidence interval, SES = socioeconomic status

¹Analyses were weighted to account for complex sampling and study design of HCHS/SOL, age-standardized to the 2010 US Census population, and restricted to participants that completed Visit 1 and Visit 2 of HCHS/SOL.

²Acculturation level was dichotomized as low versus high based on the SASH-language subscale of 0-5, with values 0-1.9 categorized as low acculturation and values of 2-5 categorized as high acculturation. SES was dichotomized as low versus high using educational attainment as a proxy measure of socioeconomic status, with high school level or less categorized as low SES and some college as high SES at Visit 2. If the Visit 2 value was missing, the Visit 1 value was carried forward.

³Regression models were adjusted for age at Visit 2, gender, health insurance status at Visit 2, study site, family history of diabetes/hypertension respectively, obesity at Visit 2, poor diet, physical activity, and birthplace (with the exception of models for (a) Cuban and Dominican heritage, which did not adjust for study site for incident diabetes and (b) Central American heritage, which did not adjust for birthplace for incident hypertension). If the Visit 2 value was missing, the Visit 1 value was carried forward.

⁴Poor diet quality was based on a score of <43 on the Alternative Healthy Eating Index 2010 (values ranged from 0 to 110).

⁵Inactive was based on no physical activity beyond those of basic living and greater than or equal to low activity was based on minutes of physical activity beyond those of basic living.

eTable 6. Weighted predicted probabilities from modeling incident diabetes and incident hypertension at Visit 2 using change in control variables between Visit 1 and Visit 2, as a sensitivity analysis, in segmented groups stratified by heritage: Hispanic Community Health Study/Study on Latinos (n=11,623), ([2008-2011], [2014-2017])¹

		Heritage				
	Total n=11,623	Central American n=1,207	Cuban n=1,645	Dominican n=1,021	Mexican n=4,806	Puerto Rican n=1,801
Segmented Groups at Visit 2²		Incident Diabetes (95% CI)³				
Less Acculturated, Lower SES	0.19(0.15,0.25)	0.05(0.01,0.16)	0.11(0.04,0.23)	0.11(0.03,0.33)	0.20(0.11,0.33)	0.13(0.04,0.34)
Less Acculturated, Higher SES	0.16(0.11,0.22)	0.08(0.02,0.27)	0.14(0.05,0.31)	0.19(0.04,0.58)	0.19(0.10,0.32)	0.02(0.00,0.08)
More Acculturated., Lower SES	0.12(0.09,0.16)	0.02(0.00,0.11)	0.10(0.03,0.27)	0.01(0.00,0.09)	0.10(0.05,0.19)	0.10(0.03,0.26)
More Acculturated, Higher SES	0.09(0.06,0.13)	0.08(0.02,0.31)	0.07(0.02,0.20)	0.14(0.04,0.44)	0.09(0.04,0.18)	0.03(0.01,0.11)
Segmented Groups at Visit 2²		Incident Hypertension (95% CI)³				
Less Acculturated, Lower SES	0.15(0.11,0.20)	0.14(0.07,0.28)	0.26(0.11,0.50)	0.26(0.08,0.59)	0.07(0.03,0.15)	0.17(0.06,0.39)
Less Acculturated, Higher SES	0.13(0.08,0.18)	0.09(0.03,0.28)	0.13(0.05,0.29)	0.08(0.01,0.34)	0.06(0.03,0.13)	0.25(0.07,0.62)
More Acculturated., Lower SES	0.17(0.12,0.23)	0.16(0.05,0.41)	0.20(0.06,0.50)	0.33(0.09,0.72)	0.07(0.03,0.16)	0.20(0.08,0.41)
More Acculturated, Higher SES	0.10(0.06,0.16)	0.14(0.05,0.34)	0.10(0.03,0.30)	0.09(0.01,0.46)	0.04(0.02,0.10)	0.23(0.07,0.53)

Note. CI = confidence interval, SES = socioeconomic status

¹Analyses were weighted to account for complex sampling and study design of HCHS/SOL, age-standardized to the 2010 US Census population, and restricted to participants that completed Visit 1 and Visit 2 of HCHS/SOL.

²Acculturation level was dichotomized as low versus high based on the SASH-language subscale of 0-5, with values of 0-1.9 categorized as low acculturation and values of 2-5 categorized as high acculturation. SES was dichotomized as low versus high using educational attainment as a proxy measure of socioeconomic status, with high school level or less categorized as low SES and some college as high SES at Visit 2. If the Visit 2 value was missing, the Visit 1 value was carried forward.

³Regression models were adjusted for age at Visit 1, SASH language score at visit 1, change in age between visits, gender, health insurance status at Visit 1, change in health insurance status between visits, study site, family history of diabetes/hypertension respectively, BMI at Visit 1, change in BMI between visits, poor diet, physical activity, and birthplace (with the exception of (a) Cuban and Dominican heritage, which did not adjust for study site for incident diabetes and (b) Central American heritage, which did not adjust for birthplace for incident hypertension). If the Visit 2 value was missing, the Visit 1 value was carried forward.

⁴Poor diet quality was based on a score of <43 on the Alternative Healthy Eating Index 2010 (values from 0 to 110).

⁵Inactive was based on no physical activity beyond those of basic living and greater than or equal to low activity was based on minutes of physical activity beyond those of basic living.