Self-rated general health question in a multilingual survey

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Linguistic minorities in US

In 2000,

- 47 million (18%) ages 5 and older speak languages other than English at home
- 21 million (8%) “linguistically isolated”

In 2000 California,

- 39.5% and 20%

Language accessibility/assistance programs

- Federal: HHS Limited English Proficiency Guidance in 2004 pursuant to Executive Order 13166 in 2002
- CA: Senate Bill 853 in 2003

Increased interest to include these population in public health and surveillance research
In general, would you say your health is
1) EXCELLENT,
2) VERY GOOD,
3) GOOD,
4) FAIR, OR
5) POOR?
Self-rated general health – cont’d

- Widely used
  - National Health Interview Survey (US)
  - Behavioral Risk Factor Surveillance System (US)
  - Medical Expenditure Panel Survey (US)
  - Canadian Community Health Survey
  - Health Survey of England
  - Current Population Survey (US)
  - 2007 International Social Survey Program
Self-rated general health – cont’d

- Single strongest predictor of current and subsequent mortality and morbidity
  - Clinically proven
  - Even after accounting for socio-demographic and medical risk factors

- Frequently used in epidemiological and other studies
  - SF-36
  - SF-12
**Self-rated general health – cont’d**

- Subjective and general

- Better than objective measures (e.g., health conditions and disability) which can be verified by the external measures
  - Captures the full spectrum of health conditions
  - Adds an extra dimension beyond objective measures
  - Perception predicts behaviors/mortality
Potential issues of self-rated general health

- Measurement error

- Comparability in response scale
  - very good, good, fair, bad, and very bad
  - excellent, very good, good, fair and poor

- Cross-cultural comparability
  - Stewart and Napoles-Springer (2000)

- Cross-language comparability
  - Translation
California Health Interview Survey

- Biennial RDD telephone survey of California
- Adult sample size: 40,000~50,000 (Self-report)
- RR: Low! 40% in 2001 and downhill
- Conducted in English, Spanish, Chinese (Mandarin, Cantonese), Korean, Vietnamese
- Multiple forward questionnaire translation
- Slightly over 10% conducted in non-English
General health between CHIS and NHIS

Wtd dist. of fair/ poor health by language for 18+

* p<0.05, ** p<0.01, *** p<0.001
General health between CHIS and NHIS – cont’d

Sample size dist. by language for 18+

<table>
<thead>
<tr>
<th>Language</th>
<th>CHIS (n=42,044)</th>
<th>NHIS CA (n=3,700)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>88%</td>
<td>75%</td>
</tr>
<tr>
<td>Spanish</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>Eng+Sp</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>
General health between CHIS and NHIS – cont’d

Differences in between CHIS and NHIS

- Spanish translation?
  - Identical: Excelente, Muy buena, Bien, Regular, Mala
- Self vs. Proxy interviews?
- Age-distribution?
- Mode effect?
- Question location?

- CHIS: General health is the first item of all health-related questions
- NHIS: General health comes after a series of physical, mental, sensory & developmental limitations & chronic conditions
Location of general health item

- Recommended to place before specific questions
  - Keller and Ware (1996) and SF instruments
  - Minimize content effects

- Not much evidence
  - Bowling and Windsor (2008)
  - Crossley and Kenney (2002)
  - Only studied in English
Experiment in CHIS 2007

Question order randomization

First health-related question; before chronic condition questions
- 574 English
- 406 Spanish
- 105 Asian languages (Chinese, Korean, Vietnamese)

After chronic condition questions
- 617 English
- 418 Spanish
- 102 Asian languages
**Experiment results – cont’d**

Wtd dist. of fair/ poor health by location & language

From previous slide

CHIS Experiment

* p<0.05, ** p<0.01, *** p<0.001
Experiment results

Unwtd dist. of fair/poor health by location & language

* $p<0.05$ ** $p<0.01$
Dist. of general health by location & language

<table>
<thead>
<tr>
<th>Language</th>
<th>General health</th>
<th>Before</th>
<th>After</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Excellent</td>
<td>21.78</td>
<td>22.20</td>
<td>1.55</td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>36.06</td>
<td>32.90</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>26.48</td>
<td>27.07</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>12.20</td>
<td>13.45</td>
<td>-1.72</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>3.48</td>
<td>4.38</td>
<td>-1.50</td>
</tr>
<tr>
<td>Spanish</td>
<td>Excellent</td>
<td>6.65</td>
<td>8.85</td>
<td>2.20</td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>8.13</td>
<td>12.44</td>
<td>4.31</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>39.90</td>
<td>45.45</td>
<td>5.55</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>37.93</td>
<td>30.38</td>
<td>-7.55</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>7.39</td>
<td>2.87</td>
<td>-4.52</td>
</tr>
</tbody>
</table>
Experiment results – cont’d

- Relationship w/ chronic conditions:
  Asthma, Diabetes, HBP, Heart Disease
- Score: 0~4
- Number of chronic conditions by location and language for fair/ poor health

<table>
<thead>
<tr>
<th>Location</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1.30 (0.11)</td>
<td>1.24 (0.10)</td>
</tr>
<tr>
<td>Spanish</td>
<td>0.80 (0.07)</td>
<td>0.82 (0.08)</td>
</tr>
</tbody>
</table>

→ Similar number of conditions reported by location
**Experiment results – cont’d**

Logistic regression of fair/poor health

<table>
<thead>
<tr>
<th>Effect</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wo/ interaction</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.350 ***</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>1.004</td>
</tr>
<tr>
<td>Gender (Male)</td>
<td>0.827</td>
</tr>
<tr>
<td>Education (Some college+)</td>
<td>0.528 ***</td>
</tr>
<tr>
<td>Asthma</td>
<td>2.110 ***</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3.671 ***</td>
</tr>
<tr>
<td>Hypertension</td>
<td>2.080 ***</td>
</tr>
<tr>
<td>Heart disease</td>
<td>2.778 ***</td>
</tr>
<tr>
<td>Language (English)</td>
<td>0.259 ***</td>
</tr>
<tr>
<td>Location (Before)</td>
<td>1.358 **</td>
</tr>
<tr>
<td>Language<em>Location (E</em>B)</td>
<td>-</td>
</tr>
</tbody>
</table>

* p<0.05, ** p<0.01, *** p<0.001
Experiment results – cont’d

Dist. of fair/poor health by location, language, age & gender
Implications

- Question order may affect estimates differently by language
  - English interviews vs. Spanish interviews
  - Gender difference in order effect for Spanish
  - No age difference in order effect (c.f., Knauper, Schwarz, Park and Fritsch, 2007)

- Health disparity magnitudes?
Implications – cont’d

- Cultural equivalence is more than translational equivalence
  - Conventions in one language do not hold in another
- Why?
  - Not sure…
  - Cultural differences?
  - Familiarity with the item?
  - Need frames of reference to evaluate general health?
- Where to place general health?
Future research

- Where can we find the other half of differences?
  - What if asked after more conditions?
  - Mode effect?
  - True difference?

- Scale translation?
  - Equivalent implicature and functionality across languages
  - Culturally appropriate scales
    - Excellent, Very good, Good, Fair, Poor

- Quantitative approach
  - Psychometrics
Thank you!

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