A Comparison of Results from a Spanish and English Mail Survey: Effects of Instruction Placement on Item Missingness

Kevin Wang, Mandy Sha, and Emilia Peytcheva, RTI International

Prepared for the Annual Conference of the American Association for Public Opinion Research, Chicago, IL

May 15, 2010
Acknowledgments

The PRAMS Working Group
Alabama – Albert Woolbright, PhD; Alaska - Kathy Perham-Hester, MS, MPH; Arkansas - Mary McGehee, PhD; Colorado - Alyson Shupe, PhD; Delaware – Charlon Kroelinger, PhD; Florida – Jamie Fairclough, MPH; Georgia - Carol Hoban, MS, MPH; Hawaii - Sharon Sirling; Illinois - Theresa Sandidge, MA; Louisiana - Joan Wightkin; Maine - Kim Haggan; Maryland - Diana Cheng, MD; Massachusetts - Hafsatou Diop, MD, MPH; Michigan – Violanda Grigorescu, MD, MSPH; Minnesota - Jan Jernell; Mississippi – Vernesia Wilson, MPH; Missouri - Venkata Garikapaty, MSc, MS, PhD, MPH; Montana - JoAnn Dotson; Nebraska - Jennifer Severe-Oforah; New Jersey - Lakota Kruse, MD; New Mexico - Eirian Coronado; New York State - Anne Radigan-Garcia; New York City - Candace Mulready-Ward, MPH; North Carolina - Paul Buescher, PhD; North Dakota - Sandra Anseth; Ohio – Lily Tatham; Oklahoma –Dick Lorenz; Oregon - Kenneth Rosenberg, MD; Pennsylvania - Kenneth Huling; Rhode Island - Sam Viner-Brown, PhD; South Carolina - Jim Ferguson, PhD; South Dakota – Christine Rinki, MPH; Texas – Kate Sullivan, MA; Tennessee - David Law, PhD; Utah – Laurie Baksh; Vermont - Peggy Brozicevic; Virginia – Michelle White; Washington - Linda Lohdefinck; West Virginia - Melissa Baker, MA; Wisconsin - Katherine Kvale, PhD; Wyoming - Angi Crotsenberg; CDC PRAMS Team, Applied Sciences Branch, Division of Reproductive Health

This work only reflect the views and opinions of the authors.
Overview

• How do we get respondents to follow skip patterns in self-administered paper questionnaires?
• Data and methods
• What did we learn about skip instruction placement and leaving items blank?
Skip patterns in mail surveys - simple

- Some skip patterns can be shown using symbols and simple instructions

7. Before you got pregnant with your new baby, did you ever have any other babies who were born alive?
   - No ➔ Go to Question 10
   - Yes ➔ 8. (If Yes) Did the baby born just before your new one weigh 5 pounds, 8 ounces (2.5 kilos) or less at birth?
      - No
      - Yes
Skip patterns in mail surveys - complex

- Depending on the nature of the skip pattern, visual guides and symbols may not be possible for more complicated skips
- Instead a text instruction can be used
Can positioning of skip instructions affect item missingness?

- Prior literature shows placement of a question and use of symbols and instructions can affect skip pattern compliance (Dillman et al. 1999; Redline et al. 2003)

- **Hypothesis**: differences in the *placement of skip instructions* can also affect the respondent’s ability to follow the navigational path of a questionnaire
  - **Special interest**: a comparison of results between English and Spanish mail surveys
Pregnancy Risk Assessment Monitoring System (PRAMS)

- On-going surveillance project of women who have recently given birth, about their experiences before, during, and after pregnancy
- Sponsored by the CDC and state health departments
- Data collection in 30 vital records registry areas (states and New York City)
- State level sample sizes of about 1,000 to 3,400 each year
- Our study used data from first two years (2004-2005) of Phase 5
Analysis

• Mail survey with telephone follow-up (only examined mail survey data)
  ✓ Results in differences in the presentation of skip pattern instructions for similar items across the surveys that vary by registry area
• Each registry area used common survey items and also selected additional items that might not appear in all surveys
• Compare rates of item missingness for items after skip instruction
• Carried out using SUDAAN 10.0 (RTI International, 2008) using selection weights
Placements for the Skip Instructions

1. Instruction appears below Q22; Q23 appears on the same page
2. Instruction appears below Q22; Q23 appears on the next page, facing
3. Instruction appears below Q22; Q23 appears on the next page, not facing
4. Instruction appears at the top of the next column; Q23 appears on the same page
5. Instruction appears on the next page (ordered by the perceived level of interruption)

Example: Mississippi questionnaire (placement type #1)
### Percent Leaving All Q23 Items Blank by Skip Instruction Position - English

<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>States</th>
<th>Percent All Q23 Blank</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1 – Instruction at bottom; Q23 on same page</td>
<td>AK, MD, ME, MS, NC, NY, SC, WV</td>
<td>7.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Type 2 – Instruction on bottom; Q23 on next page (facing)</td>
<td>FL, GA, RI</td>
<td>4.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Type 3 – Instruction at bottom; Q23 on next page (not facing)</td>
<td>AL, AR, HI, NJ, NYC, OH, OR, TX, WA</td>
<td>8.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Type 4 – Instruction in next column; Q23 on same page</td>
<td>IL, LA, NE, OK, VT</td>
<td>10.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Type 5 – Instruction on different page</td>
<td>CO, MI, MN, NM, UT</td>
<td>10.8</td>
<td>0.5</td>
</tr>
</tbody>
</table>
English Version Findings

- Types 4 and 5 are more likely to skip Q23
- Type 2 has lowest rate of missingness
- All pairwise differences are statistically significant except between Types 1 & 3 and Types 4 & 5
- Findings hold in a regression analysis, controlling for education, race, age, survey year and nonresponse adjustment weighting factor
Rate of Missingness by Hispanic Origin and Language

- About 60% of Hispanics with Spanish language survey did not complete high school compared with 29.2% of Hispanics with English language survey.
- Broadly consistent with observations from PRAMS field test with Spanish speakers who spoke little or no English:
  - Tended to leave an item blank rather than marking “no”
  - Went through each question as if there are no skip instructions at all: Did not know what they were or how they worked (except for two college-educated respondents)

<table>
<thead>
<tr>
<th>Hispanic Origin - Language</th>
<th>Sample Size</th>
<th>Percent All Q23 Blank</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic – Spanish</td>
<td>2,799</td>
<td>25.9</td>
<td>1.6</td>
</tr>
<tr>
<td>Hispanic – English</td>
<td>3,259</td>
<td>9.3</td>
<td>0.9</td>
</tr>
<tr>
<td>Non-Hispanic - English</td>
<td>37,000</td>
<td>7.9</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Percent Leaving All Q23 Items Blank by Skip Instruction Position - Spanish

<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>States</th>
<th>Percent All Q23 Blank</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1 – Instruction at bottom; Q23 on same page</td>
<td>AL, CO, FL, GA, IL, NE, OR, WA, NYC</td>
<td>26.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Type 2 – Instruction on bottom; Q23 on next page (facing)</td>
<td>MD, MN, TX</td>
<td>27.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Type 3 – Instruction at bottom; Q23 on next page (not facing)</td>
<td>ME, NC, NJ, NM, NY, OK, RI, SC, UT</td>
<td>21.1</td>
<td>1.7</td>
</tr>
<tr>
<td>Type 4 – Instruction in next column; Q23 on same page</td>
<td>AR</td>
<td>23.4</td>
<td>6.4</td>
</tr>
</tbody>
</table>

• Only difference between Types 1 and 3 was close to being statistically significant (p = 0.057)
Summary

English version

- If instruction was placed in the next column or on a different page, more missing data
- Where the next item appeared did not seem to matter much

Spanish version

- Higher rates of missing data than in English version
- Education and lack of experience with self-administered surveys may contribute to data missingness among those who use Spanish language questionnaires with complicated skip patterns
- Few differences in item missingness by type but less variation (sample size) in types
Limitations

- Results are limited to mail survey participants due to self-selecting nature of the sample
- Cannot tell difference between different reasons for not answering a question (don’t know, refuse or missed the skip instruction)
- Analysis is limited to errors of omission; information on errors of commission (answered, but should not have) not easily obtained
Thank You

- To obtain a copy of this presentation
  www.rti.org/aapor

- Questions and comments
  Kevin Wang
  kwang@rti.org