Using Cognitive Interviews
To Refine a Questionnaire
for Mexican Americans with Diabetes
DRAFT

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Cognitive Interviews

- Endorsed by the US National Center for Health Statistics Questionnaire Design Research Laboratory at CDC

- To explore how people mentally process information as they respond to questionnaires

- and to identify problems in item comprehension, memory retrieval, and decision processes

What survey respondents do:

- Interpret the question
  - What do the researchers want to know?
  - English, Spanish, or both
- Retrieve the information
  - various schemas used to access memory
- Formulate an answer
  - calculate or judge the correct information
- Edit response - decide what to report
  - is answer embarrassing, socially undesirable?

Types of Cognitive Interviewing Strategies

- Think aloud interviews
  - Respondent asked to think aloud as they answer question
  - "What are you thinking about when you hear that question?"
  - Concurrent or retrospective
  - More burdensome for participants

Types of Cognitive Interviewing Strategies (cont'd)

- Probe interviews
  - Interviewer asks questions to elicit how respondent answered question
  - "What does [that word or phrase] mean to you?"
  - Concurrent or retrospective

Types of Cognitive Interviewing Strategies (cont'd)

- Paraphrasing
  - Interviewer asks respondent to repeat the question in his/her own words

- Warm-up questions:
  - "Picture in your mind where you live. How many windows are there? As you count up the windows, tell me what you are thinking about and seeing." (Carbone, et al. 2002)

Probing Questions

- General
  - Tell me what you were thinking when you answered that question
  - How easy or difficult was it to answer that question? Why?
- Explore meaning of word or phrase
  - I asked you about a restricted diet. What does the phrase "restricted diet" mean to you?

More Probing Questions

- Retrieval
  - How did you remember that?
- Judgment
  - Why did you pick that number for your answer?
- Response
  - Do you think that most people answer this question honestly?

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Still More Probing Questions

- Redundancy
  - How is the phrase "give you advice about your diet and exercise" different from the phrase "talk to you about your diet and exercise"?

- Acceptability
  - When I asked you how often you felt discriminated against by doctors because of your race or ethnicity, you answered (*read answer given*).
  Were you offended by this question?

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Still More Probing Questions

- Cultural appropriateness
  - I asked you how often doctors asked you about your health beliefs? What does the term 'health beliefs' mean to you?

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Sampling for Cognitive Interviews

- Usually do not use representative samples
- Include respondents from major segments of population to be sampled for main survey
- Approximately 15-30 interviews/group

Recruiting for Cognitive Interviews

- Explain larger goal, process of creating questions
- Explain role clearly:
  - "help us make questions clearer for others"
  - "help us to identify problems with questions"
- Give incentives/payment for interview
- Divide different sections of long survey with different participants, if possible

Conducting Cognitive Interviews

- Individual face-to-face, in-depth interviews
- Standard administration of closed-ended items
- Administer probe questions at the end
- Typically 1.5 hr interview
- Audiotape interview

Analysis of Cognitive Interviews

- Behavioral coding
- Content analysis

Behavioral Coding

- Review transcripts to identify problems with items
  - respondent and interviewer "problem" behaviors
- Assign "problem behavior" codes to each item using pre-determined categories
- Summarize results for each item:
  - proportion of interviews with each problematic behavior for each item
    - e.g., 7/48 respondents requested clarification of item 10

Examples of Behavioral Codes

Interviewer behavior

- Hard to read - interviewer experiences difficulty reading question

Respondent behavior

- Repeat question - respondent asks to have the question repeated

Analysis of Cognitive Interviews (cont.)

- Review interview of standard administration of closed-ended items and open-ended probes
  - can reveal source of problems
  - can help in deciding whether to keep, modify or drop items
- Examine interview responses for each item
  - within groups
  - across groups/languages

Mexican Americans

- 2 to 5 times more likely than non-Hispanic Whites to develop type 2 diabetes
- Develop diabetes at younger age
- Suffer high rates of complications
- Demonstrate poor physiologic control
- Are less likely to access medical care, have health insurance or receive recommended care than Anglos

Diabetes Symptoms

- Most patients have diabetes symptoms (Brown et al., 1998; García, 2002, 2005)

- Patients frequently rely on diabetes symptoms

  - to indicate disease status and diabetes control (perceived blood glucose levels), and

  - to direct their self-management activities

Diabetes Symptom Self-Care Inventory

- Focus on symptom experience and management strategies
  - Developed specifically for Mexican Americans with type 2 diabetes (Brown et al., 1998; García, 2002, 2005)
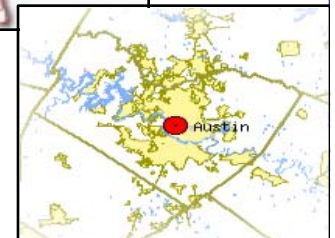
- **Starr County, Texas**
  - Mostly rural
  - Borders Mexico
  - 97% Latino
  - Per capita income - $9,740
  - Persons below poverty level - 51.0%
  - Unemployment rate 22.3%
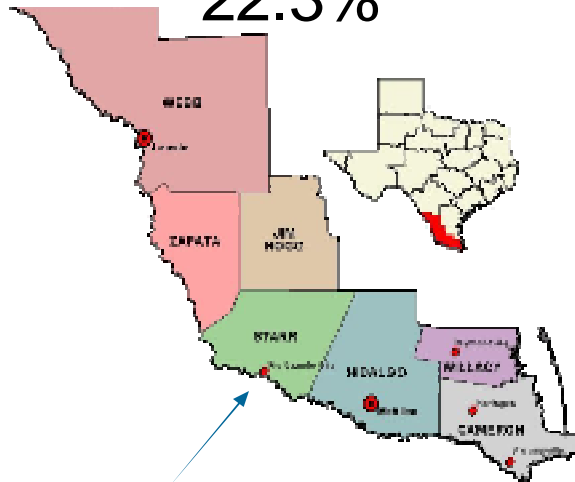
- **Travis County, Texas**
  - Home to State capital, and University of Texas
  - 31% Latino
  - Per capita income - $25,883
  - Persons below poverty level - 13.9%
  - Unemployment rate 6.1%

Participants

- n = 16
- Aged 29 - 69 (mean 54.4 ± 10.1)
- 75% women
- 63% preferred interview in Spanish
- 50% married
- 68% with high school diploma or more
- 44% employed

Participants cont'd

- Had diabetes from 2 months to 31 years, mean 10.3 years ± 8.7

- 25% on insulin (alone or with pills), 56% on oral only

- 69% attended diabetes classes

- 75% have other medical conditions, hypertension most common

Methods

- 12 in Rio Grande City
- 4 Interviews in Austin

- Procedures
  - Informed consent
  - Demographic information
  - One-on-one interview
  - Explanation and practice
  - Audio-taped

Cognitive Interview Questions

- Was it easy or hard for you to answer the question?
- Is your answer among the response choices?
- What does that word mean to you?
- What were you thinking about when you answered that question?

Cognitive Interview Questions cont'd

- Using your own words, what does the question mean to you?
- What did you need to think about to be able to answer that question?
- What is your overall perception of the questionnaire?

Iterative Process

- Data Analysis
  - Listen to audio-tapes
  - Review field notes
  - Identify problems
  - Identify solutions
- Revise questionnaire
- Revise cognitive interview probes

Outcomes

- 3 versions were tested
- The DSSCI was modified based on participants' feedback
  - Symptom names, translation, wording
  - Format of questionnaire and response options
  - Items dropped/added

Problems with Cognitive Interviewing

- Small sample
- How significant was the problem?
  - Urge to revise after each interview
  - If the item is a problem for only one person, should it be revised?
- Time and energy intensive

- Cognitive interviewing process is challenging for participants

"I don't know how I know, I just know."

Diabetes Symptom
Self Care Inventory - Revised

- Overall symptom frequency
- List of 42 symptoms
- Symptom cause
- Symptom priority
- For each important symptom:
  - frequency
  - self-efficacy to relieve
  - treatments used and effectiveness

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