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Disparities in Receipt of FOBT versus Endoscopy among Filipino American Immigrants

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Abstract

Background—This report examines disparities associated with the type of colorectal screening test, fecal occult blood test (FOBT) versus endoscopy, within a particular racial/ethnic group, Filipino American immigrants.

Methods—Between July 2005 and October 2006, Filipino Americans age 50-75 from 31 community organizations in Los Angeles completed a 15-minute survey in English (65%) or Filipino (35%).

Results—Of the 487 respondents included in this analysis, 257 (53%) had never received any type of colorectal cancer (CRC) screening. Among the 230 subjects who had ever received a routine screening test, 78 had FOBT only (16% of the total sample) and 152 had endoscopy with or without FOBT (31% of the total sample). After controlling for access to care and key demographic variables in a multivariate analysis, only two characteristics distinguished between respondents who had FOBT *only* versus those who had endoscopy: acculturation, assessed by percent lifetime in the U.S. and language of interview, and income.

Conclusions—Our data suggest a two tier system, FOBT for less acculturated Filipino Americans with lower income versus endoscopy for Filipino immigrants with higher levels of acculturation and income. The disparity persists after adjusting for access to care. Instead of treating minority groups as monolithic, differences within groups need to be examined so that interventions can be appropriately targeted.

Keywords

colorectal cancer screening; fecal occult blood test; endoscopy; Filipino American immigrants

Introduction

Screening can reduce colorectal cancer (CRC) mortality and is recommended for individuals age 50 and older (1). CRC screening is unique in that two very different types of screening tests are recommended: Fecal Occult Blood Test (FOBT), a take home test in which the patient applies small amounts of stool onto a card and returns the card to the provider for analysis, or endoscopic procedures (colonoscopy and sigmoidoscopy), which are invasive, time-consuming procedures that must be performed by a physician. Colonoscopy is becoming the test of choice over FOBT in the general population and in minority groups (2,3) although

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primary screening through FOBT would be much cheaper considering a population based approach (4). Lower CRC screening rates have been reported for several Asian American groups as compared to Non-Hispanic Whites (3), but few studies have documented disparities associated with the *type* of screening test *within* a particular racial/ethnic group. This paper reports disparities in receipt of FOBT and endoscopy within a sample of Filipino immigrants using baseline data of a randomized trial to increase CRC screening.

Methods

Between July 2005 and October 2006, 598 Filipino American immigrants age 50-75 from 31 community based organizations in Los Angeles County were interviewed to assess receipt of CRC screening tests, demographic information and access to care. They were given the option to complete the survey by phone (60%) or face to face (40%) in English (65%) or Filipino (35%). Subjects who were not adherent to screening guidelines (no FOBT in past 12 months, and no sigmoidoscopy during the past 5 years, and no colonoscopy during the past 10 years) were enrolled into the Filipino American Health Study, a randomized trial to increase CRC screening by conducting small group educational sessions at community based organizations with or without distributing free FOBT kits to participants. Language of interview and percentage of lifetime in the U.S. were both considered proxies for acculturation. Most of the respondents were referred to the study by community liaisons. The first 598 interviews were completed from 732 names that were provided by community liaisons, for a response rate of 82%. The study protocol was approved by the UCLA Institutional Review Board.

Comparison of subjects who reported having had sigmoidoscopy with those reporting colonoscopy showed they were similar in health insurance status and all demographic characteristics. Therefore these subjects were combined into a single endoscopy category. Since the focus of this article is on routine screening, those who reported that they had ever obtained an endoscopy or FOBT due to a health problem (N=111) were excluded from further analyses, leaving a sample size of 487.

Respondents were categorized into three mutually exclusive CRC screening history groups: (1) never screened, (2) ever had an FOBT but no endoscopy, and (3) ever had an endoscopy, with or without FOBT (see survey questions in Table 1). This three-category outcome served as the dependent variable in analyses. Statistical analyses were conducted using polytomous (also known as multinomial) logistic regression, an extension of ordinary two-category logistic regression to more than two outcome categories (5). This approach yields odds ratios with the same interpretation as ordinary logistic regression, allowing pairwise comparisons among the outcome categories, but provides more efficient estimates than would a series of two-category logistic regressions making the same comparisons. The bivariate, unadjusted associations between outcome category and each of seven demographic characteristics and two access to care variables were determined by entering each covariate singly into the regression. Adjusted odds ratios were obtained using multivariate polytomous logistic regression, with all nine variables included as covariates in the model. Analyses were performed using Stata 9.1.

Like many descriptive studies, our analyses involved multiple tests of significance. There is currently no consensus in the literature as to whether or not multiple test adjustments should be made in descriptive studies of this type (6). To address this issue, we compared p-values with both the conventional .05 significance level and significance levels adjusted for multiple testing. The multiple testing adjustment bounded the false discovery rate for each set of 10 significance tests within each bivariate and multivariate analysis at .05 using the Benjamini and Hochberg procedure (7).

Results

Of the 487 respondents included in this analysis, 257 (53%) had never received any type of CRC screening. Among the 230 subjects who had ever received a routine screening test, 78 (34%) had FOBT only (16% of the total sample) and 152 (66%) had endoscopy with or without FOBT (31% of the total sample).

Table 1 provides information on demographic characteristics and access to health care for the three subgroups and the total sample of 487 respondents. The age of the respondents ranged from 50 to 75 years, with a mean of about 60 years. About 40% were males. The majority of the sample was married, had a college education, and had health insurance and a regular health care provider. On average, subjects had resided in the U.S for about 20 years, corresponding to 33% of lifetime (range: 0 .4 to 98% of lifetime, median 35% of lifetime). The proportion of respondents who had FOBT only was highest in the lowest income category and the proportion of respondents who had endoscopy was highest in the highest income category, with both distributions showing a dose-response relationship consistent with a linear trend (null hypothesis of linear trend not rejected by chi-square goodness of fit test, $p = 0.12$ and 0.46, respectively). In comparison to a population-based sample of Filipino American immigrants who participated in the 2005 California Health Interview Survey (CHIS, see last column, Table 1), our sample had a similar level of college education but lower levels of income and access to care. This may be due to the fact that CHIS was only conducted in English language. Therefore, lower income immigrants who do not speak English well and are less likely to have health insurance are not included in the CHIS sample. Thus, we believe that our community sample represents Filipino immigrants but not U.S. born Filipino Americans.

Table 2 provides odds ratios for comparisons among the three subgroups using bivariate and multivariate analyses. Statistically significant differences among the subgroups were apparent. Percent of lifetime in the U.S., English language use in interview and income were highest among subjects who had had endoscopy in bivariate analyses. These associations were attenuated in the multivariate analyses but most remained significant at the conventional .05 level. The endoscopy group was also most likely to have health insurance and a regular doctor based on bivariate analyses. Subjects who had never been screened and subjects who had FOBT only differed with respect to age and income: the never-screened subjects were about two years younger on average than the FOBT only subjects and were most likely to be in the lowest income category (<$20,000). However, these two groups did not differ in other demographic characteristics or access to care indicators. In contrast, subjects who had had endoscopy were significantly different from the never screened subjects with respect to all explanatory variables (age, percent of lifetime in the U.S. and language of interview, gender, marital status, education, income and access to health care) in bivariate analyses.

In the multivariate analyses, only three variables, age, percent of lifetime in the U.S., and income distinguished between respondents who ever had an endoscopy and who had never had any type of CRC screening. Most of the variables also distinguished between subjects who had had an endoscopy compared to subjects who had received FOBT only. In this comparison, percent of lifetime, language of interview and annual income distinguished between the groups at the conventional .05 level after controlling for all other variables in the multivariate analysis. Limited power due to fitting a large 9-variable model with relatively small sample sizes may explain the failure of these associations to achieve significance by the more stringent multiple testing adjustment criterion in the multivariate analysis.

Discussion

In recent years, reports have disaggregated the Asian category and provided CRC screening rates separately for Filipinos, Japanese, Vietnamese, Korean, and other Asian ethnic groups (8–10). A recent analysis of data from the 2001 CHIS, for example, found that even after controlling for access to care and acculturation, Filipino Americans have lower rates of CRC screening than Non-Hispanic Whites (11). However, within each Asian subgroup, there may be large disparities, not only with respect to receipt of *any* CRC screening test but also disparities regarding the type of screening test received. These disparities are rarely reported. Our study provided an opportunity to examine receipt of FOBT as the only screening test versus receipt of endoscopy *within* one racial/ethnic group, a large community sample of Filipino American immigrants between the ages of 50 and 75 years.

An examination of screening patterns showed significant differences in the type of screening procedure obtained based on demographic factors and access to care. With respect to receipt of endoscopy, the patterns that emerged in bivariate analyses are similar to those observed in the general population (2): respondents who had ever had an endoscopy tended to have been in the U.S. longer, had interviews conducted in English, had higher levels of income and education and were more likely to have health insurance and a regular doctor compared to those who had FOBT only. These characteristics are not mutable in an intervention aimed to promote CRC screening. Unlike other studies, our analysis distinguished between respondents who had FOBT as the *only* screening test and respondents who had ever had an endoscopy. Most other studies that examine correlates of FOBT include respondents who had an FOBT with or without endoscopy in their analyses (2,3,9,10,11). Our data show that individuals who have received FOBT as the only screening test differ from those never screened in age and income, but not in any other demographic characteristics that are typically associated with cancer screening utilization. Our bivariate comparison of the subgroups that had FOBT only versus those that had endoscopy shows that FOBT as the only screening test is more common among more recent immigrants with lower levels of income who tended to have lower levels of education and were less likely to have health insurance and a regular doctor. Our multivariate results show that acculturation, assessed by percent lifetime in the U.S. and language of interview, and income remained important predictors of type of CRC screening test after controlling for access to care and other key demographic variables.

CRC screening tests differ widely in cost, insurance coverage, and amount of co-payment. The estimated costs for FOBT, flexible sigmoidoscopy and colonoscopy are $10-25, $150-500 and $800-1600, respectively. Many insurance plans cover CRC screening tests beginning at age 50. Medicare, for example, covers FOBT and endoscopy with a 20% copayment on endoscopy and no copayment for FOBT. California state law requires that CRC screening tests be offered through Medicare supplemental policies, specifically the provision of preventive medical care coverage of up to $120 per year for services not covered by Medicare, including FOBT, at a frequency that is medically appropriate (http://www.ncsl.org/programs/health/colonrectal.htm, accessed on January 25, 2008). Medicaid coverage for CRC screening varies by state. Some states cover FOBT, others cover CRC screening if a doctor determines the test to be medically necessary, and in some states, coverage varies depending in which Medicaid managed care plan a person is enrolled (http://www.cancer.org/docroot/CRI/content/CRI_2_6X_Colorectal_Cancer_Early_Detection_10.asp, accessed March 25, 2008). Thus, co-payments for the more expensive endoscopy procedures, particularly colonoscopy, can be several hundred dollars.

Our data suggest a two tier system, FOBT for less acculturated Filipino Americans with lower income versus endoscopy for Filipino immigrants with higher levels of acculturation and

income, regardless of their access to care. While all screening tests are recommended equally by the professional societies, because there is insufficient evidence to recommend one screening test over the other, most organizations recommend that "the choice of screening strategy should be based on patient preferences, medical contraindications, patient adherence, and resources for testing and followup" (http://www.ahrq.gov/clinic/3rduspstf/colorectal, accessed January 29, 2008). Nevertheless, colonoscopy offers the advantage of diagnosis and therapy in one session, because polyps can be removed during the screening procedure, colonoscopy is widely perceived as the most sensitive method to detect adenomas (12), and the use of colonoscopy is rising in the general population (13). Our data suggest that among Filipino immigrants, income and level of acculturation may determine what screening modality is utilized, not preferences. While FOBT facilitates CRC screening among low-income population groups, offering a menu of free CRC screening tests that includes colonoscopy to low-income and uninsured groups, for example through the CDC–funded demonstration program "Screen for Life" or similar programs, may prevent the creation of a two tier system (14).

Limitations of this study are the cross-sectional design, the reliance on self-reported screening history, and a community sample of Filipino immigrants which may not be representative of all Filipino Americans. As in most studies on health related issues, we did not ask any questions regarding immigration status of participants, because we did not want to deter subjects from participating in our study. Only an estimated 4% of Filipinos in the United States are undocumented (http://www.ofwjournalism.net/previousweb/vol5no8&9/prevstories5082.php, accessed January 25, 2008), but according to our Filipino American project staff and community partners, it would be very unlikely for an undocumented immigrant to volunteer for a health study. A strength of this study is its focus on Filipino American immigrants, a group that has not been well studied with respect to CRC screening. Our findings demonstrate that it is important to disaggregate minority populations by level of acculturation and income and to examine type of CRC screening test received, because otherwise important within-group differences could be missed. Instead of treating minority groups as monolithic, differences within groups need to be examined so that interventions can be appropriately targeted.

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Table 1

Characteristics of Filipino American respondents compared to Filipino American immigrants who participated in the California Health Interview Survey (CHIS), 2005

	Total sample	Never screened	Ever had FOBT only	Ever had endoscopy (with or without FOBT)	Filipino American Immigrants CHIS 2005 (California, 50-75 yrs old)
	N = 487	N = 257	N = 78	N = 152	N=189
Demographic characteristics	**(mean ± s.d.)**	**(mean ± s.d.)**	**(mean ± s.d.)**	**(mean ± s.d.)**	**(mean ± s.d.)**
Age	59.5 ± 6.2	58.8 ± 6.5	60.6 ± 6.1	60.2 ± 5.5	60.1 ± 6.9
Percent of lifetime in U.S.	33.4 ± 19.4	29.2 ± 19.8	30.8 ± 19.3	41.9 ± 15.9	50*
	%	**%**	**%**	**%**	**%**
Born outside the U.S.	100	100	100	100	100
Interview in English	64	60	53	76	100
Male	42	38	40	50	30
Married	69	64	69	77	62
Education: ≥ college degree	68	64	65	78	69
Annual income:					
<$20,000	38	49	43	17	20
$20,000 to < $50,000	25	21	32	28	28
≥ $50,000	37	31	25	54	53
Access to health care					
Has health insurance	76	69	71	90	93
Has regular doctor	82	76	83	93	96**

Note: Group status was assessed based on responses to the following questions:

Have you ever done a take home stool blood test? Have you ever had a sigmoidoscopy?

Have you ever had a colonoscopy? (Definitions for all tests were read to subjects.)

Why did you do a stool blood test/have a sigmoidoscopy/have a colonoscopy? Was it for a health problem or was it for a routine screening check-up when you didn't have any problems?

*CHIS provides the "percent life in US" variable as a range (example: 13.9% of respondents have a percent life in US of 0-20%). This value was estimated from these ranges.

**"has regular source of care"

Table 2

Odds ratios for factors associated with colorectal screening in Filipino immigrants

	FOBT only vs. Never screened†		Endoscopy (with or without FOBT) vs. Never screened†		Endoscopy (with or without FOBT) vs. FOBT only†	
	Bivariate OR (95% CI) p	Multivariate OR (95% CI) p	Bivariate OR (95% CI) p	Multivariate OR (95% CI) p	Bivariate OR (95% CI) p	Multivariate OR (95% CI) p
Demographic characteristics						
Age (5-year increase)	**1.26 (1.03, 1.56) .03**	**1.36 (1.06, 1.74) .01**	**1.20* (1.02, 1.42) .03**	**1.53* (1.24, 1.90) <.001**	0.95 (0.76, 1.19) .66	1.13 (0.86, 1.48) .39
Percent lifetime in U.S. (10% increase)	1.05 (0.91, 1.20) .51	1.06 (0.90, 1.25) .51	**1.44* (1.28, 1.62) <.001**	**1.30* (1.13, 1.50) <.001**	**1.37* (1.18, 1.60) <.001**	**1.23 (1.03, 1.48) .03**
Language of interview (English vs. Filipino)	0.72 (0.44, 1.21) .22	0.64 (0.36, 1.15) .14	**2.11* (1.34, 3.30) .001**	1.26 (0.73, 2.19) .40	**2.91* (1.63, 5.20) <.001**	**1.97 (1.01, 3.85) .05**
Gender (male vs. female)	1.08 (0.64, 1.81) .78	1.00 (0.57, 1.75) .99	**1.63* (1.09, 2.45) .02**	1.31 (0.82, 2.11) .26	1.52 (0.87, 2.64) .14	1.31 (0.71, 2.43) .38
Married vs. not	1.25 (0.72, 2.15) .43	1.29 (0.71, 2.37) .41	**1.85* (1.17, 2.92) .008**	1.53 (0.89, 2.64) .13	1.49 (0.81, 2.74) .20	1.18 (0.59, 2.37) .63
Education: ≥ college degree vs. less	1.08 (0.64, 1.84) .77	1.08 (0.58, 2.01) .81	**2.05* (1.29, 3.25) .002**	1.06 (0.59, 1.89) .84	**1.89 (1.03, 3.47) .04**	0.98 (0.48, 2.02) .96
Annual income:						
≥$50,000 vs. <$20,000	0.95 (0.50, 1.79) .87	1.25 (0.53, 2.91) .61	**4.98* (2.91, 8.50) <.001**	**3.75* (1.80, 7.82) <.001**	**5.25* (2.55, 10.8) <.001**	**3.01 (1.16, 7.82) .02**
$20,000 to <$50,000 vs. <$20,000	1.77 (0.95, 3.30) .07	**2.23 (1.08, 4.61) .03**	**3.87* (2.13, 7.03) <.001**	**3.43* (1.72, 6.81) <.001**	**2.19 (1.06, 4.52) .04**	1.53 (0.67, 3.52) .31
Access to health care						
Has health insurance vs. not	1.07 (0.62, 1.87) .80	0.66 (0.33, 1.35) .29	**4.10* (2.26, 7.44) <.001**	1.13 (0.54, 2.36) .75	**3.82* (1.86, 7.86) <.001**	1.70 (0.71, 4.07) .24
Has regular doctor vs. not	1.58 (0.82, 3.06) .17	1.54 (0.69, 3.43) .29	**4.05* (2.06, 7.98) <.001**	1.57 (0.68, 3.65) .29	**2.56 (1.09, 6.03) .03**	1.02 (0.36, 2.86) .97

† Reference group. All tests were performed using polytomous logistic regression. Multivariate analyses include all listed covariates.

* Boldface indicates results significant at the conventional .05 level. Results that remain significant using the more stringent criterion of controlling the false discovery rate within each column at .05 are indicated by an asterisk.