Author's response to reviews

Title: Cognitive Testing of Physical Activity and Acculturation Questions in Recent and Long-Term Latino Immigrants

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Version: 2 Date: 11 May 2010

Author's response to reviews: see over
May 11, 2010

Dear Editor,

Thanks for the thoughtful reviews of our paper: MS: 1863820649336282.

Cognitive Testing of Physical Activity and Acculturation Questions in Recent and Long-Term Latino Immigrants in the US David Berrigan, Barbara Forsyth, Cynthia Helba, Kerry Levin, Alicia Norberg and Gordon Willis.

We have submitted a revised version of the paper, together with point by point responses to the concerns.

We look forward to hearing from you concerning our revision.

Sincerely,

David Berrigan
Reviewer's #1 report
Title: Cognitive Testing of Physical Activity and Acculturation Questions in Recent and Long-Term Latino Immigrants in the US
Version: 1 Date: 11 March 2010
Reviewer: Elva Arredondo

Reviewer's report:
The current study aims to examine the degree to which language and residence time in the US influence responses to survey questions concerning self-reported acculturation and physical activity. The current manuscript augments previous research in that cognitive investigations have not traditionally sought to investigate whether qualitatively different types of questions function in discrepant ways, across cultural groups, in any systematic manner. An important limitation is the assumption that the results of cognitive testing can generalize to other Hispanic subgroups. Each subgroup is likely to have different meanings and interpretations of the questions. Additional strengths and limitations are outlined below.

We have added some discussion of the possibility that further work on other Latino subgroups would have different results. We are not aware of any published literature that addresses this possibility directly.

• Abstract percentages do not match what is reported in the body of the Manuscript

   The numbers in the abstract represent a summary of values from table 3, the numbers in the text are organized differently. We have clarified this point in the text.

• Important to be consistent in terminology. Terms like residence time and acculturation are used interchangeably; these are not the same construct.

   We have carefully examined our use of these terms. When we are referring to the changes that occur over time in immigrants we use ‘acculturation’, when we are referring to our selected samples we use ‘residence time/language’.

Background
• Perhaps mention that increased measurement error may mask true differences in health behaviors and health outcomes. We need to better understand “true” patterns of PA as a function of acculturation to address disparities.

Mentioned in paragraph 2

Also, the
authors may want to note that to be more culturally competent researchers, we need to use culturally competent measures (e.g., PA measures that offer culturally appropriate activities as answer choices).

**Mentioned on page 5**

- There are sections throughout the introduction (and the rest of the manuscript) that are redundant (e.g., pg. 1st paragraph overlaps with what was stated in previous paragraphs).

**We have tried to reduce repetition where appropriate, however, it seems important to make certain points clear by reiterating some material in different sections of the paper.**

- Perhaps elaborate what the authors mean by errors that supersede the translation. The reviewer interprets this as that the “world view” of the translator may be different than that of the respondent or that the construct may not translate in the way as it was intended.

**We give some examples and a reference on p.5/6 at the end of paragraph 4.**

**Methods**

- Strengths include: 1) involvement of interviewers from the target community, 2) the fact that the interviewers took minimal notes during the interview to concentrate on the interview is an additional strength, and 3) authors outlined recommendations to interpret interview results prior to conducting cognitive interviews.

**Findings**

- There were more participants who had less than a high school degree that were classified in the low acculturation/Spanish category than other categories. Therefore, the education level of participants may have explained or at least contributed to the findings (i.e., difference in interpretation of PA and acculturation questions) rather than acculturation per se.

**We have added this point as one of the limitations of the study**

- The example of physical activity: (walking for at least 10 minutes) is a question that people from various ethnic groups have difficulty with, particularly those who from low education backgrounds.

**Yes, this is a problem that supersedes translation issues**
• Although the authors were able to identify many problems, they provided limited solutions. The manuscript would be strengthened if they provide or offer solutions on how to address some the challenges they encountered.

Continued use of cognitive testing, behavior coding and other tools of contemporary survey development can improve standardized surveys, but there is no magic bullet. Nevertheless, we think our final paragraph aptly summarizes our perspective that while there are many problems they are relatively minor and that use of these tools can minimize problems due to cultural differences – of course they do not eliminate the various problems of self report of feelings or behaviors.

Level of interest: An article of importance in its field
Quality of written English: Needs some language corrections before being Published

We have made every effort to clarify the language of the paper
Reviewer's report
Title: Cognitive Testing of Physical Activity and Acculturation Questions in Recent and Long-Term Latino Immigrants in the US
Version: 1 Date: 23 March 2010
Reviewer: Jennifer Gay

Reviewer's report:
Title: Cognitive Testing of Physical Activity and Acculturation Questions in Recent and Long-Term Latino Immigrants
The purpose of the manuscript was to describe the cognitive interviewing process and results testing physical activity and acculturation questions in recent immigrants and immigrants residing in the US for >15 years. Testing was done in both Spanish and English subgroups. Challenges in cognition arose from primarily recall or judgment categories.
In general the manuscript was well written and the purpose novel. There were, however, several issues that should be addressed (Major Compulsory Revisions).
1) The authors should be consistent with the terms Hispanic and Latinos. While often used interchangeably in colloquial language, they do have different meanings and that should be accurately presented in the manuscript. There are many places throughout the manuscript where the switching between terms can cause confusion.

   We have switched to ‘Latino’ throughout the paper except where Hispanic was used in a pre-existing survey item.

2) Throughout the manuscript the authors refer to acculturation as both the items in the scales being tested AND the variable by which results are stratified. This is confusing and needs to be clarified in both the text and tables. One solution may be to say length of residency rather than acculturation as is done in the purpose statement.

   We have carefully examined our use of these terms. When we are referring to the changes that occur over time in immigrants we use ‘acculturation’, when we are referring to our selected samples we use ‘residence time/language’.

3) The description of the results is inconsistent. In some places results from statistical tests are provided but no description of what type of test(s) are presented, either in the Tabulation and Presentation section or in the results themselves. A table of the questions for which there were significant differences across the three groups may be helpful.

   We have clarified the use of Chi-squared tests and the interpretation of tables 3 and 4 in the methods and results sections of the paper.

4) Some sections in the key findings, specific problems, and discussion sections
need to be revised to be consistent with the rest of the manuscript. It seems as though a different author wrote these sections as the abbreviation and citation conventions change.

**We have made every effort to improve the consistency of the text. All reference materials are cited following the format described in the instructions to authors for the journal.**

Also, the key findings really provide more results that do not necessarily focus on the stated purpose of the paper. In the specific problems section, the concepts of recall and judgment, and those in Table 4, are introduced for the first time. The specific categories of cognitive issues should be introduced earlier and brief descriptions of each should be provided.

**Errors that supersede translation including Recall and judgment are now introduced in the first part of the paper**

5) The acculturation measures listed on page 10 vary in their scope and purpose. Please provide more description on which items were selected from which scales.

The supplementary materials for the paper contain the acculturation items tested in this study. We have added references to this material so the reader can more easily see which items were selected. Time precluded testing all items in all measures and many survey items were very similar across measures. Therefore we tried to select items that used different kinds of phrasing and covered major areas –These points are made on pp 10-11.

Minor Essential Revisions

6) The description of how many interviewers there were and how quality control was conducted is unclear.

As stated on page 13, “Two trained bilingual cognitive interviewers (one of Mexican background, and one Puerto Rican), conducted the 18 interviews for Spanish-language cognitive interviews. Three additional trained cognitive interviewers conducted the 9 interviews for English-language cognitive interviews.”

7) The first paragraph of the discussion is vague. The practical implications paragraphs should reference specific results as evidence of the conclusions being inferred.

**We have revised these paragraphs to be more specific.**

We now discuss these two studies in paragraph 2 of the discussion

9) There are other limitations other than the sample size. For example, there are no participants from border states (e.g., Texas or Arizona) where the effect of length of residency may be different. Another issue is that the language spoken was used rather than testing reading comprehension/cognition. Hispanic immigrant populations can feel comfortable speaking in one language but reading in another. While this may be beyond the scope of this specific project, it is something worth considering for future cognition studies.

We have added geographic distribution as a limitation.

Minor comments:
Pg. 4 – the last sentence of the first paragraph is vague, specifically the term various activities.

Revised to state “different preferred languages for various social, work, or media related activities”

Pg. 6 – in the first sentence of the cross-cultural paragraph, vary word choice instead of using investigated three times. The readability is difficult.

Edited for clarity

Pg. 8 – in the statement about identifying specific activities relevant to a given population/sample, it seems that adding/exchanging culturally relevant activities may enhance understanding of the question meaning. It could be argued that asking about specific (culturally appropriate) behaviors may be more appropriate for assessing physical activity than having one question that is usable with multiple populations, but elicits a more vague response.

We attempt to contrast these possibilities on page 8 and further on page 26. One further problem is that by naming specific activities, surveys can often elicit more and more PA. Yet its not obvious that these longer lists of activities improve estimates of total PA.
Pg. 9 – The sentence beginning, “Acculturation questions were translated…” should be moved to the section where the acculturation questions are described.

**We think this sentence is useful because it points the reader to the lengthier discussion of translation needed for the acculturation questions while we are introducing the PA questions and there translation history**

Pg. 11 – Why were all items not translated in the same way? Were the already translated items reviewed by the same translators and adjudicator for accuracy?

**The PA questions had already been translated following the same guidelines**

All the questions were translated following “The survey translation standards used by the U.S. Census Bureau [39] and the European Social Survey [40] recommend following the initial translation step with separate review and adjudication steps [12,13]. We have made this clear in the text.

Pg. 19 – In the second full paragraph, last sentence, is it possible that living in the US for 15 years and who speak English may have experienced a testing effect? This is possible given that not all surveys are conducted in Spanish which would exclude those living in the US for >15 years but who speak Spanish primarily. Some evidence for this may be found in Link M, Mokdad A, Stackhouse H, Flowers N. Race, ethnicity, and linguistic isolation as determinants of participation in public health surveillance surveys. Preventing Chronic Disease 2006; 3(1).

**Yes it is possible, we have added a mention of this possibility and a citation to Link et al.**
Reviewer's # 3 report
Title: Cognitive Testing of Physical Activity and Acculturation Questions in Recent and Long-Term Latino Immigrants in the US
Version: 1 Date: 23 March 2010
Reviewer: Hector Balcazar
Reviewer’s report:
Major Compulsary Revisions
This is an important study with valuable information that can be applicable to the development of survey questions that address language and residence time in the US for Hispanics. However, there are several issues that need to be addressed that undermines the potential of the story behind the paper. The paper lacks clarity. The purpose of the study is confusing. The main purpose of the study should be presented clearly and early in the document.

The purpose of this study is stated in the first sentence of the abstract

“We ascertained the degree to which language (English versus Spanish), and residence time in the US influence responses to survey questions concerning two topics: self-reported acculturation status, and recent physical activity (PA). “

And in the introduction

“This paper addresses the challenge of designing standardized survey questions for public health surveillance and research for populations containing significant numbers of immigrants, who tend to exhibit limited acculturation to U.S. society, at least initially [2]. “

“The present study addresses survey reporting of acculturation and physical activity to assess potential variation in interpretation between groups of varying levels of residence time in the US.”

The methods section also lacks clarity. Several weaknesses are noted. First, on page 10 the description of acculturation studies should be moved to the introduction.

This section has been moved

Second, The definition presented on page 12 at the end of recruitment, talks about groups based on low acculturation/Spanish, high acculturation/Spanish and high acculturation/English. These definitions of acculturation are not based on any acculturation index. These are based on residence status (less than five years living in the US or more). This categorization of acculturation based on residence is not described in the methods section.
We have now clarified that we selected different groups of respondents based on residence time and language use and this is distinct from the underlying notion of ‘acculturation’

Third, the analytic approach lacks specificity and clarity. For example, it is not clear how Willis (7) definitions were used to identify the problems. How these definitions are used to build Table 4 results is also not clear. Furthermore, the steps presented in Table 2 are not clearly matched with the steps presented in the narrative section beginning on page 15. How are these steps related to the Willis reference is not clear for problem identification. In the coding step there is another definition based on the scheme introduced by Willis et al (9). What is the difference between Willis (7) and Willis (9) for building these approaches and definitions. The authors are making many assumptions about their analytical strategy that the reader may not understand. The authors also describe the Q-bank codes which many readers may not be familiar with.

We have expanded our discussion of the q-bank codes and edited the discussion of the analytical process in order to clarify our approach. Extensive changes in the methods section are highlighted to illustrate specific changes made in the text.

On page 18 of results, the authors describe p values that need to be interpreted with caution, however there is no mention in the methods section about the statistical test performed for a given analysis.

We have clarified in the methods section that chi squared tests were used throughout

The results should be re-organized to present the quantitative data first and then the qualitative data. Table 4 is a difficult table to understand.

We prefer to present the qualitative results first. This study has a small sample size and the most important result is our narrative concerning the cognitive interview process. We try to make our reasoning for this approach clear in the section titled Acculturation Items: Key Qualitative Findings
Reviewer's report
Title: Cognitive Testing of Physical Activity and Acculturation Questions in Recent and Long-Term Latino Immigrants in the US
Version: 1 Date: 30 March 2010
Reviewer: C Barroso

Reviewer's # 4 report:
Abstract (MAJOR COMPULSORY REVISION)
The last sentence of the “Background” section is unclear. Why would other developed countries with growing numbers of immigrants be concerned about how language use (English/Spanish) and residence in the U.S. influence self-reported acculturation status and physical activity? Not all developed countries use English or at least American English.

We have edited this sentence to simply state “This topic is likely to be of general interest because of growing numbers of immigrants in countries worldwide.” Regardless of language use in the destination and origin countries the approach outlined here could be of interest and utility.

Please revise. The “Methods” section does not correspond to the purpose statement in the “Background” section. In particular, what was done in the study is unclear. The “Results” are difficult to understand since the methods were not adequately described. The “Conclusion” was also difficult to understand because it did not correspond to the purpose statement and the concept of “cross-cultural equivalence” was mentioned and not previously introduced.

We have tried to revise the methods results and conclusion sentences to address this general comment. We explicitly state that we performed cognitive interviews on 27 respondents from three residence time/language groups and then categorized the kinds of problems respondents reported for questions in two domains. “cross cultural equivalence is referred to in the abstract, methods (Paragraph titled Cross-cultural instrument pretesting) and repeatedly throughout the remaining methods, results, and discussion. The purpose of the paper as stated in the abstract is addressed by the methods described in paragraph 2 of the abstract.

Introduction (MAJOR COMPULSORY REVISION)
The authors attempt to provide a rationale for their study purpose. However, their thesis evokes several questions about their decision process that are unanswered. These questions include but not limited to:
1) How do the authors define acculturation?
Acculturation refers to the change in language, behavior and cultural differences that occur over time, gradually resulting in greater similarity between such variables and the variables in the non-immigrant population of the host country. This definition is intended to be inclusive and to simply reflect empirical observations of immigrants over time.

2) Is acculturation different from language use and residence time in host country?

This is an interesting and important question but beyond the scope of our study design and sample size. It is also often beyond the scope of analyses of existing national surveys. We do refer to a number of papers that address the dimensionality of acculturation (p. 5).

3) Does acculturation include socio-economic status (SES) including educational attainment?

Our respondents were not selected on the basis of educational level. We do discuss the educational level of the respondents and the fact that recent immigrants in this sample had lower educational levels than later immigrants. In our view this likely reflects economic opportunity rather than cultural differences.

4) How do the authors define the word “cognitive?”

We follow common English usage to define cognitive and we discuss the characteristics of cognitive testing at length as well as its limits in the paper. Cognitive - of or pertaining to the mental processes of perception, memory, judgment, and reasoning, as contrasted with emotional and volitional processes.

5) Do the authors suspect that SES and educational attainment may influence cognitive abilities or at least expression of cognitive abilities?

We have expanded our discussion of the potential for education level to influence responses to questions. Appendix 1 contains the initial probes used in our study, these probes were designed to elicit simple and general features of respondents understanding of the questions.

Page 7, last paragraph, last sentence: “…rather than asking about particular behaviors, we chose to instead the following question…” This sentence is incomplete, please revise. Furthermore, this sentence in question describes what the authors did and is better suited for the “Methods” section instead of the “Introduction.”
We have edited this paragraph so the details of the question are given in the methods.

This sentence in question also appears to provide an example from the 2000 National Health Interview Survey as to what type of survey item may be display cross-cultural equivalence regarding physical activity. If the latter is the case, then the sentence needs to be revised to communicate this.

This point is discussed in the latter half of the paragraph – “Hence, we hypothesized that a series of physical activity questions that were stated in this general manner, and that covered behaviors such as walking, which are presumably universal – would serve to ameliorate differences between Latinos and Non-Latinos, and between English and Spanish language of administration. On the other hand, one could emphasize the fact that these items were designed mainly with the white, non-Latino population in mind, and the items could produce unforeseen problems for recent immigrants in particular.”

Please consider using only Latino or only Hispanic instead of interchanging.

We have edited the text to use ‘Latino’ except where quoting past work or survey items

Methods (MAJOR COMPULSORY REVISION)
Page 9 (EXCEPTION – CLARIFICATION: MINOR ESSENTIAL REVISION)
Recommend making the first paragraph of the “Methods” section into two paragraphs. Information about the items used regarding physical activity can be in a separate paragraph (content for the second paragraph).

We have split this paragraph into two as suggested

(MAJOR COMPULSORY REVISION)
Page 10, first full paragraph: The authors finally provide a working definition of acculturation and support from the literature regarding the use of the term “acculturation.” This information should be presented in the “Introduction” so that the reader knows the premise from which the authors are building from and contributing.

This material has been moved to the introduction

Page 12, “Recruitment,” last two sentences: The authors do not define what the three design conditions are. It is unknown what qualifies an individual to be low acculturation/Spanish, high acculturation/Spanish, or high acculturation/English. The authors (page 10) stated that they selected items from various instruments,
but there is no mention as to what constituted the three design conditions. (Only Table 1 provides how the three design conditions are defined.)

We have revised the paragraph to state the residence time characteristics of the subject conditions here and throughout the paper we now refer to residence time rather than acculturation when discussing the subjects.

Page 14, “Analytic Approach,” last paragraph: The authors finally provide a working definition of cognition (“…Items were determined to contain features producing difficulties related to…”). What cognition means in this study should also be presented in the “Introduction” so like the term “acculturation” the reader knows and understands the premise from which the authors are building from and contributing.

We have expanded our discussion of ‘cognitive problems’ in paragraph six of the introduction.

Page 17, last paragraph: Please provide a more detailed description of Q-bank coding scheme used.

A more detailed description of the Q-bank coding scheme is added.

Overall, the methods used are appropriate for the study design. However, because key concepts were not defined and the rationale for the study (Introduction) was not adequately described, the logic for this study is questionable at most and at minimum needs more detail and clarification. Areas related to acculturation and cognition need to be revised for clarity.

We have reordered material in the introduction methods and results to address this critique.

Results & Tables (MAJOR COMPULSORY REVISION)
The authors reiterated the study purpose in the first sentence of the “Results” section; however, this sentence and the study purpose from the “Introduction” are not the same. Please clarify what is the purpose of the current study.

As stated in the abstract, the purpose of this paper is to “ascertain the degree to which language (English versus Spanish), and residence time in the US influence responses to survey questions concerning two topics: self-reported acculturation status, and recent physical activity (PA).” This is paraphrased for ease of reading in the first paragraph of the results as “The purpose of this study was to investigate the impact of residence time and language preference on problems with survey questions” These seem like two ways of saying the same thing. We expand on this theme in the introduction to clarify our conceptualization of the problem.
Table 3: Please include in the legend the definition for the design conditions (even if only two of three conditions are included in the table) instead of informing the reader to go elsewhere.

We have defined the subjects in the body of the table

Done

Table 4: A more detailed description of the data displayed is needed.

More detail is given

Discussion (MAJOR COMPULSORY REVISION)
The implications of the study findings are vast and of import; however, the manuscript needs to be revised so that the complete story can be clearly explained. Overall, the “Discussion” is appropriate.

We believe the revised manuscript clarifies the complete story

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.