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## **Borders and Blood Pressure: Understanding the Role of Acculturation in a Hypertension Diagnosis Among Hispanic Americans: 2014 California Health Interview Survey**

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## Objective/Background

### Objective

To identify the association between acculturation and hypertension diagnosis among Hispanic-American immigrants in California in 2014

### Background

- The Hispanic population is the second fastest growing ethnic group in the United States, with a total population of about **55 million people**.
- Heart disease and cancer** are the two leading causes of death, which accounts for **about 2 in every 5 deaths**.
- The CDC states that Hispanics had **24% more poorly controlled high blood pressure** than Non-Hispanic Whites
- Lack of hypertension control among Hispanics through medication use or lifestyle changes can be attributed to **social, cultural and economic concerns**.

## Study Design

### Data Source

Data from the **2014 California Health Interview Survey (CHIS)**, conducted by University of California Los Angeles (UCLA) Center for Health Policy Research, Public Health Institute, and California Department of Public Health.

A **random-digit dial telephone survey** of selected adults (aged 18 years or older) was interviewed in each household.

Representative of California's non-institutionalized population.

Interviews were conducted in **English or Spanish**.

Hispanic Americans (n=3,793): Mexican Americans (n=3,088); Other Hispanic (n=705)

### Measures

**Outcome:** Self-reported hypertension (0=No vs 1= Yes)

**Independent Variables:** (proxy measures of acculturation)

- Years in the US (US-born, 15 years or more, less than 15 years)
- Citizenship status (US-born, Naturalization, Non-citizen)
- Spoken English level (Only English, Very well, Not well)

**Control Variables:** Gender, Poverty level, BMI, Smoking status, Having health insurance, Residence

### Statistical Analysis

Descriptive statistics (proportion, mean)

Bivariate analysis: Chi-square test

Multivariate analysis: Logistic regression

Weighted analysis using svy from STATA version 13

## Results

Table 1: Hypertension Prevalence by Race / Ethnicity

|                | White<br>(n=14,694) | African Americans<br>(n=917) | Hispanics<br>(n=3,793) | Asian<br>(n=2,146) | AI/AN<br>(n=7,455) | Total<br>(n=19,516) |
|----------------|---------------------|------------------------------|------------------------|--------------------|--------------------|---------------------|
| Prevalence (%) | 31.8                | 40.3                         | 24.0                   | 23.4               | 38.2               | 28.5                |
| 95% CI         | 29.7, 34.0          | 34.2, 46.7                   | 21.5, 26.7             | 19.4, 27.9         | 21.7, 58.2         | 27.2, 29.8          |

Graph 1: Prevalence of hypertension by age among Hispanics, 2014 CHIS

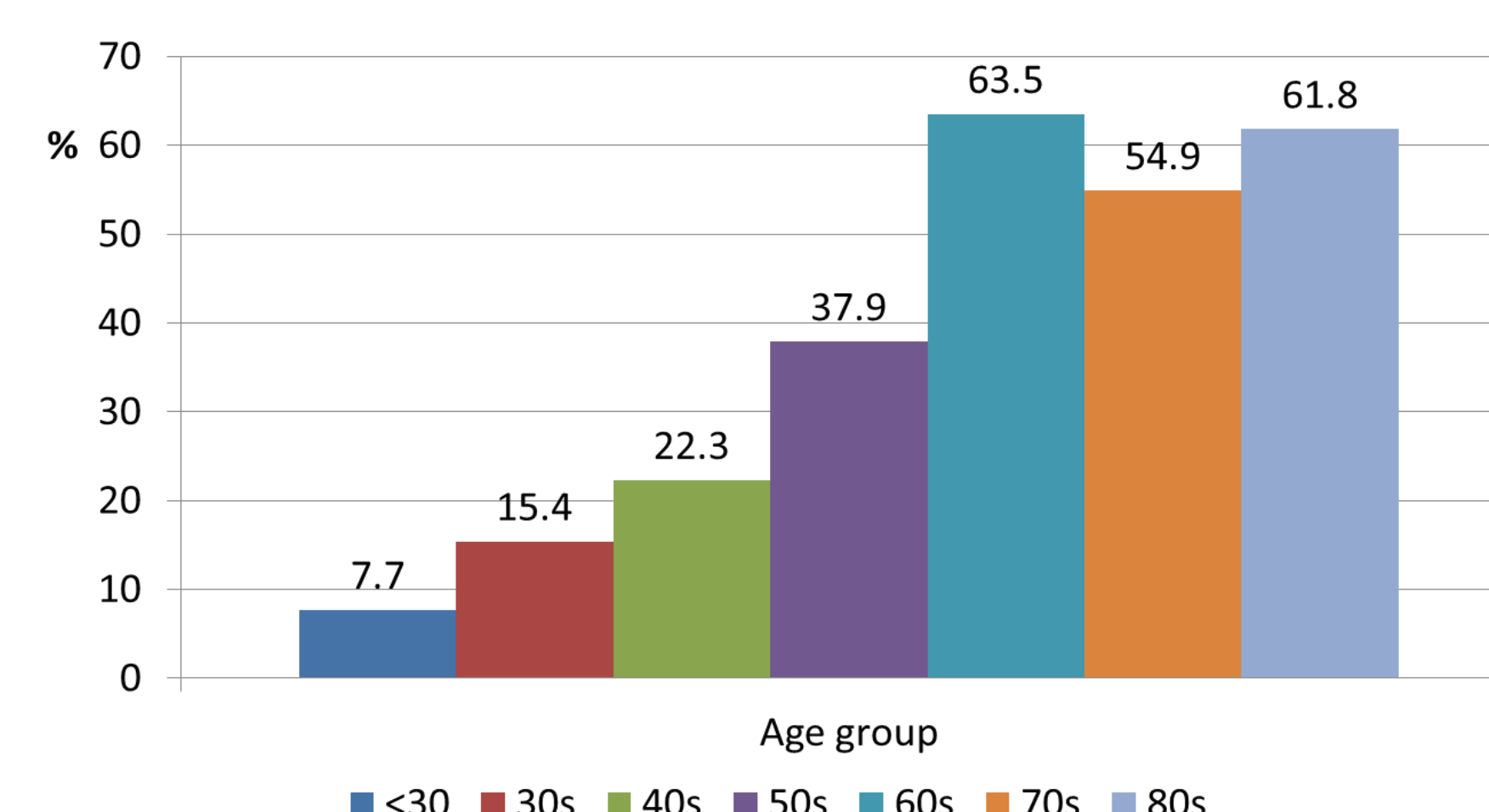


Table 2: Bivariate relationship between acculturation measures and hypertension prevalence by Hispanic Subgroup

| Variables                   | Mexican Americans<br>(n=3,088)              |                   | Other Hispanics<br>(n=705)                  |              |
|-----------------------------|---|-------------------|---|--------------|
|                             | % of having Hypertension (SE <sup>a</sup> ) | p-value           | % of having Hypertension (SE <sup>a</sup> ) | p-value      |
| <b>Citizenship status</b>   |   | <b>&lt;0.0001</b> |   | <b>0.03</b>  |
| US-born                     | .189% (.018)                                |                   | .187% (.032)                                |              |
| Naturalization              | .325% (.028)                                |                   | .394% (.060)                                |              |
| Non-citizen                 | .242% (.026)                                |                   | .235% (.058)                                |              |
| <b>Spoken English Level</b> |   | <b>0.004</b>      |   | <b>.300</b>  |
| Only English                | .191% (.024)                                |                   | .211% (.050)                                |              |
| Very well                   | .208% (.020)                                |                   | .230% (.035)                                |              |
| Not well                    | .289% (.024)                                |                   | .311% (.055)                                |              |
| <b>Years in the US</b>      |   | <b>&lt;0.0001</b> |   | <b>0.006</b> |
| US born                     | .189% (.018)                                |                   | .187% (.032)                                |              |
| ≥15 years                   | .308% (.023)                                |                   | .376% (.050)                                |              |
| <15 years                   | .173% (.035)                                |                   | .176% (.057)                                |              |

### Limitations

- **Self-reported data**, which introduces recall bias
- **Data is cross-sectional**, lacking the ability to make assumptions related to causation

## Results

Table 3: Multivariate logistic regression analysis of hypertension by Hispanic Subgroup

|                                | Mexican Americans<br>OR (95% CI <sup>a</sup> ) | Other Hispanics<br>OR (95% CI <sup>a</sup> ) |
|--------------------------------|--|--|
| <b>Gender</b>                  |  |  |
| Male                           | 1.00   | 1.00   |
| Female                         | 1.01 (0.75, 1.37)                              | 0.83 (0.41, 1.69)                            |
| <b>Poverty level</b>           |  |  |
| 0-99% FPL                      | 1.00   | 1.00   |
| 100-299% FPL                   | 1.23 (0.85, 1.42)                              | 0.45 (0.21, 0.96)*                           |
| 300% FPL                       | 0.93 (0.61, 1.94)                              | 0.58 (0.27, 1.26)                            |
| <b>BMI level</b>               |  |  |
| Normal                         | 1.00   | 1.00   |
| Overweight                     | 1.45 (0.94, 2.24)                              | 1.04 (0.49, 2.20)                            |
| Obese                          | 2.78 (1.76, 4.39)**                            | 2.50 (1.15, 5.40)                            |
| <b>Smoking status</b>          |  |  |
| No smoker                      | 1.00   | 1.00   |
| Former                         | 1.29 (0.71, 2.35)                              | 0.68 (0.18, 2.64)                            |
| Current smoker                 | 1.88 (1.38, 2.56)**                            | 0.68 (0.33, 1.42)                            |
| <b>Having health insurance</b> |  |  |
| No                             | 1.00   | 1.00   |
| Yes                            | 0.60 (0.39, 0.94)*                             | 0.53 (0.18, 1.59)                            |
| <b>Residence</b>               |  |  |
| Urban                          | 1.00   | 1.00   |
| Rural                          | 1.01 (0.74, 1.60)                              | 1.34 (0.57, 3.16)                            |
| <b>Acculturation</b>           |  |  |
| US-born                        | 1.00   | 1.00   |
| ≥15 years                      | 1.69 (1.22, 2.74)**                            | 3.22 (1.51, 6.91)**                          |
| <15 years                      | 0.99 (0.57, 1.74)                              | 1.05 (0.38, 2.91)                            |

## Discussion & Conclusion

### Discussion

- Acculturation is an important predictor of hypertension diagnoses among Hispanic-American immigrants.
- Those Hispanics who stayed **longer than 15 years** had higher likelihood of being diagnosed with hypertension than those who stayed less than 15 years and those that were US born.

### Conclusion

- This study can help medical providers better understand specific health care needs of Hispanic Americans and the effects of acculturation within immigrants.
- This study suggests medical practitioners to develop culturally sensitive education programs to increase awareness of hypertension in underserved Hispanic American populations.