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RACIAL AND ETHNIC VARIATION IN RESPONSE TO MAILED AND TELEPHONE SURVEYS AMONG WOMEN IN A MANAGED CARE POPULATION

Purpose: To describe the characteristics of participants who completed a mailed survey, compared to those initial non-responders who completed the same survey over the telephone.

Study Design and Patient Populations: We conducted a mailed survey, in both Spanish and English, among women with abnormal Pap smears, who were members of a large managed care organization. Telephone follow up for non-responders was performed by a bilingual interviewer. A 20-minute long distance telephone card was offered as an incentive to individuals who completed the telephone survey. We used bivariate and multivariate analyses to describe the population characteristics of respondents who replied by mail, as compared to those who completed the survey by telephone.

Results: Of the 1049 potentially eligible participants, 733 women completed the survey, for an overall response rate of 70%. Fifty-six percent ($N=411$) of the surveys were received by mail, and 44% ($N=322$) were completed by telephone. Thirty-four percent of the telephone surveys were completed in Spanish, compared to 13% of the mailed surveys ($P<.001$). Telephone respondents were less satisfied with their health care than were those who responded by mail.

Conclusions: Among this insured cohort of women, Latinas who completed the survey in Spanish were more likely to participate in a telephone survey that offered an incentive, than in a mailed survey. These findings should be considered when planning health surveys in this population. (*Ethn Dis.* 2004;14:580-583)

Key Words: Data Collection/Methods, Ethnic Groups, Health Surveys

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INTRODUCTION

Recent national policy has focused on addressing racial and ethnic disparities in health,¹ and one important component of this effort will be the ability to conduct unbiased health surveys among different racial and ethnic groups. Because non-response by certain subgroups can bias survey results, it is important to identify the most effective survey methods for maximizing response rates among individuals from racial and ethnic minorities.

Previous studies have documented differences in health status and sociodemographic characteristics between respondents and non-respondents to health surveys.²⁻⁶ However, fewer studies have examined the differences in subject characteristics by mode of survey administration, such as the differences between those who respond to telephone surveys as compared to mailed surveys.⁷⁻⁹ In several studies, non-Whites have been noted to have lower participation rates.^{6,10-12} However, none of these previous studies have examined the racial and ethnic differences by mode of response in an insured managed care population.

The purpose of this study was to describe the differences in sociodemographic characteristics among responders to mail and telephone surveys. Our results are derived from survey data collected as part of a larger study to better understand barriers to care for women with abnormal cervical cytology.¹³ We administered a survey in both English

and Spanish to women with abnormal Pap smears among a predominantly Latina population, who received care at one medical center of a large managed care organization in Southern California. A survey with questions about barriers to care, beliefs about health and cancer, knowledge of cervical cancer, and sociodemographic information, was initially mailed to potential participants, with telephone follow up for non-responders. The current study compares race, ethnicity, and other sociodemographic characteristics among those who responded to the mailed survey, as compared to those who completed the survey by telephone.

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METHODS

Participants and Recruitment

We performed a cross-sectional survey of all women aged 18 years or older, with an abnormal Pap smear, who received care at Kaiser Permanente Los Angeles Medical Center from October 1998 through October 1999 ($N=1049$). A mailed survey with telephone follow up for non-responders was administered between April 2000 and August 2000. Potential participants were mailed an introductory letter and survey questionnaire in English and Spanish, with a self-addressed stamped return envelope. If no response was obtained within 3 weeks, a second introductory letter and survey questionnaire in English and Spanish were mailed. If no response to the second mailing was received within 3 weeks, a trained bilingual interviewer (English and Spanish) called the potential participant, and offered to complete the interview by telephone. Participants were offered a 20-

The current study compares race, ethnicity, and other sociodemographic characteristics among those who responded to the mailed survey, as compared to those who completed the survey by telephone.

minute long distance phone card as an incentive to complete the telephone interview. On average, 5 follow-up calls were made to each non-responder. The Institutional Review Boards at the University of California, Los Angeles, and Kaiser Permanente Southern California, approved this study. With the written survey, consent was assumed if the survey was returned. Verbal documentation of informed consent was obtained from all participants for the telephone survey.

Survey Instrument

The survey was 5 pages long and took approximately 20 minutes to complete. Survey questions were taken from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System,¹⁴ the National Health Interview Survey (NHIS) Cancer Risk Factor Supplement,¹⁵ and from questions and constructs identified by a literature review.¹⁶⁻²⁰ Self-reported socioeconomic variables included age, annual household income, educational level, and marital status. Survey items were reviewed by the study team, and by an expert in psychometric testing. The survey was translated from English to Spanish and back-translated into English. The English and Spanish versions were compared to correct for discrepancies. The survey instrument was developed and tested as part of a previously published study on the barriers to

Table 1. Population characteristics and mode of survey, N = 733

		N	%
Race/ethnicity*	White	167	24
	Latina	362	51
	African American	91	13
	Asian	85	12
Education	Less than high school	112	15
	High school/tech school	347	48
	College graduate	264	37
Age	Less than 40 years	342	47
	40 years or older	391	53
Annual income†	Less than \$30,000	261	38
	\$30,000-\$60,000	276	41
	Over \$60,000	143	21
Language of survey	English	568	77
	Spanish	165	23
Country of origin	United States	365	50
	Mexico	130	18
	Other	230	32
Satisfied with care‡		454	63
Mode of survey	First mailing	226	31
	Second mailing	185	25
	Telephone	322	44

Column totals may vary due to missing data or rounding error.

* Data available for N=705.

† Data available for N=680.

‡ Very satisfied with the way their last Pap test performed or how the tests results were discussed.

care for women with abnormal cervical cytology.¹³

We asked respondents to identify themselves as White or Caucasian (non-Hispanic), Hispanic or Latino, Black or African-American (non-Hispanic), Asian or Pacific Islander, or other. Level of ac-

culturation was assessed by preferred language for reading and speaking, language used for the survey, and country of origin.²¹ Participants were considered satisfied with their care if they answered that they were very satisfied with the way their last Pap smear was performed,

Table 2. Association between type of survey response, sociodemographic characteristics, and satisfaction with care

	%	Mailed N=411	Telephone N=322
Race/ethnicity	White	27	19*
	Hispanic	45	60
	African American	13	12
	Asian	15	9
Education	High school or less	57	72†
	College	43	28
Annual income	Less than \$60,000	74	84†
	Over \$60,000	26	16
Language of survey	Spanish	13	34†
	English	87	66
Age less than 40 years		51	49
Satisfied with care‡		67	34*

Column totals may vary due to missing data or rounding error.

* P<.05, Pearson χ^2 test.

† P<.001, Pearson χ^2 test.

‡ Very satisfied with the way their last Pap test performed or how the tests results were discussed.

Table 3. Multivariate logistic regression; associations with telephone response

		OR*	95% CI
Race/Ethnicity	White	Reference	
	Hispanic	0.9	0.5, 1.4
	African American	1.3	0.8, 2.4
	Asian	0.8	0.4, 1.4
Education	High school or less	Reference	
	College graduate	0.7	0.5, 1.1
Annual income	Less than \$60,000	Reference	
	Over \$60,000	1.0	0.6, 1.6
Language of survey	English	Reference	
	Spanish	3.4†	2.1, 5.5
Age less than 40 years		1.3	0.9, 1.9
Age more than 40 years		Reference	
Satisfied with care‡		0.4†	0.3, 0.5

* OR > 1 indicates greater probability of responding by telephone as compared to mailed survey.

† P<0.001.

‡ Very satisfied with the way their last Pap test performed or how the tests results were discussed.

and/or with how the results of the test were discussed.

Data Analysis

We used bivariate analyses to describe the population characteristics of respondents who replied by mail, as compared to those who completed the survey by telephone. We used a multivariate logistic regression model to describe the association of socioeconomic characteristics with completing the telephone survey, as compared to the mailed survey, controlling for the independent effects of language, race/ethnicity, education, annual income, age, and satisfaction with care. Because reported language preference and language used to complete the survey were highly correlated, we included only language of the survey in the multivariate models. Country of origin was not significantly associated with mode of survey response in bivariate or multivariate analysis (data not shown).

RESULTS

Of the 1049 potentially eligible participants, 733 women completed the survey questionnaire, for an overall response rate of 70%. Thirty-one percent (N=226) of the survey questionnaires

were received after the first mailing, 25% (N=185) were returned after the second mailing, and 44% (N=322) were completed by telephone. We were unable to locate 16% (N=165) of the potentially eligible sample, either by mail or by phone. Eleven percent (N=112) of individuals contacted by mail and phone did not respond. Thirty-nine of those contacted by phone refused to participate, representing 12% of those contacted by phone, or 4% of the total eligible population. More than half the sample was Latina, and the majority had less than a college education (Table 1). Sixty-three percent of respondents reported being very satisfied with the way their last Pap smear test was performed, and/or with how the results of the test were discussed.

Thirty-four percent of the telephone interviews were completed in Spanish, as compared to 13% of the mailed survey questionnaires (χ^2 , P<.001) (Table 2). Telephone respondents were more likely to have lower educational levels, lower incomes, and to be less satisfied with their care, compared to respondents to the mailed survey questionnaires. In multivariate logistic regression, respondents who completed the telephone interview were more likely to complete the survey questionnaire in

... we found that Latinas who completed a health survey questionnaire in Spanish and were given a small financial incentive were more likely to participate by telephone than by mail.

Spanish, and to be less satisfied with their health care (Table 3).

DISCUSSION

In this insured group of women with abnormal Pap smears, who received care at a large managed care organization, we found that Latinas who completed a health survey questionnaire in Spanish and were given a small financial incentive were more likely to participate by telephone than by mail. Individuals who had not responded to 2 mailings, but completed the telephone survey, were also more dissatisfied with their care. No previous studies have examined differential response methods among individuals insured under managed care, although our data is consistent with other studies that have examined racial and ethnic differences in response to health surveys.¹⁰⁻¹² One previous community-based survey in New Mexico found that more Latinos replied by telephone than by mail, and more of the telephone respondents spoke Spanish.¹⁰

Our results are limited to those who responded to a health survey questionnaire among women with abnormal Pap smears. We do not have any sociodemographic data on non-responders, and are not able to make estimates about non-response bias. Other factors that may influence survey response include literacy, acculturation, and other cultur-

al variables that we did not identify. However, language preference is a marker for acculturation.²¹ Our telephone follow up included an incentive in the form of a twenty-minute long distance phone card. Previous studies have demonstrated that small incentives can also increase response rates for mailed survey questionnaires.^{22,23} Our results could potentially be explained by a differential response to this incentive.

Our data suggest that insured women who prefer to complete a health survey in Spanish, and those who were dissatisfied with their health care, were more likely to respond to a telephone interview than to a mailed survey. In this multi-ethnic population, it was important to provide a telephone interview option with a small financial incentive to achieve comparable response rates. These results should be taken into account when studying similar populations, in order to obtain a representative, non-biased sample.

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AUTHOR CONTRIBUTIONS

Design and concept of study: Nelson, Geiger, Mangione
Acquisition of data: Nelson, Geiger, Mangione
Data analysis and interpretation: Nelson, Geiger, Mangione
Manuscript draft: Nelson, Geiger, Mangione
Statistical expertise: Nelson
Acquisition of funding: Nelson
Administrative, technical, or material assistance: Nelson, Geiger