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Understanding the Barriers and Facilitators of Colorectal Cancer Screening Among Low Income Immigrant Hispanics

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Abstract

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Colorectal cancer (CRC) screening rates are low among Hispanics; thus understanding screening barriers and facilitators is essential. A survey, based on blended health promotion theories, was conducted with low income, mostly immigrant, Hispanics at community based organizations and health clinics in New York City. Correlates of undergoing colonoscopy screening were examined. Four hundred men (28%) and women were interviewed. Older age, longer US residence, having a regular health care provider and provider recommendation predicted colonoscopy receipt (P values <0.01). Greater fear and worry concerning colonoscopy and fewer perceived screening benefits were associated with reduced screening likelihood (P values <0.05). In a multivariate model, colonoscopy receipt was negatively associated with Medicaid and positively associated with English preference, physician recommendation for and encouragement of screening and less fear. Interventions that educate physicians and patients regarding colonoscopy screening guidelines, increase physicians' screening referrals, and reduce patients' fear are needed.

Keywords

Colorectal cancer; Screening; Hispanics; Immigrants

Introduction

Colorectal cancer (CRC) is the second most common cause of cancer death in the United States [1,2]. Fortunately, screening and the removal of polyps can prevent or cure the disease. There is a long (5–10 years) pre-malignant phase, providing the opportunity for detection of polyps, thereby reducing CRC incidence up to 90% [3]. However, this opportunity for CRC prevention is often missed because screening participation is low, especially among Hispanics. Interventions to increase screening rates in this rapidly increasing minority group are urgently needed.

Survival hinges on stage of cancer at diagnosis, and thus early detection is crucial. Five-year survival is up to 90% when detected at an early stage, but drops to 11% in those diagnosed with metastatic/distant disease [1,2,4]. Recent guidelines (jointly from the American Cancer Society, the United States Multi-Society Task Forces on Colorectal Cancer, and the American College of Radiology) recommend one of seven screening tests [3]. However, they concluded that the use of structural screening tests such as flexible sigmoidoscopy (FS) and colonoscopy, which detect precancerous polyps and identify cancer [3] are preferred. Furthermore, the American College of Gastroenterology has designated colonoscopy as the preferred strategy, based on research that FS will miss up to 25% of polyps [5] and produces false negatives up to 30% of the time [6]. In 2003, Medicare and Medicaid reimbursement policies were modified to include colonoscopy coverage, increasing access for low-income minorities. Further, as of 2008, 26 states and the District of Columbia require private insurers to cover all CRC screening options, including colonoscopy [4]. There is a paucity of research regarding colonoscopy screening among Hispanics.

Nationally, Hispanics over 50 are less likely to have had a recent CRC screening than non-Hispanic whites (29.9 vs. 44.3%) [4]. As of 2007, Hispanics comprised 25.5% of the Manhattan population and 28% of the New York City population [7]. In East Harlem (study site), Hispanics comprise 55% of the population [8], and have lower colonoscopy rates compared to Hispanics in other parts of the city [9]. The low CRC screening rates among Hispanics stand in contrast to their screening for other cancers. For example, Hispanic and White women receive mammograms and Pap tests (77 and 83% for Hispanics vs. 71 and 83% for Whites) at similar rates [10]. Therefore the low rates of CRC screening among Hispanics may not stem from a universal tendency to forgo cancer screening. Understanding barriers and facilitators is essential to the development of interventions to increase CRC screening in Hispanics.

Low rates of CRC screening are a complex problem involving patients, their communities, and health care systems. Studies have shown that Hispanics have low levels of CRC knowledge and awareness [11] and awareness of colonoscopy screening recommendations compared to non-Hispanics [12]. Health care barriers include providers' insufficient knowledge about CRC screening guidelines, as well as inconvenience and forgetfulness [13]. Patient barriers include practical barriers (e.g., being too busy to be screened, financial costs), attitudinal barriers (e.g., a lack of understanding about asymptomatic disease and the benefits of early detection [14–16], and emotional barriers (e.g., worry and fear about screening). As noted by Vernon [15, 17], colonoscopy patient barriers include worry about pain, discomfort, or injury and cancer fear and have been shown to predict lower screening rates [18]. Sociodemographic (e.g., gender), health care factors (e.g., physician referral), and perceived risk/Cons and benefits/Pros, and knowledge are also associated with CRC screening [11,15].

The blending of health promotion theories [19–21], in particular, the health belief model (HBM)), and the Transtheoretical Model (TTM) [22–24] provided the context of the study and the selected measures. These models propose that people's beliefs and attitudes are primary determinants of their decisions and hence their behavior. The models overlap to a considerable extent with regard to the specific beliefs thought to influence decisions [25]. Thus, we selected and examined patient, health care, and cultural factors of colonoscopy screening among Hispanics. This study serves as a first step to developing targeted interventions for this underserved population. Five hypotheses were considered: First, older individuals and those with higher income or more education would be more likely to have undergone colonoscopy. Second, those who lived longer in the United States; who had publicly funded insurance; or received health care at an academic versus a community health clinic would be more likely to have undergone screening. Third, participants with provider who encouraged and recommended screening would be more likely to have undergone screening. Fourth, a more positive attitude about screening would be associated with screening. Finally, greater medical mistrust, fatalism, fear, and worry, would be negatively correlated with screening.

Methods

This IRB approved cross-sectional survey was conducted in accordance with the guidelines of the Declaration of Helsinki. The interviews were conducted by trained bilingual, Hispanic health educators from January 2008 to January 2009. Recruitment was conducted at three East Harlem health clinics and several community-based sites.

Inclusion criteria were (a) self-identified Hispanic or Latino, (b) at least 50 years of age, (c) no previous CRC history, (d) no immediate family member with CRC, (e) no personal history of chronic gastrointestinal disease, and (f) English or Spanish speaking. Potential participants received an informational flyer and, if interested in participating, eligibility was reviewed and enrollment completed. Each received a study pen, a Center for Disease Control and Prevention brochure on CRC, and a \$20.00 incentive. Uninterested people received a study pen and basic demographics were collected; no identifiers were collected. The response rate was 92.4%. Reasons for declining participation included (a) not interested in participating (42.4%), (b) not interested in the topic (18.2%), (c) not interested in surveys/research (24.2%), and (d) other reasons (15.2%). Respondents ($n = 400$) were significantly older than nonrespondents ($n = 33$; 67.52 vs. 63.05 years; $P < 0.05$). The 50-min structured interviews were conducted face-to-face in either English or Spanish (based on participant preference).

Measures

For measures requiring translation we used forward and back translation procedures to ensure content equivalency. Cronbach's alphas, all sufficient, are reported in Table 2.

Sociodemographics—Income, education, gender, age, marital status, employment status, ethnicity, years in the US, and country of origin and ancestry were assessed. We also noted the language in which the interview was completed, having a regular health care provider, and insurance coverage. Two items from the Primary Care Assessment Survey [26] assessed needing to put off medical visits and treatment due to economic barriers (*Yes, often, Yes, occasionally, No, never*).

Physician Variables

Physician Encouragement and Recommendation: Participants rated their provider's encouragement for colonoscopy [27] from zero (*not at all*) to three (*a lot*) and if their provider had recommended that they have a colonoscopy [28].

Integration: Integration for the provider's role in synthesizing care from specialists and/or while patient was hospitalized (e.g., *The help that your regular doctor/provider gave you in deciding who to see for specialty care*) was assessed [26]. Participants rated their provider from one (*very poor*) to six (*excellent*).

Cultural Variables

Acculturation: The 12-item Acculturation Scale for Hispanics [29] assessed language use, media preference, and ethnic social relations. Items were rated from one (*only Spanish*) to five (*only English*). One additional item was added (*What language(s) does your doctor/provider speak?*).

Fatalism: Fatalism was assessed with Powe's 15-item Fatalism Inventory [30] with participants indicating agreement or disagreement with each statement (e.g., *I believe if someone gets colorectal cancer, their time to die is near*).

Medical Mistrust: With the 12-item Group-Based Medical Mistrust Scale [31,32] participants rated each item (e.g., *Hispanics/Latinos(as) should be suspicious of modern medicine*) from one (*strongly disagree*) to five (*strongly agree*).

Emotional Variables

Fear of Colonoscopy: A 6-item scale developed by Manne (personal communication) assessed fear of aspects of the procedure and results. Items (e.g., *The overall colonoscopy procedure*) were answered from one (*not at all fearful*) to five (*extremely fearful*).

Worry: Worry was assessed with three items (scale of 1 = *strongly agree* to 4 = *strongly disagree*) indexing the participants' level worry concerning colonoscopy screening (e.g., *I am afraid of having an abnormal colonoscopy result*) [17].

Attitudinal Variables

Pros and Cons: Nine benefits (pros) (e.g., *Colorectal cancer tests are safe*), and 19 barriers (cons) (e.g., *I cannot afford to have a colorectal cancer test*) [33] were assessed. Four additional items, based on our prior work, were added to address machismo, (*Having a colonoscopy would make me feel like less of a man/woman*), embarrassment, (*I am embarrassed about being undressed/naked in front of my doctor/provider*), and two items to address salience-coherence regarding a colonoscopy (e.g., *Having a colonoscopy makes sense to me*). Participants rated each item from one (*strongly disagree*) to five (*strongly agree*).

Analysis

Data were analyzed using SPSS and SAS software packages. Categorical data were analyzed by Chi-square analysis. Student's *t*-test was used to analyze continuous data. All tests of significance are two-sided using a *P* value <0.05. Sociodemographic variables (e.g., age, education) were first analyzed through 1-way ANOVA, then recoded for Chi-square analyses to obtain OR and CI. All other categorical variables were analyzed through Chi-square analyses. We performed 1-way ANOVA tests to obtain scale statistics. Given the interview format of the surveys, there was minimal missing data. Participants who did not answer all scale questions were excluded from individual scale analysis. Significant variables in the univariate analyses were then entered into a multivariate logistic regression model predicting screening uptake.

Results

Sociodemographic and health care characteristics are shown in Table 1. Univariate results are included for the total sample and by colonoscopy screening status. Dichotomized age was significantly different (*P* = 0.000), with older age increasing the odds for having undergone colonoscopy screening (OR = 0.37; 95% CI = 0.24, 0.56). A X^2 analysis of the academic versus community health centers yielded a significant difference (*P* = 0.004) with those from the academic site more than twice as likely to report colonoscopy screening (OR = 2.25; 95% CI = 1.36, 3.71). Differences based on length of time living in the US (*P* = 0.030) were also detected. Being interviewed in English more than doubled the reporting of colonoscopy screening (OR = 2.37; 95% CI = 1.18, 4.79). Those living in the US less than 40 years were less likely to have received colonoscopy screening than those living in the US over 40 years (OR = 0.65; 95% CI = 0.44, 0.96). For foreign born participants, living less than 50% of their life in the US predicted a lower likelihood of screening (OR = 0.64; 95% CI = 0.41, 1.00). Gender, education level, marital status, and income were not significant.

Almost all participants (90.5%) had a regular provider, which doubled the likelihood of reporting screening (OR = 2.37; 95% CI = 1.18, 4.79). Participants' with a doctor's recommendation for screening were almost 66 times more likely to have completed screening (OR = 65.87; 95% CI = 25.86, 167.74). In addition, those who reported 'none' or 'a little' encouragement from their provider were less likely to have undergone colonoscopy screening than those who reported 'some' or 'a lot' (OR = 0.14; 95% CI = 0.08, 0.25). Current health insurance (Medicaid only, Medicare only, Medicaid and Medicare, Pay out-of-pocket/no insurance, and Employer-provided/other/unknown) was a predictor of colonoscopy screening (*P* = 0.000). Separate X^2 analyses revealed differences between those with: Medicaid only and Medicare only (*P* = 0.006); Medicaid only and Medicaid and Medicare (*P* = 0.000); and Pay out-of-pocket/No insurance and Medicaid and Medicare (*P* = 0.003). Medicaid only participants were less likely to have undergone colonoscopy screening than those with Medicare only (OR = 0.34; 95% CI = 0.15, 0.76) and a Medicaid-Medicare mix (OR = 0.28; 95% CI = 0.18, 0.45). Those with no insurance or paying out of pocket for medical care were also less likely to undergo colonoscopy screening than those with a Medicaid-Medicare mix (OR = 0.29, 95% CI = 0.12, 0.68). Integration was not related to colonoscopy screening.

Cultural, Emotional and Attitudinal Variables

Univariate results are shown in Table 2. Acculturation, fatalism, and medical mistrust were not shown to be related to colonoscopy screening. Fear of colonoscopy (*P* = 0.006) and worry (*P* = 0.037) were related to screening. Regarding the perceived pros and cons, only the Pros subscale was significant (*P* = 0.005).

Multivariate results indicated that those who preferred to be interviewed in English were more likely to have been screened (Wald Chi-Square = 5.36; $P = 0.021$; O.R. = 2.26; 95% C.I. = 1.13, 4.51) while those with Medicaid were less likely to have been screened (Wald Chi-Square = 17.10; $P < 0.000$; O.R. = 0.30; 95% C.I. = 0.17, 0.53). Provider recommendation continued to predict screening (Wald Chi-Square = 21.83; $P < 0.000$; O.R. = 25.83; 95% C.I. = 6.60, 101.04) as did physician encouragement (Wald Chi-Square = 3.86; $P = 0.049$; O.R. = 2.27; 95% C.I. = 1.02, 5.14). Finally, those reporting greater fear were significantly less likely to have been screened (Wald Chi-Square = 4.28; $P = 0.039$; O.R. = 0.52; 95% C.I. = 0.28, 0.97).

Discussion

CRC is the second most commonly diagnosed cancer among Hispanics, the fastest growing minority group in the United States [34]. Rates of CRC screening among Hispanics are low and lower than those for non-Hispanic Whites [35].

This study examined barriers and facilitators associated with colonoscopy screening among average risk, low income primarily immigrant Hispanics. Interviews elicited their thoughts and feelings about CRC, screening, cancer and the health care system. In our univariate analyses, we found that people who were older, had lived in the United States longer, had Medicare, and who received their health care at an academic setting were more likely to have had a colonoscopy. We also found that provider referral played a critical role; it was associated with more than a 66-fold increase in reported screening rates. Surprisingly, we did not find an association between colonoscopy screening and cultural constructs, including acculturation, medical mistrust, or fatalism. However, individuals who were more fearful or worried were less likely to have undergone screening. In addition, individuals who had a more positive attitude about the test and tests results were more likely to have reported that they had a colonoscopy. In our multivariate analysis, preference for being interviewed in English, having Medicaid, physician recommendation and encouragement, and fear were highlighted.

Findings from the analysis of sociodemographic characteristics are interesting. Similar to prior research [36,37], age was associated with CRC screening. Interventions designed to increase CRC screening may need to pay particular attention to those individuals aged 50–65 years. However, this finding warrants further investigation as in our multivariate analysis age was not a screening predictor. Unlike prior research [33,34,38], we did not find a relation between education and screening; however, the low level of education in our sample (mean = 9.17 years) may have played a role. Contrary to our hypothesis, income was not associated with screening. It is difficult to draw conclusions from this finding as the majority (65%) of the sample reported an annual income of less than \$10,000.

Our significant findings for length of time living in the US, insurance, and health care setting have implications for both interventions and health care policy. The most recent of Hispanic immigrants and those with less insurance coverage may need assistance in negotiating the health care system and additional financial support. Furthermore, in our multivariate analysis, preferring to be interviewed in English and not having Medicaid benefits were associated with screening. Help dealing with language barriers and bureaucratic potholes encountered with different types of insurance could be provided in the form of a patient navigator, a model shown to effectively increase CRC screening [39]. Interventions to increase prevention at a systems level (e.g., such as electronic reminders) may also be needed in community settings where primary care providers change frequently and screening recommendations are not tracked [40].

Our finding that provider recommendation and encouragement are critical to promote CRC screening is consistent with prior research [36,41–44], suggesting that providers need to be

aware of screening guidelines and the importance of speaking to patients about colonoscopy. Possible interventions might include physician reminders and incentives, as well as patient education and empowerment models. Based on the association between perceived benefits and colonoscopy screening, providers should review the benefits of screening with their patients.

We did not find an association between colonoscopy screening and acculturation. Acculturation invokes both the acquisition of values and norms of the host country through assimilation [45], as well the retention of an individual's original culture [46]. Previous acculturation research has produced mixed results [37]. In addition, given that both language and years living in the US were related to screening, our acculturation measure may not have been sensitive enough for this population; it bears further study. We also did not find an association between medical mistrust or fatalism and colonoscopy screening. Perhaps participants in the current sample were less mistrustful or other factors (e.g., recruitment by culturally and linguistically matched interviewers) were at play. Results for fatalism and cancer screening have been mixed [47], although fatalism has been associated with cancer screening among Mexican Americans [48]. The fatalism scale used in the present study was originally developed for African Americans, therefore measures specifically developed for Hispanics may be needed.

Consistent with our expectations, worry and fear were associated with self-reported colonoscopy screening. However, given that fear, and not worry, was associated with screening in the multivariate analysis, these results suggest that an intervention designed to increase colonoscopy screening may need to address and reduce a patient's fear more than their worry.

Limitations

Although our study has many strengths, there are some potential limitations. First, colonoscopy screening was self-reported and may be subject to participants' bias. Future research should include medical or billing record reviews. Second, our study is limited by its cross sectional design and causality could not be determined; longitudinal research could address this issue. Additionally, this study was conducted in only one community, with an older sample of primarily Spanish speakers. Thus, the results may not generalize to Hispanics in different geographical locations and at different levels of acculturation and findings will need to be replicated to test their generalizability.

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Table 1

Survey respondent demographics and insurance, and physician's variables

Characteristic	Total sample (n = 400)	Received colonoscopy screening	Not Received colonoscopy screening	P	OR (CI)
Age					
50–64 (%)	234	101 (43)	133 (57)	0.000	0.37 (0.24, 0.56)
65 + (%)	166	112 (67)	54 (33)		
Gender					
Male (%)	111	56 (50)	55 (50)	0.487	0.86 (0.55, 1.33)
Female (%)	289	157 (54)	132 (46)		
Site					
Academic (%)	100	67 (67)	33 (33)	0.005	
Community (%)	198	94 (47)	104 (53)		
Other (%)	102	52 (51)	50 (49)		
Origin					
US born (%)	45	19 (42)	26 (58)	0.116	0.61 (0.32, 1.14)
Foreign born (%)	355	194 (55)	161 (45)		
Years lived in US					
0–40 (%)	201	96 (48)	105 (52)	0.030	0.65 (0.44, 0.96)
41 + (%)	198	116 (59)	82 (41)		
Years lived in US (non-US born only)					
0–40 (%)	199	95 (48)	104 (52)	0.004	0.53 (0.35, 0.82)
41 + (%)	155	98 (63)	57 (37)		
Proportion of life in US					
0–50 (%)	121	57 (47)	64 (53)	0.112	0.71 (0.46, 1.09)
>0.50 (%)	278	155 (56)	123 (44)		
Proportion of life in US (non-US born only)					
0–50 (%)	121	57 (47)	64 (53)	0.044	0.64 (0.41, 0.99)
>0.50 (%)	233	136 (58)	97 (42)		
Education level in years					
0–8th grade (%)	161	87 (54)	74 (46)	0.796	1.05 (0.71, 1.57)
9th grade + (%)	239	126 (53)	113 (47)		
Marital status					

Characteristic	Total sample (n = 400)	Received colonoscopy screening	Not Received colonoscopy screening	P	OR (CI)
Lives alone (%)	296	165 (56)	131 (44)	0.092	1.47 (0.94, 2.30)
Lives with partner/married (%)	104	48 (46)	56 (54)		
Income					
Less than \$10,000 (%)	259	145 (56)	114 (44)	0.184	1.33 (0.87, 2.04)
More than \$10,000 (%)	129	63 (49)	66 (51)		
Language interview conducted in					
English (%)	67	27 (40)	40 (60)	0.020	1.88 (1.10, 3.20)
Spanish (%)	333	186 (56)	147 (44)		
Regular doctor/provider					
Yes (%)	362	200 (55)	162 (45)	0.013	2.37 (1.18, 4.79)
No (%)	38	13 (34)	25 (66)		
Current insurance					
Medicaid only	187	75 (40)	112 (60)	0.000	
Medicare only	30	20 (67)	10 (33)		
Medicaid and medicare	138	97 (70)	41 (30)		
Pay out-of-pocket/no insurance	27	11 (41)	16 (59)		
Employer-provided/other/DK	18	10 (56)	8 (44)		
Same insurance as last year					
Yes (%)	323	180 (56)	143 (44)	0.098	1.60 (0.91, 2.79)
No (%)	59	26 (44)	33 (56)		
Doctor recommendation for colonoscopy screening					
Yes (%)	280	208 (74)	72 (26)	0.000	65.87 (25.86, 167.74)
No (%)	119	5 (4)	114 (96)		
Doctor encouragement for colonoscopy screening					
None/little (%)	72	21 (29)	51 (71)	0.000	0.14 (0.08, 0.25)
Some/a lot (%)	253	189 (75)	64 (25)		

Table 2

Culture, emotions and attitudes

Characteristic	Cronbach's alpha	Received colonoscopy screening	Not received colonoscopy screening	P
Acculturation (mean) ^a				
Overall	0.912	19.28 (5.16)	19.90 (6.35)	0.283
Language use and ethnic loyalty	0.888	8.68 (2.93)	9.09 (3.68)	0.215
Media	0.899	4.50 (2.00)	4.66 (2.18)	0.457
Ethnic social relationship	0.687	6.10 (1.36)	6.16 (1.47)	0.713
Fatalism ^b	0.895	6.77 (4.42)	7.51 (4.48)	0.094
Fear of colonoscopy ^c	0.845	13.51 (6.50)	15.34 (6.61)	0.006
Integration ^{d,e}	0.943	28.94 (6.98)	27.83 (7.69)	0.154
Medical mistrust ^f	0.874	45.31 (9.20)	45.30 (8.42)	0.994
Primary care assessment ^g	0.804	5.73 (0.71)	5.59 (0.83)	0.074
Pros and Cons ^h				
Overall	0.809	100.25 (14.39)	100.16 (14.25)	0.948
Pros only	0.798	48.22 (5.19)	46.74 (5.18)	0.005
Cons only	0.902	52.04 (16.70)	53.42 (15.92)	0.400
Worry ⁱ	0.713	7.25 (2.36)	6.76 (2.27)	0.037

^aThirteen items total (4 in each subscale), one addition to original scale (see Methods)

^bFifteen items total

^cSix items total

^dSix items total

^eAlthough these measures do not index culture, emotion or attitudes, they are included in this table as they are continuous variables

^fTwelve items total

^gTwo items total, out of six items in original scale (see Methods)

^hThirty-five items total (9 Pros, 19 Cons), four additions to original scale (see Methods)

ⁱThree items total