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Patient and Provider Factors Associated with Colorectal Cancer Screening in Safety Net Clinics Serving Low-income, Urban Immigrant Latinos

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Abstract

Background—Latinos have lower colorectal cancer screening rates than Whites.

Methods—We reviewed a random sample of charts between July 2009 and February 2010 of safety-net clinic of 840 immigrants (50 years and older) from Central and South America receiving care. Logistic regression evaluated associations of ever *vs.* never screening, patient and physician factors.

Results—Ever screening rates were 24.5%, and only 17% of charts noted a physician screening recommendation. However, the odds of screening were 9.89 times higher (95% CI: 6.25–15.64, p<.001) among patients with a physician recommendation *vs.* those without, considering covariates. The odds of screening were 0.61 times lower (95% CI: 0.40–0.92, p=.02) in patients with a body mass index ≥ 30 *vs.* <30.

Conclusions—While rates were low, determinants of screening were similar in this Latino subgroup to those reported in other Latino and non-Latino populations. Low rates of documented physician screening recommendations may indicate a potential missed opportunity for cancer control in safety-net clinics.

Keywords

Latinos; colorectal cancer; screening; immigrants; obesity

Latinos are the largest minority group in the United States (U.S.).[1,2] Cancer is the second leading cause of death in this population and colorectal cancer is the second most common cause of these cancer deaths.[3–5] Colorectal cancer mortality (and incidence) can be reduced using screening with fecal occult blood testing, sigmoidoscopy or colonoscopy. Unfortunately, U.S. Latinos have lower colorectal cancer screening rates than Whites (37%

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vs. 57%, respectively).[6–9] Moreover, certain subgroups of Latinos have even lower than the average screening rates reported for Latinos. For instance, only 11.2% of uninsured Latinos report ever having been screened for colorectal cancer compared to 41.3% of insured Latinos.[9–10] Even after considering insurance, Latinos have persistently lower screening rates than Whites.[11] Those who only speak Spanish are also less likely to have had cancer screening than their English-speaking Latino counterparts.[12] New Latino immigrants (defined as living in the U.S. less than 10 years) who are likely to be uninsured and monolingual in Spanish,[13] are especially at high risk for sub-optimal screening.[14]

Historically, these recent Latino immigrants predominately were Mexican. More recently, a large number of new immigrants are from Central and South America.[15] In Mexican and non-Latino groups, physician recommendations for screening are strongly associated with screening use;[16,17] but we do not know if this relationship extends to Latinos from other countries or to the safety-net clinics where these newer immigrants often receive care.

In this cross-sectional study we examine factors associated with colorectal cancer screening among immigrant Latinos from Central and South America receiving health care in mid-Atlantic urban safety-net clinics. We hypothesize that, as with other groups, physician recommendation will be associated with screening, even in these under-resourced, busy settings with volunteer staff. The results are intended to inform future research and interventions to promote colorectal cancer screening in this setting and population.

Methods

This Institutional Review Board-approved study was conducted at seven safety-net clinics in metropolitan Washington, D.C. area. The clinics are federally funded or nonprofit, have bilingual staff, and offer care at no or reduced cost to low-income Latinos. The overwhelming majority of the clinic clients are new immigrants (living in the U.S. for <10 years) coming from Central and South America.

Study population

Eligible patients had to be enrolled at the clinic for 12 months or longer to ensure that screening might have been ordered. Patients with a prior history of any cancer were excluded. A gender-stratified random sample of 300 adult patients was selected from each site. This analysis is restricted to men and women 50 years old and older (in other analyses we examined cervical cancer screening and other issues in those younger than 50). Given that the outcome was ever screening, we did not exclude adults presently 75 years and older who might have had their screening at an earlier age.

A total of 2,163 patients were randomly selected; 981 (45%) were aged 50 and over. We then excluded patients who received a fecal occult blood test, sigmoidoscopy, or colonoscopy for evaluation of symptoms that could have indicated colorectal cancer (e.g., rectal bleeding, abdominal pain, or weight loss), since these would not be considered screening examinations (n=141). Since symptom status was ascertained from the body of the visit encounter and not billing or laboratory requisitions, we are fairly confident that these patients were symptomatic and not instances of providers “upcoding” coding to ensure insurance coverage. Furthermore, since this population was virtually uninsured, there would be no motivation for upcoding. The remaining 840 patients constituted the final analytic sample.

Data collection

Data were collected from medical records by trained staff between July 2009 and February 2010, using a standardized computer-assisted abstraction form.

Measures

Since most patients had 0 or 1 colorectal cancer screening examination, we categorized our outcome as ever *vs.* never screened with a fecal occult blood test (FOBT), flexible sigmoidoscopy, or colonoscopy. We examined patient and provider characteristics as potential covariates. Patient characteristics included age (as a continuous variable), gender, body mass index (<30 *vs.* 30+), region of origin (Central America *vs.* other), annual income (<$10,000 *vs.* $10,000+), language (Spanish *vs.* English) and family history of cancer. Some of these demographic variables (e.g., country of origin, gender, and language) have also been used by other investigators to capture unmeasured patient characteristics.[11,18,19] Family history rates were unknown or missing in over 20% of charts, so this variable was not used in analysis. Other colorectal cancer risk factors were not ascertained since they were not systematically recorded in medical records. Provider factors included documentation of a recommendation for screening (yes *vs.* no).

Data analysis

Descriptive statistics were used to characterize the distributions of the outcome variable and the independent variables and to evaluate the extent of missing data. We then developed a multivariable logistic regression model including variables statistically significant in bivariate analysis at a level of .05; we retained region of origin and gender to capture unmeasured patient characteristics regardless of significance level (there was insufficient variability in language to include this variable). Model fit was evaluated using the Hosmer and Lemeshow goodness-of-fit test. We conducted a sensitivity analysis to assess whether there were any changes in results using multiple imputation methods to deal with missing data. IVEware (University of Michigan, Ann Arbor, MI) was used to generate 10 imputed data sets. The estimates from the logistic regression models corresponding to the imputed data sets were combined according to the method of Rubin.[20] Since the imputation-based results were similar to the results using complete data (data not shown), we only present data for individuals with complete data. Analysis was performed using SAS version 9.2 for Windows.[21]

Results

The majority of Latinos in these safety-net clinics were monolingual in Spanish (97%) and from Central America (53%) (Table 1). About 39% had an annual household income less than $10,000. The overall rate of ever having had colorectal cancer screening was 24.5% and only 17% had a physician recommendation for screening noted in the chart.

The odds of having had colorectal cancer screening were nearly 10 times higher (adjusted odds ratio [OR] 9.89; 95% CI 6.25–15.64) among those with a documented physician recommendation for screening *vs.* those with no recommendation, controlling for covariates (Table 2). Having a BMI of 30 or higher reduced the odds of ever having had colorectal screening (OR 0.61; 95% CI 0.40–0.92) after considering covariates. Each five-year increase in age showed a modest increase in the odds of ever screening (OR 1.14; 95% CI: 1.01–1.28), adjusting for other variables.

Discussion

This study extends the small body of literature on colorectal cancer screening among Latinos to those from central and South America receiving care in safety-net clinics. We found that screening rates were low, with only 24.5% having ever having had colorectal cancer screening. Having a doctor recommendation was the strongest correlate of screening, and obesity decreased the odds of ever having been screened.

Nationwide, only 56% of adults 50 years and older have ever been screened for colorectal cancer, with substantially lower rates (37%) among Latinos.[5,9,22] A 2010 study done by Jandorf and colleagues found that Latinos cared for in academic sites and their affiliated community health centers in NYC had similar screening rates to the general U.S. population (53%).[23] There are several possible explanations for the lower rates seen in our Latino safety-net clinic population. First, access to colonoscopy and sigmoidoscopy was very limited in our safety-net environments, since they relied on volunteer gastroenterologists to perform procedures. This constraint may not affect Latinos who receive care in academic settings and their community affiliates. Next, there are other structural barriers to care in our clinics, including long waiting lists for appointments, a large volume of patients, a primarily volunteer provider staff with high turnover, and an emphasis on acute over chronic and preventive care. Finally, our results may differ from other studies with other Latinos[23] because of potential variations in screening rates across Latinos from different countries, either due to differences in screening availability in the country of origin, cultural attitudes towards cancer or other factors.[24–26]

In general, Latinos regard doctors as powerful authority figures, based on cultural values of *respeto* (respect) and *personalismo* (interacting with others in a warm, friendly manner).[27–28] It is likely that such values contributed to the very strong association between physician recommendation and receipt of colorectal cancer screening observed in our safety-net clinics. A strong influence of provider recommendation has been seen in other care settings, including Latinos in academic clinics and other ethnic groups across a wide variety of settings.[23,29] However, the fact that only 17% of our sample had a physician recommendation documented in their chart indicates that there may be substantial missed opportunities for cancer control in our setting. Methods to increase physician recommendations in safety-net clinics could include reminder systems, physician training in cultural competence,[30] and patient activation.

This is the first study that we are aware of find a negative association between obesity and colorectal cancer screening in Latinos. This result is not surprising since other investigators have found an association with obesity and reduced colorectal,[31] breast, or cervical cancer screening in other racial/ethnic groups.[32–33] Embarrassment, perceived stigma,[32] or fears of discomfort[34] have been cited as patient-related factors that explain reduced cancer screening rates in obese individuals. Bias against obese individuals by health care professionals has also been suggested as another possible explanation for this care pattern.[35] Alternatively, since obese patients have high rates of comorbid conditions that could limit life expectancy, providers may be correctly assessing the balance of benefits and harms when omitting screening in obese patients. This is an important area for future investigation, since obesity augments the risk of colorectal cancer,[36] and for immigrant Latinos, the likelihood of obesity and colorectal cancer both increase with time spent living in the U.S. and acculturating to an American lifestyle.[37] Moreover, at present Latino women have higher obesity rates than Whites (45% vs. 34%).[10]

There are several caveats that should be considered in evaluating our results. First, this study was cross-sectional, limiting inference regarding causality. Second, records may have been incomplete. However, to maximize data quality we used experienced abstractors and standardized abstraction forms. Moreover, there was not much missing data (except for family history), and the results did not change when using imputation. Third, our findings are also limited to those attending safety-net clinics. Individuals who use hospital facilities or who do not attend any clinic are not represented in our sample. We did not have data on risk factors other than obesity or comorbid illnesses that might have triggered or discouraged physician recommendation for screening. We also did not collect information on the number of visits, so we could not adjust for different opportunities for screening, although all

eligible patients had attended the clinic for more than one year to allow for screening to occur. Finally, we did not have data on attitudinal factors since these are not included in medical records.

In conclusion, our results extend prior research on the association of physician recommendation and colorectal cancer screening to immigrant Latinos from Central and South America cared for in safety-net clinics. Physician influences are sufficiently robust that they hold true even in safety-net settings where the professional staff are often short-term volunteers. Ultimately, “in-reach” to immigrant populations for cancer screening will be dependent on multi-level interventions that can be employed in low-resource safety-net settings, such as prompts to enhance focus on screening in the context of competing demands of acute and chronic disease care, expansion of local screening programs, and patient education to trigger provider recommendations and ensure compliance when screening is recommended.

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Notes

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Table 1

Characteristics of Immigrant Latinos in Safety Net Clinics by Ever Having Had Colorectal Cancer Screening (N=840)

	Overall Sample N=840		Yes N=206		no N=634		
Variables	**N**	**%**	**N**	**%**	**N**	**%**	**p-value[a]**
Age/Mean (SD)	61	(8.4)	62	(7.8)	61	(8.6)	.04
Dr. Recommendation							<.001
Yes	142	17%	99	70%	43	30%	
No	698	83%	107	15%	591	85%	
Gender							.76
Female	346	41%	83	24%	263	76%	
Male	494	59%	123	25%	371	75%	
Income							.96
<$10K	237	28%	60	25%	177	75%	
≥$10K	366	44%	92	25%	274	75%	
Unknown	237	28%	54	23%	183	77%	
BMI							<.001
<l30	385	46%	111	29%	274	71%	
≥30	311	37%	57	18%	254	82%	
Unknown	144	17%	38	26%	106	74%	
Region							.45
Central America	449	53%	105	23%	344	77%	
Other	346	41%	89	26%	257	74%	
Unknown	45	5%	12	27%	33	73%	
Language							.43
Spanish	817	97%	202	25%	615	75%	
Other	18	2%	3	17%	15	83%	
Unknown	5	1%	1	20%	4	80%	

[a] p-values were computed using the t-test and chi-square tests, and do not include unknown values.

Table 2

Adjusted Odds Ratios of Ever Having Colorectal Screening Among Latino Immigrants Cared for in Safety Net Clinics[a] (N=666)

		OR	95% CI	p-value
Physician Recommendation	Yes vs. No	9.89	(6.25, 15.64)	<.0001
BMI	≥30 vs. <30	0.61	(0.40,0.92)	.02
Age (yrs)	5 year increase	1.14	(1.01,1.28)	.03

[a]From a logistic regression model that included physician recommendation, BMI, age, region and gender. Good model fit is supported by a p-value of .791 from the Hosmer and Lemeshow goodness-of-fit test.

BMI = Body Mass Index
CI = Confidence Intervals
OR = Odds Ratio