Toward a Better Understanding of the Hispanic Paradox*

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*Presentation given to the Department of Sociology, University of Nebraska, March 1, 2013
Aims of Current Talk

- Produce independent (from NVSS) estimates of Hispanic adult mortality and life expectancy (e50)
- Examine key factors that help differentiate Hispanic adult mortality patterns from non-Hispanic blacks and whites
- Move beyond mortality to examine how important Hispanic health outcomes (chronic conditions, disability) correspond with those of mortality
- Discuss concerns looking ahead and future research implications
Motivation for Study

Continued (methodological and substantive) debate regarding the “Hispanic Paradox”: greater Hispanic-to-white than Hispanic-to-black similarity in mortality and health profiles despite Hispanic levels of education and income that are much closer to those of blacks than whites

** Largely spurred by prominent papers published by Palloni and colleagues **

Publication of 1st official Hispanic life tables (Arias 2010)

Rapid growth and substantial socioeconomic disadvantage of Hispanic population; concern regarding their future health and mortality prospects
Palloni & Morenoff (2001) criticize work on “…the so-called ‘Hispanic Paradox,’” which they call a “remarkably slippery idea, a moving target of sorts that refers to a number of different things:”

- Outcomes of interest
- Target populations
- Comparison populations

Result is many possible contrasts across target populations, comparison populations, and outcomes of interest that have muddied this literature.
Framing the Debate, con’d

Palloni & Arias (2004) later argue they solved the Hispanic Mortality Paradox: it’s only true among FB Hispanics and mostly because of poor data (shallow age gradient of mortality for FB Mexicans indicates “salmon bias”)

- Not true among US-born Hispanics??? Absolutely incorrect on this point…
- “Salmon Bias” major finding countered by Turra/Elo; Hummer et al.; Van Hook and colleagues
- Their shallow age gradient for FB Mexicans could have been a result of high mortality using thin/shaky data at young (35-49) ages

Enhanced version of the same data (NHIS-LMF) used here to take a fresh look at mortality patterns; ages 50+
Defining the Hispanic Paradox

Markides & Coreil (1986): “The health status of Hispanics... is much more similar to the health status of other whites than that of blacks although socioeconomically, the status of Hispanics is closer to that of blacks... Factors explaining the relative advantages or disadvantages of Hispanics include cultural practices, family supports, selective migration, diet, and genetic heritage.”
Populations and Outcomes of Interest

Adults aged 50 and above; all analyses sex-specific. Use mortality data from NHIS-LMF and health data from HRS (and MHAS)

Foreign-born Hispanic adults: anyone self-identifying (or family-identified) as Hispanic or Latino/a in the data sets being used who also self-identifies as being born outside of the US or in Puerto Rico

US-born Hispanic adults: anyone self-identifying (or family-identified) as Hispanic or Latino/a in the data sets being used who reports being born in the US, excluding Puerto Rico

Comparison groups: self-identified, US-born non-Hispanic blacks and non-Hispanic whites

Outcomes: 1) mortality following inclusion in a major US survey; some attention to cause-specific mortality
2) self-reported specific chronic conditions
3) self-reported limitations in Activities of Daily Living (one or more reported ADLs)
Markides & Eschbach (2011): Continued Support for the Hispanic Paradox

Based on their review of most recent studies, they report that “the majority of evidence continues to support a Hispanic mortality advantage” and that “immigrant selection remains the most viable explanation”

But they also say…

Data concerns remain
Health behavior explanations don’t seem to be the answer
The role of SES for Hispanic health/mortality remains unclear
Some studies suggest that Hispanics may live longer than non-Hispanic whites but with more disability and poorer health

…… Today’s talk is focused on these 4 issues.
Addressing Data Concerns

Aim 1: Produce independent estimates of Hispanic adult mortality rates and life expectancy (e50)
U.S. Mortality and Life Tables by Hispanic Origin (Arias et al. [2010] and Arias [2010])

Data: 2006 U.S. National Vital Statistics System (deaths) and Census estimates (person-years)

Best corrections for ethnic misclassification to date:
- Age-adjusted mortality 17% lower for Hispanics than NHW
- Life expectancy at birth for Hispanics: 80.6 years
- This figure is 2.5 years higher than that of NHWs and nearly 8 years higher than that of NHBs

Limitations: does not consider nativity; limited confidence in Hispanic national origin estimates

Cannot examine covariates of Hispanic adult mortality
Data

Use 1989-2004 NHIS cross-sections linked to follow-up mortality data through end of 2006.

4.3 million person-years of observation; 103,367 deaths. 4,467 of the deaths were to Hispanics.

“Ineligibles” not included in data set; file re-weighted for their exclusion.

Linkage quality between survey respondents and death records very high overall; it’s lower for Hispanics, but much better > age 50 and especially > 65 (Lariscy 2011).

Race/ethnicity and nativity are self (or HH) reported.

Covariates (e.g., SES, smoking) of mortality available.
### Life Expectancy Estimates at Age 50


<table>
<thead>
<tr>
<th></th>
<th>Hispanic</th>
<th>Black</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>34.9</td>
<td>30.0</td>
<td>32.6</td>
</tr>
<tr>
<td>Men</td>
<td>31.2</td>
<td>24.9</td>
<td>29.0</td>
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</tbody>
</table>
## Life Expectancy Estimates at Age 50

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<td>31.2</td>
<td>24.9</td>
</tr>
</tbody>
</table>
## Hispanic Life Expectancy Estimates at Age 50, By Nativity

<table>
<thead>
<tr>
<th></th>
<th>Foreign-Born Hispanics</th>
<th>US–Born Hispanics</th>
<th>Black</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>35.8</td>
<td>32.8</td>
<td>30.2</td>
<td>33.1</td>
</tr>
<tr>
<td>Men</td>
<td>32.1</td>
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<td>25.5</td>
<td>28.8</td>
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</table>

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## Mortality Rate Ratios

#### Females, ages 50+

<table>
<thead>
<tr>
<th>Age</th>
<th>Foreign-born</th>
<th>US-born</th>
<th>NH Black</th>
<th>NH White</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-54</td>
<td>0.97</td>
<td>1.14</td>
<td>2.03(^{a})</td>
<td>1.00</td>
</tr>
<tr>
<td>55-59</td>
<td>0.90</td>
<td>1.04</td>
<td>1.89(^{a})</td>
<td>1.00</td>
</tr>
<tr>
<td>60-64</td>
<td>0.75(^{a})</td>
<td>1.17</td>
<td>1.71(^{a})</td>
<td>1.00</td>
</tr>
<tr>
<td>65-69</td>
<td>0.75(^{a})</td>
<td>1.01</td>
<td>1.47(^{a})</td>
<td>1.00</td>
</tr>
<tr>
<td>70-74</td>
<td>0.74(^{a})</td>
<td>0.97</td>
<td>1.38(^{a})</td>
<td>1.00</td>
</tr>
<tr>
<td>75-79</td>
<td>0.67(^{a})</td>
<td>1.04</td>
<td>1.30(^{a})</td>
<td>1.00</td>
</tr>
<tr>
<td>80-84</td>
<td>0.74(^{a})</td>
<td>1.02</td>
<td>1.11(^{a})</td>
<td>1.00</td>
</tr>
<tr>
<td>85-89</td>
<td>0.68(^{a})</td>
<td>1.08</td>
<td>1.02</td>
<td>1.00</td>
</tr>
<tr>
<td>90+</td>
<td>0.75(^{a})</td>
<td>1.01</td>
<td>0.82(^{a})</td>
<td>1.00</td>
</tr>
</tbody>
</table>

\(^{a}\): Rate ratio significantly different from US-born non-Hispanic whites for that age group (p < .05)
# Mortality Rate Ratios

**Males, ages 50+**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>50-54</td>
<td>0.68&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.50&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.95&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.00</td>
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<tr>
<td>55-59</td>
<td>0.82&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.17</td>
<td>1.80</td>
<td>1.00</td>
</tr>
<tr>
<td>60-64</td>
<td>0.73&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.95</td>
<td>1.58</td>
<td>1.00</td>
</tr>
<tr>
<td>65-69</td>
<td>0.78&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.95</td>
<td>1.55</td>
<td>1.00</td>
</tr>
<tr>
<td>70-74</td>
<td>0.80&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.99</td>
<td>1.35</td>
<td>1.00</td>
</tr>
<tr>
<td>75-79</td>
<td>0.68&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.87&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.20</td>
<td>1.00</td>
</tr>
<tr>
<td>80-84</td>
<td>0.73&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.75&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.22</td>
<td>1.00</td>
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<td>0.68&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.03</td>
<td>0.95</td>
<td>1.00</td>
</tr>
<tr>
<td>90+</td>
<td>0.60&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.91</td>
<td>0.76&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.00</td>
</tr>
</tbody>
</table>

<sup>a</sup>: Rate ratio significantly different from US-born whites for that age group (p < .05)
Selected Cause-Specific Rate Ratios of Adult Mortality, Women Aged 65-79
Selected Cause-Specific Rate Ratios of Adult Mortality, Men Aged 65-79

- Lung Cancer
- Other Cancer
- Resp Diseases
- Heart Disease
- Stroke

Rate Ratio Compared to Whites

- F.B. Hispanic
- US-B Hispanic
- US-B Black
Aim 2: Examine key factors that help differentiate Hispanic adult mortality patterns from blacks and whites
### Socioeconomic Differences: US Adults Aged 50+

<table>
<thead>
<tr>
<th></th>
<th>FB-Hispanic</th>
<th>USB-Hispanic</th>
<th>Black</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% &lt;HS</td>
<td>56.8</td>
<td>42.0</td>
<td>35.4</td>
<td>18.6</td>
</tr>
<tr>
<td>% Poor</td>
<td>26.3</td>
<td>18.1</td>
<td>24.3</td>
<td>6.2</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% &lt;HS</td>
<td>53.7</td>
<td>33.0</td>
<td>38.3</td>
<td>16.8</td>
</tr>
<tr>
<td>% Poor</td>
<td>19.9</td>
<td>10.7</td>
<td>15.5</td>
<td>3.6</td>
</tr>
</tbody>
</table>
Smoking Status by Race/Ethnicity in the NHIS-LMF, US Women Aged 50+

- Never Smoker
- Former Smoker
- Current Light Smoker
- Current Heavy Smoker

FB Hispanic
US-B Hispanic
NH black
NH White

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Hazard Ratios for Association between Race/Ethnicity/Nativity and Mortality, Women Ages 50+

U.S.-born, non-Hispanic whites are the reference group, *p < .05

<table>
<thead>
<tr>
<th>Race/Ethnicity/Nativity</th>
<th>Model 1: Controls for age</th>
<th>Model 2: Controls for age, education and family income</th>
<th>Model 3: Controls for age, education, family income and smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB-Hispanic</td>
<td>0.77*</td>
<td>0.83*</td>
<td>0.87*</td>
</tr>
<tr>
<td>Black</td>
<td>1.25*</td>
<td>1.19*</td>
<td>1.15*</td>
</tr>
</tbody>
</table>

Ages 50+

U.S.-born, non-Hispanic whites are the reference group, *p < .05
Hazard Ratios for Association between Race/Ethnicity/Nativity and Mortality, Men

Ages 50+

U.S.-born, non-Hispanic whites are the reference group, *p < .05

**Model 1:** Controls for age
- FB - Hispanic: 0.76*
- US-B Hispanic: 1.01
- Black: 1.42*

**Model 2:** Controls for age, education and family income
- FB - Hispanic: 0.62*
- US-B Hispanic: 0.88*
- Black: 1.19*

**Model 3:** Controls for age, education, family income and smoking
- FB - Hispanic: 0.67*
- US-B Hispanic: 0.90*
- Black: 1.17*
Life Expectancy Estimates at Age 50 for Never Smokers by Race/Ethnicity

- Women:
  - FB Hispanic
  - US-B Hispanic
  - NH black
  - NH White

- Men:
  - FB Hispanic
  - US-B Hispanic

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Differential Mortality Models: Summary of Key Findings

Lower SES works to seriously disadvantage both FB and US-B Hispanics relative to NHW…in other words, mortality is even lower for Hispanic groups compared to NHWs, net of SES differences.

Less smoking helps to explain an important portion of the net mortality advantage among both FB Hispanics and (especially) US-B Hispanics relative to NHW…this especially comes through when estimating \( e^{50} \) for never-smokers and is consistent with the cause of death evidence shown above and with Blue/Fenelon’s comparison of all Hispanics versus whites using an indirect methods approach.
Moving Beyond Mortality

Aim 3: How do important Hispanic health outcomes (chronic conditions, disability) correspond with those of mortality? How can health comparisons between FB Hispanics, US-B Hispanics, blacks, whites, and Mexicans inform the Hispanic Paradox debate?
# Race/Ethnic Differences in Self-Reported Health Conditions (Relative to Whites, Age-Adjusted): US Women Aged 50+

<table>
<thead>
<tr>
<th>Condition</th>
<th>FB Hispanic</th>
<th>USB-Hispanic</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Cancer</td>
<td>Lower</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>Lung Disease</td>
<td>Lower</td>
<td>Lower</td>
<td>Lower</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>Lower</td>
<td>Same</td>
<td>Higher</td>
</tr>
<tr>
<td>Stroke</td>
<td>Lower</td>
<td>Same</td>
<td>Higher</td>
</tr>
<tr>
<td>Any Disability</td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
</tr>
</tbody>
</table>
### Race/Ethnic Differences in Self-Reported Health Conditions (Relative to Whites, Age-Adjusted): US Men Aged 50+

<table>
<thead>
<tr>
<th>Condition</th>
<th>FB Hispanic</th>
<th>USB-Hispanic</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Cancer</td>
<td>Lower</td>
<td>Lower</td>
<td>Same</td>
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<td>Lung Disease</td>
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<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>Lower</td>
<td>Lower</td>
<td>Same</td>
</tr>
<tr>
<td>Stroke</td>
<td>Lower</td>
<td>Same</td>
<td>Higher</td>
</tr>
<tr>
<td><strong>Any Disability</strong></td>
<td>Higher</td>
<td>Higher</td>
<td>Higher</td>
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</table>
Disability Prevalence for US Females by Race/Ethnicity

Axes Title

Disability Prevalence for US Females by Race/Ethnicity

- white women
- black women
- NB Hisp women
- FB Hisp women

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Disability Prevalence for US Males by Race/Ethnicity

Prevalence of disability among US males across different age groups and race/ethnicity categories.
MSLT Life Table Approach

- MSLTs allow the integration of mortality and disability information
- Explicit way of assessing whether the Hispanic Paradox in mortality is accompanied by a paradox in disability:
  - Does FB Hispanics’ longer life expectancy correspond with a longer healthy life expectancy?
  - How does FB and US-B Hispanics’ healthy and disabled LE compare to US blacks and whites?
## Comparison of Total, Healthy, and Disabled Life Expectancies by Race/Ethnicity, US Females Aged 50

<table>
<thead>
<tr>
<th></th>
<th>FB Hispanic</th>
<th>USB Hispanic</th>
<th>Black</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLE</td>
<td>35.8</td>
<td>32.8</td>
<td>30.2</td>
<td>33.1</td>
</tr>
<tr>
<td>HLE</td>
<td>23.9</td>
<td>24.0</td>
<td>20.9</td>
<td>26.2</td>
</tr>
<tr>
<td>DLE</td>
<td>11.9</td>
<td>8.8</td>
<td>9.3</td>
<td>6.9</td>
</tr>
</tbody>
</table>

TLE = total life expectancy  
HLE = healthy life expectancy (disability free)  
DLE = disabled life expectancy
Comparison of Total, Healthy, and Disabled Life Expectancies by Race/Ethnicity, US Males Aged 50

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>FB Hispanic</th>
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<tbody>
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<td>TLE</td>
<td>32.1</td>
<td>29.2</td>
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<td>28.8</td>
</tr>
<tr>
<td>HLE</td>
<td>25.1</td>
<td>22.7</td>
<td>19.5</td>
<td>24.6</td>
</tr>
<tr>
<td>DLE</td>
<td>7.1</td>
<td>6.5</td>
<td>6.0</td>
<td>4.3</td>
</tr>
</tbody>
</table>

TLE = total life expectancy
HLE = healthy life expectancy (disability free)
DLE = disabled life expectancy
Conclusions I

Overall Hispanic mortality is quite favorable throughout the 2\textsuperscript{nd} half of the adult life course

- Equivalent to (US-born) or lower than (foreign-born) mortality of NHWs and much lower than NHBs…clear match to definition of Hispanic Paradox
- Multiple data sets now showing this! Life expectancy at 50 very consistent between NVSS and NHIS-LMF

- Clear immigrant mortality advantage among Hispanics; pronounced at ages 60+
- Hispanic FB and USB mortality particularly low when smoking-related causes are considered; NHW mortality (esp male) hugely heightened by smoking in pre-1950 cohorts while Hispanic mortality was much less affected
Conclusions II...but...

- US-born Hispanic adults don’t fare as well as immigrant Hispanics (~3 years lower e50; worse health profile)
- SES disadvantages among both FB and US-B Hispanics seriously hurt their mortality levels; mortality would be (even) lower than NHW with higher SES
- Disability among aged 50+ Hispanic adults, both women and men, much less favorable than their mortality patterns
  - Hispanic Paradox does not extend to disability:
    - Very difficult work lives? (Orrenius/Zavodny 2009)
    - Very difficult caregiving lives?
    - Low socioeconomic status (Melvin et al. 2012)
    - Poor access to health care (Markides et al. 2009)
Research Implications I: Major Challenges and Future Concerns

- Projected more-than-doubling of Hispanic population by 2050; much continued monitoring/work needed. Hispanic population will increasingly become US-born.
- Identity shifts at individual level, changing r/e definitions, and migration will continue to make the understanding of Hispanic mortality/health patterns a major challenge.
- Heterogeneity among Hispanics – by national origin, legal status, generational status, and race – will need to be addressed…very hard even with the best data sets.
Research Implications II

- Cohort change analyses desperately needed… signs of higher young adult mortality among US-born Hispanics… a cohort phenomena and sign of bad trends to come???

- Tobacco use patterns among young adult Hispanics, especially men, look bad…40% of US-born Hispanic young men have used tobacco in last month…highest of any US group. US-born Hispanic females same as whites

- Very high obesity levels among young US-born Hispanics

- Much higher levels of obesity among recent Mexican immigrants (but also higher education)

- Is the US experience for recent immigrant cohorts worse than earlier immigrant cohorts? How will the life course effects of undocumented status play out?
Acknowledgements & Contact Info

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