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Black White Disparities in Receiving a Physician Recommendation for Colorectal Cancer Screening and Reasons for not Undergoing Screening

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Abstract

There is consensus that all adults over 50 years of age, regardless of gender, race, or ethnicity, should receive a physician recommendation for colorectal cancer (CRC) screening. Disparities in CRC screening result in poorer health outcomes for Blacks than for Whites. The purpose of this study was to determine whether there are Black-White differences in receiving a physician recommendation for CRC screening and reasons for undergoing screening. With 12,729 U.S. adults ages 50 to 74 included in the analysis, Whites were more likely than Blacks to report receiving a physician recommendation for CRC screening. Based on age-adjusted odds ratio, one out of three Blacks were less likely to report receiving a CRC screening recommendation from their physician (OR=0.68, 95% CI 0.57,0.81). This association persisted after adjusting for socioeconomic and other health-related factors (OR=0.61; 95% CI 0.53,0.71). This study suggests that additional steps need to be taken to reduce cancer health disparities.

Keywords

Cancer screening; predictors; race/ethnicity; insurance; health disparity

Colorectal cancer is the second leading cause of cancer death in the United States, trailing only lung cancer in number of deaths it causes.¹ Colorectal cancer is the third most common cancer diagnosed in the United States, with an estimated 141,210 new cases in 2011. The morbidity and mortality associated with colorectal cancer can be significantly reduced by following current recommended screening guidelines.^{2,3} Despite recommendations that average-risk persons age 50 and older be screened for colorectal cancer, national data continue to show low utilization in the general population. Data from the 2005 National

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Health Interview Survey (NHIS) indicated that only 45% of men and 41% of women aged 50 and older reported having fecal occult blood testing (FOBT) in the past year or colorectal endoscopy in the past 10 years.⁴

A number of barriers have been identified as contributing to the low utilization of colorectal cancer screening. These have been generally grouped into patient, provider, and health system-related factors.⁵ Patient barriers include a lack of awareness of the importance of screening; lack of provider recommendation to obtain screening; concerns about discomfort, embarrassment, and screening preparation requirements; fear about the test results; and the belief that screening is not needed in the absence of symptoms.⁶⁻⁹ Older age and shorter duration of residence in the United States have also been found to be inversely related to physicians' recommendations for colorectal screening.¹⁰ Provider barriers include concerns about the efficacy of screening, lack of training, and lack of resources to implement screening recommendations.¹¹ Health care system barriers include lack of insurance or inadequate coverage, lack of consensus regarding which screening method to implement, lack of programs to recruit patients for screening and lack of monitoring for compliance.¹²

Physician's recommendation is one of the strongest independent predictors of a person deciding to have a cancer screening test.^{13,14} Conversely, the lack of a physician recommendation is one of the most commonly reported reasons given by patients for not undergoing colorectal cancer screening.¹⁵ Having a regular health care provider, continuity of care and a recent physician visit all increase the likelihood of cancer screening.¹⁶ Good communication between patients and physicians is another factor that may improve cancer screening adherence, particularly among persons of diverse racial and ethnic backgrounds.¹⁷

The Institute of Medicine *Unequal Treatment* report suggested that provider bias and health care system factors contribute to racial and ethnic disparities in cancer screening rates.¹⁸ That work also firmly established the understanding that racial and ethnic minorities receive a lower quality of health care than non-minorities, even after controlling for insurance status.¹⁸ Coughlin and Thompson found that among patients who had a doctor's visit in the past year, African Americans, Hispanics, and American Indians/Alaska Natives were less likely to report receiving a recommendation for screening than Whites.¹⁰

Colorectal cancer incidence rates and associated morbidity and mortality have declined significantly over the past two decades. This success has been largely attributed to earlier detection of colorectal cancer and pre-cancerous polyps through increased screening. Yet, incidence and mortality rates for colorectal cancer among African Americans have remained significantly higher than in Whites.¹⁹ Knowing the screening disparity between non-Hispanic Whites and Blacks, the purpose of this study was to examine further factors that predict physicians' recommendations for colorectal cancer screening and reasons for not undergoing screening as reported in the 2005 NHIS data.

Methods

Data from the 2005 National Health Interview Survey were used for this study. The NHIS, which is administered by the National Center for Health Statistics (NCHS), is the principal

source of information on the health of the civilian, non-institutionalized population of the United States. It is a cross-sectional household interview survey. Sampling and interviewing are continuous throughout each year. The sampling plan follows a multistage area probability design that permits the representative sampling of households and other non-institutional groups. The final response rate for adults in the 2005 NHIS was 69.0%. The 2005 NHIS survey included a special supplement on cancer and cancer screening.²⁰

Study population

The analyses were limited to non-Hispanic Black and White respondents (self-reported race) aged 50 to 74 who reported never having received a diagnosis of colorectal cancer. Respondents who reported having a family history of colorectal cancer, defined as reporting having a biological parent diagnosed with colon or rectal cancer, were excluded from this study population. We limited our study to Black and White differences in order to assess specifically the racial disparity in colorectal cancer screening that persists between these two populations.

Outcome measures

The main outcome investigated was physician recommendation for a colorectal cancer screening exam in the past year, measured by the question: “In the past year, has a doctor or other health professional recommended that you have a sigmoidoscopy or colonoscopy?” We also examined the reason respondents gave for not having a fecal occult blood test in the last year and for not having an endoscopy in the last 10 years.

Adjustment variables

We adjusted for gender, educational attainment, family income, health insurance, and number of physician visits in the last year in regression models as potential confounders of the relationship between race and recommendation for screening. Educational attainment was determined by asking participants to indicate the highest level of school completed, and the responses were grouped into less than high school, high school graduate/GED, some college or technical school, or college graduate. Total family income was reported as a continuous variable and was re-coded into categories (Less than \$20,000, \$20,000–\$34,999, \$35,000–\$54,999, \$55,000 and over).

Health insurance status and type was assessed by a series of questions and categorized as private only, Medicare/Medigap only, private and Medicare/Medigap, other public, none/single service plan. Number of physician visits was assessed by the question, “During the past 12 months, how many times have you seen a doctor or other health care professional about your own health at a doctor’s office, a clinic, or some other place?” Chi-square tests were used to test if the reason respondents gave for not having a fecal occult blood test in the past year and for not having an endoscopy in the last 10 years differed by race.

Statistical analyses

The data were analyzed using SUDAAN version 10 to account for the complex sampling design and population weights of the NHIS data.²⁰ Age-adjusted logistic regression models were used to estimate the Black/White odds ratio for not receiving a physician

recommendation. To adjust for confounding, the following variables were added to the model: gender, education, family income, health insurance, and number of physician visits in the last year.

Results

There were many similarities between Whites and Blacks in participants' characteristics, as shown in Table 1. Blacks and Whites were similar with respect to percentage of males and females participating in the study and their income levels. While Whites overall reported more education and higher income than Blacks, we adjusted for these factors in our regression model. The age-adjusted logistic regression analysis revealed that Blacks were about a third less likely than Whites to receive a physician's recommendation for screening (O.R.=0.61 (0.53, 0.71)). The disparity remained significant after controlling for other variables including gender, educational attainment, family income, insurance coverage, and number of physician visits per year. (OR=0.82 (0.68, 0.99)).

Note that insurance status was not a significant predictor of physicians' screening recommendation but the less income reported the less likely was the respondent to receive a colorectal cancer screening recommendation. Similarly, individuals with increased education were more likely to receive a physician recommendation (see Table 2). The more physician visits reported, the more likely one was to receive a colorectal cancer screening recommendation, regardless of other factors. This remained true even after examining differences between Blacks and Whites in separate regression models.

Table 3 shows that "having never thought about having the screening test" was by far the most common reason given by both Blacks and Whites for not having a home fecal occult blood test (FOBT) within the past year, as well as for not having an endoscopy within the past 10 years, with Blacks more likely to give that reason. The lack of physician ordering of the test was the second most common reason given by Blacks and Whites alike. "Not having any problems" and "Not needing the test" were reasons cited by a substantial percentage of respondents of both racial groups. "Not having a doctor" and "The test was too painful, unpleasant, or embarrassing" were reasons given by less than 1% of respondents from both racial groups. Lack of endoscopy and lack of FOBT were found to differ significantly by race ($p<.0001$).

Discussion

Blacks were less likely than Whites to report receiving a recommendation for colorectal cancer screening from their physician after controlling for age, gender, education, family income, insurance, and number of physician visits in the past year (Table 3). This difference, while small, may help account for the increased (also small) screening rates among Whites compared with Blacks. Number of physician visits significantly increased the likelihood of receiving a colorectal cancer screening recommendation. Assuming that patients with more co-morbidities visit the doctor more often, then this study's findings suggest that they would be more likely to receive a physician recommendation to undergo colorectal screening.

Other studies have also reported that patients with co-morbidities were more likely to receive cancer screening recommendations.^{21,22}

The current study indicates that having more education and higher income increases the likelihood of receiving a screening recommendation. Factors that might inhibit a physician from recommending colorectal cancer screening include lack of insurance or inability to pay for services. However, the current study showed no relationship between insurance status and probability of receiving a screening recommendation from a physician. Even though this study analyzed for receipt of a screening recommendation rather than receipt of actual screening (with the vast majority of respondents indicating that the top three reasons for not being screened was either that they never thought about it, didn't think they needed it, or their doctor didn't order it) it is likely that an appropriate screening recommendation would have resulted in higher screening rates. In addition, the vast majority of the study population (84.3% of Whites and 86.3% of Blacks) reported seeing a physician two or more times in the past year.

One model applicable to our findings is the *Transtheoretical* or *Stages of Change* model, in which an individual's decision to take a health-promoting initiative progresses from the Pre-contemplation stage to the Contemplation stage, and thence through the Preparation, Action, and Maintenance stages.²³ It is the recommendation of the physician that moves the patient from the Precontemplation Stage ("Never thought about it") to the Contemplation and Preparation Stages. As pointed out in the limitations section of this paper, our method does not allow us to measure the Action or Maintenance Stages. This study reinforces the need for increased efforts to address the colorectal cancer disparities experienced by Blacks in the United States. It also reinforces the importance of programs aimed at motivating and enabling Blacks, particularly those with lower education, to obtain colorectal cancer screening. In addition to improving physician education, other patient health education efforts including the use of trained community health workers, health advisors, or patient navigators should be implemented on a broader scale. A recent New York City campaign was conducted to promote colonoscopy screening through public education, improved tracking systems, and use of patient navigators. This campaign increased screening rates from 40% in 2003 to over 60% in 2007.²⁴ A randomized controlled trial aimed at increasing colorectal cancer screening among African Americans examined the effectiveness of three different community interventions (one-on-one education, group education, and financial incentives). The results of this study showed that group education conducted by trained community health advisors was most effective in not only increasing knowledge but also increasing the number of African Americans who got screened.²⁵

In some settings (e.g., community health centers) CRC screening has been addressed through strategies that are independent of a physician encounter. However, our dataset did not allow us to identify the type of practice visited by respondents. In fact, there may be more than one type of practice involved—for instance, if the respondent had sought care in several different practice settings, but in none of them did the physician recommend CRC screening.

Limitations

The NHIS dataset is based on household respondents, which only allows us to examine self-reported patient and system barriers. It does not allow us to examine physician barriers, so questions such as why a physician may have been more likely to recommend or not recommend screening cannot be addressed. A study by Shieh *et al.* revealed that physicians' recommendations for colorectal cancer screening were predicted by the physician's own health beliefs and perception of their own vulnerability to colorectal cancer.²⁶ Improved physician education remains a key strategy for reaching the goal of increasing colorectal cancer screening and reducing health disparities.^{27,28}

Conclusion

The benefits of cancer screening in reducing cancer mortality will not be fully realized until health equity issues are addressed by implementing broad multidimensional strategies that translate into increased screening of high-risk populations. This study indicates that expanding health insurance coverage, while a necessary first step, is not sufficient to eliminate colorectal cancer screening disparities. There is a need to increase educational campaigns to raise awareness of colorectal cancer screening among Blacks, and to provide facilitative services (such as patient navigators) to ensure follow-through on this motivation. To overcome the racial disparity in physician screening recommendations, future efforts should extend beyond physicians to trusted members of the Black community. Successful models should be replicated and taken to scale on a national level.

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Notes

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Table 1

Characteristics of Respondents 50 –74 Years Old Who Visited A Physician, NHIS 2005

Characteristics	Whites (Non-Hispanic) n (%)	Blacks (Non-Hispanic) n (%)
SEX		
Male	2177 (46.9%)	354 (42.3%)
Female	2807 (53.1%)	537 (57.7%)
Educational Attainment		
Less than High School	556 (10.8%)	227 (24.1%)
High School Graduate/GED	1533 (31.4%)	273 (33.5%)
Some College/ Technical School	1383 (27.6%)	246 (27.4%)
College Graduate	1487 (30.1%)	130 (14.9%)
Income Level		
Less than \$20,000	803 (12.2%)	318 (29.8%)
\$20,000– \$34,999	711 (13.2%)	154 (18.7%)
\$35,000– \$54,999	818 (16.7%)	117 (15.7%)
\$55,000 and over	1622 (39.8%)	136 (20.9%)
More than \$20,000 but no details	765 (17.9%)	99 (14.8%)
Health Insurance Coverage		
Private only	2623 (56.0%)	387 (47.2%)
Medicare/Medigap only	465 (8.3%)	113 (11.7%)
Private and Medicare/Medigap	849 (15.8%)	64 (6.6%)
Other public	590 (10.4%)	208 (21.4%)
None/single service plan	453 (9.4%)	115 (13.0%)
Number of Physician Visits/year		
1	757 (15.7%)	123 (13.7%)
2–5	2378 (48.0%)	450 (51.6%)
6 or more visits	1849 (36.3%)	318 (34.7%)

TABLE 2

Probability of Receiving A Colorectal Cancer Screening Recommendation from A Physician: Results from Logistic Regression Model, NHIS 2005

Characteristics	O.R.	95% CI (lower, upper)
Race:		
Whites (Non-Hispanic)		Reference group
Blacks (Non-Hispanic)	0.82	(0.68, 0.99)
Age	1.05	(1.04, 1.07)
Sex		
Males	0.92	(0.81, 1.05)
Females		Reference group
Education		
< High School	0.51	(0.41, 0.65)
High School Grad/GED	0.70	(0.59, 0.83)
Some College/Technical Sch.	0.80	(0.67, 0.95)
College Grad		Reference group
Family Income		
Less than \$20,000	0.44	(.35, 0.54)
\$20,00–\$34,999	0.62	(.50, 0.76)
\$35,000–\$54,999	0.69	(.58, 0.82)
\$55,000 and over		Reference group
Health Insurance		
Private only		Reference group
Medicare/Medigap only	0.88	(0.67, 1.14)
Private & Medicare/Medigap	1.00	(0.80, 1.25)
Other Public	1.22	(0.99, 1.51)
None/single service plan	0.84	(0.67, 1.05)
Number of Physician visit/year		
1		Reference group
2 to 5	1.68	(1.41, 2.00)
6 or more	2.29	(1.91, 2.76)

O.R.= Odds Ratio

CI= Confidence Interval

Table 3

Whites Versus Blacks Reported Reasons for not Undergoing Either A Home FOBT Within the Past Year, or An Endoscopy Within the Past 10 Years. Study Limited to Non-Hispanic (NH) Blacks and Whites Ages 50–74 Without A Family History of Cancer, NHIS 2005

LACK OF SCREENING	FOBT		Endoscopy	
	Whites, NH %	Blacks, NH %	White, NH %	Black, NH %
Respondents' Reasons cited				
Never thought about it	48.6%	56.9%	44.3%	58.5%
Thought I Didn't need it	10.1%	11.3%	9.6%	11.6%
Doctor Didn't order it	24.5%	21.3%	19.9%	16.7%
Haven't had any problems	9.1%	6.3%	12.5%	6.6%
Put it off/Didn't get around to it	2.5%	0.9%	5.3%	1.9%
Too Expensive/no insurance	0.6%	0.8%	2.3%	2.4%
Too Painful, unpleasant, embarrassing	0.5%	0.4%	2.7%	0.8%
Had another colorectal exam	1.8%	0.6%	0.3%	0.0%

FOBT= Fecal Occult Blood Test