

CULTURAL AND GENDER DIFFERENCES IN THE RESPONSE EDITING OF HEALTH SURVEY QUESTIONS

Diane O'Rourke, Timothy Johnson, Richard Warnecke, Seymour Sudman, Noel Chavez, and Loretta Lacey, University of Illinois; John Horm, National Center for Health Statistics
Diane O'Rourke, Survey Research Laboratory, 909 W. Oregon, Suite 300, Urbana, IL 61801

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Introduction

Survey researchers now recognize that each respondent, when faced with a survey question, proceeds through a series of cognitive stages that result in a unique response. Gender and cultural background specify much of the cognitive environment through which questions are perceived and responses formulated. Increasingly, researchers are utilizing cognitive methodologies to better understand the processes respondents use when answering survey questions (Jobe and Mingay, 1991). The cognitive process can be divided into four stages: interpretation or comprehension, memory retrieval, judgment formation, and response editing (Strack and Martin, 1987).

The focus of this paper is the last stage, response editing, defined as the point in the response process at which the respondent decides whether or not the answer he/she has formulated mentally is the one the interviewer will hear (or the one entered onto the questionnaire). Response editing can be affected by social desirability -- as a personality characteristic as well as an item characteristic (DeMaio, 1984; Phillips and Clancy, 1972) and, when an interviewer is present, by the interviewer's characteristics. Because of the importance of race and gender in forming the cognitive environment in which the survey responses takes place, response editing may be greatly affected by these factors (Angel and Thoits, 1987; Groves, 1989; Hill and Stull, 1987; Marin et al., 1983).

Methods

The results presented here are from a study of how cultural background and gender affect the four cognitive stages described above. The data were obtained in the course of 423 laboratory interviews conducted by the study investigators and research assistants. Approximately equal numbers of interviews were obtained with men and women from four racial/ethnic backgrounds (African American, Mexican American, Puerto Rican, and non-Hispanic white), further stratified by age and education (See Table 1).

The questions in these interviews were specifically chosen for their potential to produce variation in the processes to be studied. Questions were selected to

assess response editing (a) because they addressed sensitive topics for which we hypothesized responses might be influenced by concerns about social desirability or undesirability, and (b) where the level of concordance between respondent and interviewer characteristics was hypothesized to mediate the response editing process.

Table 1. Sample Characteristics

	(N)	Percent
Total	(423)	100.0
Gender		
Male	(211)	49.9
Female	(212)	50.1
Race/Ethnicity		
African American	(110)	26.0
Mexican American	(113)	36.7
Puerto Rican	(91)	21.5
White, not Hispanic	(109)	25.8
Age		
18-29	(193)	45.6
30-50	(230)	54.4
Education		
0-12 years	(199)	47.0
13+ years	(224)	53.0

The literature indicates that projective techniques such as asking respondents how they think others might respond to questions on a sensitive topic are an effective way to assess respondent sensitivity (Bradburn and Sudman, 1979). Thus, to assess response editing, we crafted specialized probes for asking the respondent how accurately people would respond or how comfortable they might be given certain interviewer characteristics (see Figure 1).

Nine health questions were asked to assess potential response editing due to social desirability. They covered the following topics: exercising, eating vegetables, seeking help for mental health, feeling depressed, smoking, drinking alcohol, smoking marijuana, number of sex partners, and sexual orientation. Differences by gender or cultural group were found in the answers to six of the nine questions. Three of those six questions will be presented in this paper to illustrate how cultural background and gender

Figure 1. Examples of Response Editing Probes

PERCEIVED SOCIAL DESIRABILITY

* "In general, do you feel that people might purposely say they '_____' more than they do, less than they do, or would they try to answer accurately?"

PERCEIVED EMBARRASSMENT

* "In general, do you feel people would or would not be embarrassed to answer questions about '_____'?"

* "Do you feel that this is a question that people would or would not be embarrassed to answer to a survey interviewer of the [same/opposite] sex?"

PERCEIVED HONESTY

* "Do you feel this is a question that people would or would not answer truthfully?"

INTERVIEWER ETHNICITY EFFECT

* "Do you feel this is a question that [African American/Mexican American/Puerto Rican/White] respondents would be comfortable or uncomfortable talking about with a survey interviewer who is not [African American/Mexican American/Puerto Rican/White]?"

INTERVIEWER GENDER EFFECT

* "Do you feel this is a question that [females/males] would be comfortable or uncomfortable talking about to a survey interviewer of the [same/opposite] sex?"

INTERVIEWER AGE EFFECT

* "Do you feel this is a question that a person your age would be comfortable or uncomfortable talking about to a survey interviewer [of the same age/who was much younger or older]?"

impact the accuracy of responses to questions with perceived social desirability/ undesirability. In each case, the probe for social desirability asked, "In general, do you feel that people might say they [overreport], [underreport], or would they try to answer accurately (Figure 1, see first probe).

Results

Table 2 illustrates differential perceptions of accuracy of reporting by cultural groups to a question that asks about a socially desirable behavior, eating vegetables. After asking respondents how many servings of vegetables they usually ate per day or per week, they

were asked if they felt that people might say they ate more vegetables than they actually do, fewer vegetables, or whether they would answer accurately. Table 2 shows the cross-tabulated data. A logistic regression model (not shown), indicated that, after controlling for gender, age, and education, African American and Puerto Rican respondents were more likely to think that respondents would not answer accurately.

Table 2. Perception of Accuracy of Reports of Vegetable Servings by Culture of Respondent^a

	African American (N=102)	Mexican American (N=101)	Puerto Rican (N=81)	White Non-Hispanic (N=98)
Overreport (say eat more vegetables)	35.3%	25.7%	34.6%	24.5%
Try to answer accurately	51.0	63.4	51.9	68.4
Underreport (say eat fewer vegetables)	13.7	10.9	13.6	7.1

^a"In general, do you feel that people might purposely say they eat more vegetables than they do, say they eat fewer vegetables, or would they try to answer accurately?"

In Table 3, the relationship between gender and perceived accuracy of reporting on a socially undesirable behavior, alcohol consumption, is examined. After reporting the number of days during /which they drank alcohol in the past month, respondents were asked, "In general, do you feel that people might purposely say they drink more, drink less, or would they try to answer accurately?"

Table 3. Perception of Accuracy of Reports of Alcohol Usage by Gender of Respondent^a

	Male (N=194)	Female (N=187)
Perception of Accuracy**		
Overreport (say drink more)	8.2	3.7
Try to answer accurately	42.8	32.6
Underreport (say drink less)	49.0	63.6

^a"In general, do you feel that people might purposely say they drink more, drink less or would they try to answer accurately?" (Asked after a question on number of days in the last 30 that the respondent had one or more drinks.)

**p <.01.

In this case, gender and not culture was the significant mediating variable. Men were more likely than women to believe that people would overreport the frequency with which they drank alcohol; women were much more likely to predict underreporting. In a multiple regression model (not shown) including gender, cultural group, education, age, and drinking status, only gender was found to be predictive of projected reporting direction.

It is well known that the topic of sexual behavior is one of the most difficult on which to collect information (Smith, 1992). That reputation is confirmed in this study in an example of how gender influences social desirability, which in turn affects response editing (see Table 4). Respondents were first asked a frequency question: "In the past 5 years, how many different people have you had as sexual partners?" They were then probed as to whether they felt that "people might purposely say they had more partners, fewer partners, or would . . . try to answer accurately." In general, more females than males (53.0% versus 44.7%) felt people would answer accurately. However, if inaccuracy was predicted, the direction varied with gender. While 38.1% of the men thought people would report more sex partners, only 7.0% of the women felt this way. On the other hand, many fewer men (17.3%) thought people would underreport, compared with 40.0% of the females. In a multiple regression model (not shown), gender was the only respondent characteristic among a group of predictors that included education, cultural group, age, and number of sexual partners that was found to be predictive of this projected reporting direction.

Table 4. Perception of Accuracy of Reports of Sexual Partners by Gender of Respondent^a

Perception of Accuracy***	Male (N=197)	Female (N=185)
Overreport (say more partners)	38.1	7.0
Try to answer accurately	44.7	53.0
Underreport (say fewer partners)	17.3	40.0

^a"Do you feel that people might purposely say they had more partners, fewer partners, or would they try to answer accurately?" (Asked after a question on number of sex partners respondents had in the last five years.)
***p <.001.

In addition to examining this set of item-specific probes, all respondents were asked to complete a 10-item version of the Marlowe-Crowne scale of social desirability (Strahan and Gerbasi, 1972), which

measures the general trait or tendency to give socially desirable responses. In a multiple regression model, after controlling for age, gender, and education, both Mexican American and African American respondents were more likely to give socially desirable answers, as were females and older respondents (Table 5). Thus, in the data we collected, both gender and cultural group were associated with a general tendency to provide socially desirable responses.

Table 5. Multiple Regression Analysis of Responses to Marlowe-Crowne Social Desirability Scale (Unstandardized Coefficients Reported)

Male (1=Yes)	-0.62*
African American (1=Yes)	0.67*
Mexican American (1=Yes)	1.11***
Puerto Rican (1=Yes)	0.39
Age	0.05***
Education	-0.12
R-square	0.08
F-value	5.59***
Sample size	413

*p <.05.
***p <.001.

We next examine interviewer effects on reporting accuracy. Many interviewer characteristics, but primarily race, gender, age, and perceived status, may influence the editing process (Groves, 1989). A substantial literature now exists suggesting that respondents may edit their answers on a selective basis as a consequence of social or cultural distance, defined here as similarity/dissimilarity of ethnic status and/or gender between survey participant and interviewer. Some studies have investigated the relationship between respondent and interviewer gender, with conflicting results. The status of women also varies across cultures, and each has its own set of normative expectations regarding appropriate and inappropriate communication between the genders. Consequently, the acceptability of cross-gender survey interactions is also likely to vary across cultural groups (Watson, 1992). Male respondents from some cultural traditions may be less inclined to comply with an interview request or to take an interview seriously when the interviewer is female. Influences may also be manifested through greater reluctance to discuss or give accurate responses to sensitive or threatening questions. Thus, females with more traditional values would be expected to be less comfortable discussing sexual and health behaviors with male interviewers. Despite speculation, there is currently little direct evidence regarding how cultural

differences in gender relations influence survey respondent behaviors.

Using the same format of projective probing reported earlier, we probed to determine what effects the gender, cultural identity, and age of the interviewer had on the respondent's perception of people's comfort with an interviewer (see Figure 1, last 3 probes). In almost every case where we asked about the perceived impact of an interviewer characteristic, we found differences by respondent characteristics. Two examples follow.

Table 6 shows the perceived effects of interviewer culture on questions about sexual orientation and alcohol consumption. After being asked, "Do you think of yourself as heterosexual, homosexual, or bisexual?" respondents were asked if they felt that people of their cultural group would be comfortable or uncomfortable talking about this with an interviewer of the same cultural group. They were subsequently asked if people would be comfortable or uncomfortable with a survey interviewer who was from a different cultural group. The same procedure was followed after a question about alcohol consumption.

Cross-cultural differences were found for both questions. On the topic of sexual orientation, as you can see, a greater percentage of the non-Hispanic white respondents felt that persons of their racial/ethnic group would be comfortable discussing this topic with an interviewer of their own race/ethnicity than did respondents of other groups. They also felt that non-Hispanic white respondents would feel more comfortable with interviewers of different cultural groups than did other respondents. Hispanic respondents projected the least comfort discussing the topic, even with a Hispanic interviewer.

Projected comfort level with a question about alcohol consumption varied even more, with Hispanic respondents, particularly Mexican American respondents, feeling least comfortable, even with a Hispanic interviewer. When asked about comfort with an interviewer of a different cultural group, the comfort level fell considerably for all but non-Hispanic white respondents.

After a question that asked about crying spells ("During the past week, how often have you had crying spells? Would you say most of the time, occasionally, a little of the time, only rarely, or none of the time?"), respondents were asked how comfortable or uncomfortable they felt respondents of their gender would be talking about this with an interviewer of the same gender, and then of the opposite gender (see Table 7). Perhaps not surprisingly, there is a great difference between the perceived comfort of men and women when talking about crying spells with an interviewer, even one of the same gender. Here 34.1% of the men felt that

men would be comfortable talking about this to a same gender interviewer, while 93.3% of the women would feel comfortable. This again exemplifies the gender differences in perceptions of social desirability. However, while women say that they think women would feel comfortable reporting crying spells to a female interviewer, comfort level dropped by over half if reporting was to a male interviewer. There were no significant cultural differences for either gender of interviewer.

Table 6. Projected Comfort Level of Respondents by Topic, by Culture of Hypothetical Interviewer, and by Culture of Respondent^a (Percent Comfortable)

Comfort Level	African American (N=101)	Mexican American (N=100)	Puerto Rican (N=82)	White Non-Hispanic (N=99)
Topic: Sexual orientation ^b				
Interviewer race/ethnicity:				
Same race/ethnicity*	72.3	64.0	65.4	82.8
Different race/ethnicity*	61.0	51.5	54.9	71.4
Topic: Alcohol consumption ^c				
Interviewer race/ethnicity:				
Same race/ethnicity**	88.8	74.7	85.9	92.9
Different race/ethnicity***	60.0	60.0	69.4	89.3

^a"Do you feel this is a question that (RESPONDENT'S RACIAL/ETHNIC GROUP) respondents would be comfortable or uncomfortable talking about with: [a] a (RESPONDENT'S RACIAL/ETHNIC GROUP) survey interviewer? [b] a survey interviewer who is not (RESPONDENT'S RACIAL/ETHNIC GROUP)?"

^b"Do you think of yourself as heterosexual, homosexual, or bisexual?"

^c"About how many drinks did you usually have in a day on the days that you drank during the past 30 days?"

*p <.05.

**p <.01.

***p <.001.

Discussion

This research has indicated the presence of cross-cultural and gender differences in response editing. There was evidence of differences in willingness to overreport desirable behavior and underreport socially undesirable behavior. Differences were found in item-

Table 7. Projected Comfort Level Discussing Crying Spells with Hypothetical Interviewer of Same Sex/opposite Sex^{a,b}

Interviewer gender	Respondent gender	
	Male	Female
Same gender ***	34.1	93.3
Opposite gender**	28.1	41.3

^a"During the past week, how often have you had crying spells? Would you say most of the time, occasionally, a little of the time, only rarely, or none of the time?"

^b"Do you feel this is a question that (RESPONDENT'S GENDER) would be comfortable or uncomfortable talking about to a survey interviewer: [a] of the same sex? [b] of the opposite sex?"

**p <.01.

***p <.001.

specific instances as well as in the overall tendency to give socially desirable responses. Unfortunately, it is not possible to conclude from these data whether the patterns of findings on cultural differences reflect actual differences in cognition or differences that are simply the consequence of minority and gender group status in the United States.

There was further evidence of cultural and gender differences in the perceived comfort of revealing sensitive information to interviewers of varying social distance. In almost every instance, the characteristic of interest was found to have an effect. Because this was not a factorial design, it is not possible to say which of these are the most important characteristics. However, the overall result of strong perceptions of interviewer effects brings into question some previous findings that have suggested that the effects are typically limited to areas of questioning directly related to interviewer characteristics (e.g., race of interviewer and racial attitudes). In this study, interviewer characteristics were found to be important on almost all questions involving social desirability, sensitivity, and/or self-disclosure. Clearly, the target of self-disclosure, as well as whether or not there is an interviewer at all, are important considerations.

The issue of the relative contribution of gender versus culture to response editing remains unclear. Of the nine questions for which perceived social desirability was probed, no differences were found for three, gender differences were found for three, and cultural differences were found for a different three questions. Surprisingly, in all six instances in which differences were found, the differences were only for gender or culture and not for both. Thus, for questions on

exercise, vegetable consumption, and sexual orientation, culture was important and gender was not; for questions on seeking help for mental health, alcohol consumption, and number of sex partners, gender, rather than culture, was associated with the editing process. Although many of these results seem intuitively correct, the absence of independent effects of both gender and culture (e.g., in relation to number of sex partners) is puzzling. These findings serve as a reminder that developing models of the response editing process that are able to account for the social environmental context within which respondents understand and answer survey questions should be a priority for the future.

References

Angel, R., and Thoits, P. (1987), "The Impact of Culture on the Cognitive Structure of Illness," *Culture, Medicine and Psychiatry*, 11, pp. 465-494.

Bradburn, N.M., Sudman, S., and Associates (1979), *Improving Interview Method and Questionnaire Design: Response Effects to Threatening Questions in Survey Research*, San Francisco: Jossey-Bass.

DeMaio, T.J. (1984), "Social Desirability and Survey Measurement: A Review," in C.F. Turner and E. Martin (eds.) *Surveying Subjective Phenomena*, New York: Russell Sage Foundation, pp. 257-282.

Groves, R.M. (1989) "A Total Survey Error Approach to AIDS-related Survey Research," in F.J. Fowler, Jr. (ed.) *Conference Proceedings on Health Survey Research Methods*, DHHS Publication No. (PHS) 89-3447, Rockville, MD: Public Health Service, pp. 265-270.

Hill, C.T., and Stull, D.E. (1987), "Gender and Self-Disclosure: Strategies for Exploring the Issues," in V.J. Derlega and J.H. Berg (eds.) *Self-Disclosure: Theory, Research, and Therapy*, New York: Plenum Press, pp. 81-100.

Jobe, J.B., and Mingay, D.J. (1991), "Cognition and Survey Measurement: History and Overview," *Applied Cognitive Psychology*, 5, pp. 175-192.

Marín, G., Triandis, H.C., Betancourt, H., and Kashima, Y. (1983), "Ethnic Affirmation Versus Social Desirability: Explaining Discrepancies in Bilinguals' Responses to a Questionnaire," *Journal of Cross-cultural Psychology*, 14, pp. 173-186.

Phillips, D.L., and Clancy, K.J. (1972), "Some Effects of 'social desirability' in survey studies," *American Journal of Sociology*, 77, pp. 921-940.

Smith, T.W. (1992), "A Methodological Analysis of the Sexual Behavior Questions on the General Social Survey," *Journal of Official Statistics*, 8, pp. 309-325.

Strack, F., and Martin, L.L. (1987), "Thinking, Judging, and Communicating: A Process Account of Context Effects in Attitude Surveys," in H.-J. Hippler, N. Schwarz, and S. Sudman (eds.) *Social Information Processing and Survey Methodology*, New York: Springer-Verlag, pp. 123-148.

Strahan, R., and Gerbasi, K.C. (1972), "Short, Homogeneous Versions of the Marlowe-Crowne Social Desirability Scale," *Journal of Clinical Psychology*, 28, pp. 191-193.

Watson, M.A. (1992), "Research Minorities," *Journal of the Market Research Society*, 34, pp. 337-344.