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Sociocultural and health correlates related to colorectal cancer screening adherence among urban African Americans

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Abstract

Background—Colorectal Cancer (CRC) incidence and mortality are highest among African Americans. CRC screening rates among African Americans lag behind Caucasians. Research has examined the role of CRC screening knowledge and beliefs and their relationship to CRC screening adherence. However, studies have not examined the effect cultural identity, social support, CRC beliefs, an informed decision and having a chronic disease has on CRC screening among African Americans.

Objectives—This study examined CRC screening adherence among African Americans within the context of sociocultural variables, an informed decision and health factors.

Methods—A secondary data analysis was performed on survey data collected from 129 African American men and women.

Results—Social support and family influence was related to having a colonoscopy. Having diabetes was negatively related to having a colonoscopy. There was no relationship between having a primary care provider and making an informed decision about colorectal cancer screening. Religiosity and having a primary care provider predicted colonoscopy.

Conclusions—The results indicate that certain sociocultural variables are related to colonoscopy. However, those same variables may not be related to or predictive of FOBT adherence. The diagnosis of diabetes may present a challenge to CRC screening adherence.

Implications for Practice—The results of the study suggest that social support and family influence concerning CRC screening be assessed may provide additional support to colonoscopy adherence. The results also suggest that diabetic patients may require additional intervention to increase colonoscopy adherence rates.

Keywords

colorectal cancer screening; informed decision; social support; African Americans; health factors; colorectal cancer beliefs; diabetes; primary care provider

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Colorectal cancer (CRC) is the third leading cause of cancer death among African Americans (AA).¹ Incidence and mortality rates among African Americans exceed those of Caucasians even when controlling for socioeconomic status.¹ Routine CRC screening is one of the ways to prevent CRC and detect CRC at its earliest most treatable stage.¹ Compared to Caucasians, African Americans are less likely to follow the recommended CRC screening guidelines.^{1, 2} In fact, less than 9% of African Americans report having had a fecal occult blood test (FOBT) at the recommended screening interval.¹ Less than 50% of AA reported having had a colonoscopy at the recommended screening interval and less than 50% reported having either test.¹ Healthy People 2020 has selected CRC screening as a leading health indicator for the United States and a goal of 70% of all Americans having CRC screening within the recommended time interval.³ Past research has examined many psychosocial and socioeconomic factors in an effort to determine salient factors that may lead to increased CRC screening rates. Absent in some past research is the examination of the combination or interaction of the social and cultural elements which are known as sociocultural factors. Research examining sociocultural factors; such as cultural identity, social support, family influence, and socioeconomic factors with well researched factors (i.e., CRC beliefs, CRC screening adherence) in one study has not been extensively done with regards to colorectal cancer screening. The results of the current study will lead to further understanding the relationships between sociocultural factors, CRC beliefs, an informed decision, health factors and CRC screening uptake/adherence (Figure 1). This additional knowledge may lead to innovative approaches to increase CRC screening within the recommended guidelines.

Colorectal cancer screening

CRC health disparities are major public health concern as identified by the American Cancer Society, the Centers for Disease Control and other national organizations.^{1,4} Compared to other ethnic groups, African Americans have the highest incidence and mortality rates for CRC, and this health disparity exists even after controlling for socioeconomic status.¹ Past research has found that most CRC is preventable with regular screening that is within the recommended guidelines and the removal of pre-cancerous polyps.^{1, 5} Lack of adequate insurance for CRC screening is a barrier to CRC screening adherence among African Americans.^{1,2, 6} However, 73% of African Americans age 50-64 years old have coverage for CRC screening through their employer-sponsored health insurance or public health insurance plans.⁴ Yet, over 50% of African Americans ages 50-64 years old have not been screened for CRC within the recommended guidelines.^{1,2,6} Additional barriers to CRC screening for African American women have been identified such as negative beliefs about CRC screening, inaccurate perceptions of their risk to CRC and fear.^{5,7} However, interventions developed that address negative beliefs about CRC screening, perceptions of CRC screening, fears and CRC susceptibility have not resulted in sustained CRC screening rates.

Cultural identity

An individual's cultural identity is comprised of the important values and beliefs that make up the uniqueness of an ethnicity or race.⁸ Factors of cultural identity examined among

African Americans include collectivism, religiosity, racial pride, present-time orientation and future-time orientation.^{8, 9} Time-orientation and religiosity have been found to be predictive of cancer related behaviors among African Americans.⁹⁻¹¹

The number of studies examining the relationship between cultural identity and colorectal cancer screening among African Americans is limited at best.¹² The relationship between cultural identity and cancer screening behaviors among African Americans is not yet firmly established. The study reported here addresses these gaps in the literature regarding the relationship between cultural identity and the sociocultural factors that impact CRC screening among African Americans.

Social support

Social support is the combination of resources, such as emotional support, tangible support (i.e., money, transportation, etc.), physical support, and other types of resources provided by an individual's friends/family.¹² Social support has been found to be important to an informed decision about CRC screening.¹² Previous research found that social support was predictive of positive beliefs about CRC screening.¹² However, the impact of social support on CRC screening adherence is mixed.¹³

CRC beliefs

CRC beliefs are the opinions and attitudes an individual has about colorectal cancer and colorectal cancer screening.⁷ Beliefs about CRC susceptibility/fatalism, saliency, worries/expected outcomes and barriers have been found to be related to colorectal cancer screening intention and CRC screening adherence among African Americans.^{7, 15}

However, solely addressing CRC beliefs has not led to sustained increases in colorectal cancer screening among African Americans.^{7, 15} Additional aspects of an individual, such as cultural identity, family support and influence, an informed decision about CRC screening, the presence of chronic disease and having a health care provider may yield new information to develop novel colorectal cancer screening interventions for African Americans.

Informed decision

An informed decision about CRC screening is defined as when an individual understands the risks and benefits of CRC screening, understands CRC test characteristics they value and their preferred CRC screening test.^{12, 16, 17} A study examining decision making related to CRC screening compared four focus groups (African American men, African American women, White men, and White women) found that African American women did not understand the details of CRC screenings (FOBT, Colonoscopy).¹⁸ Understanding the details of CRC screening is essential to making an informed decision about CRC screening. Understanding the factors that are related to an informed decision about CRC screening rates and how an informed decision relates to CRC screening adherence is important to developing interventions that may increase CRC screening rates.

Health factors

Health factors are the aspects of an individual's health that may influence health-related decisions. These factors include the presence of comorbidities, perceived trust in the health care provider, perceived patient-provider communication among others. Studies examining the factors influencing the selection of a particular CRC screening option found that a "doctor's recommendation" and viewed their primary care provider as a trusted source of health information related to CRC screening as reasons for CRC screening adherence.^{19, 20} One study the participants desired to leave the type of CRC screening test decision up to their physician due to the participant's perception of the knowledge and experience of their physician.¹⁹ In another study, the participants viewed the CRC screening recommendations of the physician as a powerful influence and adhered to the CRC screening recommendations of the physician.²⁰

For some individuals in need of CRC screening, chronic diseases may be a barrier. Previous research indicates that chronic diseases interfere with CRC screening for many individuals and that diabetes was positively associated with CRC mortality in both women and men.^{20,21}

Research Design and Methods

This secondary data analysis used a correlational design to analyze the factors that influence colorectal cancer screening among African Americans. The sample used for this study was the same sample (N = 129) used in a study of CRC screening informed decisions among African Americans.¹²

Participants

The participants (N = 129), 64 men and 65 women, were recruited using study flyers distributed via African American businesses and groups, and through referrals of those who already fit the inclusion criteria listed on the advertisement. The inclusion criteria of the study dictated that the participants be African American men and women, at least 50 years of age, and English-speaking. The participants could not have a personal history of colorectal cancer. The power analysis was conducted using G*Power software²² and it indicated that in order to have 0.80 power and detect a medium effect size (0.3) and an alpha of .05, a sample size of 128 was required. For their time, participants were given a \$25 gift card for 30 minutes spent completing the study questionnaire.

Instruments

Cultural identity was measured using the Cultural Identity Sub-Scales which have 32-items and measure African American cultural characteristics; collectivism, religiosity, racial pride, present time orientation and future time orientation.⁸ There is no total score for the cultural identity scale and low scores on the subscales indicate low perceptions of the cultural characteristics. Since the original subscales were developed and validated among African American women, modified scales, appropriate for both genders to respond, were used. The reliabilities were as follows: religiosity ($\alpha = .89$), collectivism ($\alpha = .82$), racial pride ($\alpha = .81$), present-time orientation ($\alpha = .71$), future-time orientation ($\alpha = .70$).

Social Support was assessed using the Medical Outcomes Study Social Support Survey (MOS-SSS).²³ The 19 item MOS-SSS measures perceived availability of social support that includes: emotional support, informational support, tangible support, affectionate support and positive social interactions²³. A high total score indicates high perceived social support ($\alpha = .93$).

Family influence was measured using a 4-item scale that assessed the influence of the family on the likelihood of completing and/or supporting colorectal cancer screening. The four items were rated by the participants using a 5-point Likert scale, with 1 corresponding with strongly disagree and 5 representing strongly agree. The 4-items were totaled to give a family influence score and a high score indicates high family influence for colorectal cancer screening ($\alpha = .74$).

Socioeconomic and health factors were measured using original demographic surveys. The demographic survey included items on age, educational attainment, household income, marital status, employment, insurance status, and CRC screening. The health factors survey included items on CRC screening adherence, having a health care provider, and assessed what type of chronic disease(s) the participant had, if any.

Colorectal cancer beliefs were measured using the Colorectal Cancer Perceptions Scale.⁷ Participants rated the 35 items on CRC susceptibility, severity, benefits and barriers to screening using a 5-point Likert scale, with 1 corresponding with strongly disagree and 5 representing strongly agree. The scale was reverse scored to ease data analysis. High scores on the scale indicate that the respondent has positive perceptions about colorectal cancer and colorectal cancer screening ($\alpha = 0.92$).

An informed decision about colorectal cancer screening was assessed using a 28-item scale was used to assess colorectal cancer screening preferences fecal occult blood testing(FOBT) and digital rectal examination (DRE),and colonoscopy, understanding of colorectal cancer screening, knowledge of risks related to colorectal cancer screening, value of colorectal cancer screening and decisional consistency. Low scores indicate a low informed decision ($\alpha = .68$).

CRC adherence was assessed using two questions. The first question assessed if the participant had ever had a FOBT and/or a colonoscopy. The second question assessed if the participant had a FOBT and/or colonoscopy in the past 5 years. The participant could select either method, not sure or neither method.

Data Analysis

Descriptive statistics were obtained for all variables and to provide a profile of the participants. Pearson product moment correlations were used to test the strength and direction of the relationships between demographic variables, cultural identity, social support, CRC beliefs, an informed decision about CRC screening, health factors, FOBT and colonoscopy. Multiple regression analyses were conducted to examine the effects of the study variables on FOBT and colonoscopy. Statistical significance was set at alpha level of .05.

Results

Sample Characteristics

The mean age of the respondents was 58.5 years of age. Of the participants, 29.9% were married and 70.1% were not married (never married, divorced, or widowed). Slightly less than half (41.6%) of the sample reported an annual income of less than \$9,000 to \$29,000. Of the sample, 22.6% had high school degrees, and 53.2% of the sample had at least some college education. Of the 129 participants, 88.6% had a primary care provider and 100% had insurance that covered colorectal cancer screening. Moreover, 92% did not have a family member with colorectal cancer. Of the participants, 75.2% had not had fetal occult blood testing and 41.6% had not had a colonoscopy. Among the other health concerns the participants reported included high blood pressure (53.5%; $n = 69$), diabetes (23.0%; $n = 30$), and high cholesterol (23.0%; $n = 30$).

Cultural identity and colorectal cancer screening

The relationship among religiosity ($r = .32, p < .01$) and future time orientation ($r = .28, p < .01$) were moderately, significantly related to having a colonoscopy. Present-time orientation was moderately, negative and significantly related to FOBT ($r = -.27, p < .01$; Table 2).

Colorectal cancer beliefs and colorectal cancer screening

There was a small, negative, significant relationship between CRC beliefs and having a colonoscopy ($r = -.25, p < .01$). There was no statistically significant relationship between CRC beliefs and FOBT completion.

Family support and influence, and colorectal cancer screening

The correlations indicate that the relationship between family support ($r = .19, p < .05$) and family influence ($r = .24, p < .01$) was small and significantly related to having a colonoscopy. However, neither family support nor family influence was significantly related to having FOBT.

Informed decision and colorectal cancer screening

The relationship between an informed decision and having a colonoscopy was not statistically significant. However, there was a medium and statistically significant relationship between FOBT and an informed decision ($r = .36, p < .01$).

Chronic disease, primary care provider, and colorectal cancer screening

There was a small, negative relationship between having diabetes and having a colonoscopy ($r = -.23, p < .05$). There was no relationship between having a primary care provider and an informed decision about colorectal cancer screening. There was a small and significant relationship between having a primary care provider and having a colonoscopy ($r = .27, p < .01$). There was no relationship between having a FOBT and having a primary care provider (Table 3).

Socioeconomic factors and colorectal cancer screening

The relationships between education, income and having a FOBT were significant. Additionally, the relationships between education, income and having a colonoscopy were small yet significant (Table 3).

Predictors of colorectal cancer screening

The multiple regression analyses were performed to determine the predictors of CRC screening. The analysis of cultural identity, social support, CRC beliefs, an informed decision about CRC screening, health factors, and FOBT indicate that collectivism, present-time orientation and an informed decision about colorectal cancer screening were significant predictors of FOBT (Table 4). Add that the model was not significant. The analysis of cultural identity, social support, CRC beliefs, an informed decision about CRC screening, health factors, and colonoscopy indicate that religiosity and having a primary care provider were significant predictors of colonoscopy (Table 4).

Discussion

Findings from this study identify possible new factors that influence CRC screening and give greater clarity concerning factors previously examined. In this study, the relationships between certain cultural factors were moderate and significantly related to colonoscopy and FOBT. Prior to this study, there were very few studies that examined how specific cultural characteristics effected colonoscopy and FOBT.⁶ These results add to what is known about how unique cultural characteristics effect CRC screening adherence and may prove extremely helpful in developing new interventions to address sustained CRC screening adherence among African Americans.

An interesting finding from this study was the negative relationship between CRC beliefs and colonoscopy. Additionally, there was no relationship between CRC beliefs and FOBT completion. These results contradict previous research on CRC beliefs and CRC screening adherence.²⁴ Rawl et al. found that CRC beliefs were significantly and positively related to CRC screening completion. The results of this study may differ from previous research because the current study's participants were recruited from the community and not from a primary care clinic.²⁴ Having a sample recruited from primary care clinics may results in certain biases in that the patient population may already be interested in CRC screening and motivated to complete the recommended CRC screening.

Family support and family influence were positively related to having colonoscopy. These results add to the body of knowledge concerning the relationship of social support and influence and colonoscopy adherence. Previous research has only examined social ties and CRC screening adherence.¹³ While the number of social ties may be important among African Americans, the type of support the members of the social network provides is critical when designing innovative interventions to increase CRC adherence among African Americans. By identifying the type of support, time and resources can be devoted to the type of support (i.e. information, tangible, emotional, etc.) that is more likely to increase CRC screening adherence. Conversely, family support and influence was not related to having

FOBT. This result may be explained because FOBT does not require the aid of family or friends as FOBT is completed in one's home and a colonoscopy requires tangible support in the form of transportation assistance after the colonoscopy is completed.

An informed decision was not significantly related to colonoscopy completion. Yet, an informed decision was related to FOBT. The mixed results point to the complexity of making an informed decision for either colonoscopy or FOBT. FOBT and colonoscopy require differing amounts of knowledge related to risks, benefits and understanding what the test results mean.

Of the chronic diseases assessed for this study, diabetes was the only disease related to CRC screening. Diabetes was associated with not having a colonoscopy. It is not clear why this association exists.

Having a primary care provider was positively related to having a colonoscopy. The relationship between having a primary care provider and CRC screening is supported by previous research.^{5, 25, 26} Having a primary care provider was not related to having FOBT. These findings related to FOBT are unique in that most studies grouped colonoscopy and FOBT together to make up CRC screening. It is possible that since the FOBT is a less invasive CRC screening that importance of having a primary care provider is minimized.

Socioeconomic factors, such as education and income were related to FOBT and colonoscopy adherence. These results are support by previous research on CRC screening adherence.^{19, 26}

The multiple regression analysis results of the predictors of FOBT showed that factors of cultural identity (collectivism, present-time orientation), and an informed decision were significant predictors. In the study, the predictors of colonoscopy were religiosity, a cultural identity factor, and having a primary care provider. These new findings add to the body of knowledge about the predictors of FOBT and colonoscopy. Previous research has not included sociocultural variables such as cultural identity, and an informed decision about CRC screening in the examination of FOBT and colonoscopy predictors.^{26, 27} The fact that having a primary care provider predicts colonoscopy is well supported by previous research.²⁵

Limitations

While the results of this study supports previous research and this study's new results extends the body of knowledge concerning factors that influence CRC screening, limitations of this study have to be addressed. First, participants were exclusively African Americans. This means that the results are not generalizable to other people of differing race or ethnicity.

Second, the study was limited to African Americans living in an urban city in the Midwest. The experiences of African Americans living in other urban cities or suburban or rural area may not have the same beliefs about CRC screening or similar experiences with CRC screening.

Lastly, using subjective measures may lead to self-report bias. Responses given by participants may have been socially acceptable, instead of accurate responses and thus affect the outcomes of the study.

Implications for Practice

Of this study's findings, two in particular, the relationships between social support and CRC screening and being a diabetic and not having colonoscopy, can be immediately addressed in clinical practice.

This study found that patients with diabetes were less likely to have colonoscopy. Thus, African American diabetic patients may require additional evidence-based interventions such as follow-up calls, targeted information, etc. to assist them to complete a colonoscopy.²⁸ A nurse caring for diabetic patients should assess perceived barriers to colonoscopy prior to and after colonoscopy to address the patient's questions and concerns. This type of assessment and interaction may facilitate colonoscopy adherence by anticipating and addressing the barriers to colonoscopy preemptively. The small number of participants in this secondary data analysis reporting to be diabetic (n= 30) warrants further research on the relationship between diabetes and colonoscopy.

Additionally, nurses can assess a patient's social support related to CRC screening. The general types of social support are: emotional support (the expression of positive affect, empathetic understanding, and the encouragement of expressions of feelings); informational support (the offering of information, advice, guidance and feedback); tangible support (the provision of material aid or behavioral assistance); affectionate support (involving expressions of love and affection); and positive social interactions (the availability of other persons to do fun things with you).²³ After the patient's social support needs have been identified, the nurse can tailor what is done for the patient based on the assessment. The nurse would be able to make referrals, provide CRC screening information and guidance, assist with locating transportation resources, and inquire if members of the patient's family had colorectal cancer screening to elicit emotional support and positive social interactions.

Routine colorectal cancer screening has the potential to reduce the health disparity in terms of colorectal cancer incidence and mortality experienced by African Americans. Nurses, through assessment of social support and linking to resources to meet the needs of their patients, have a vital role in assisting African American patients adhere to routine colorectal cancer screening guidelines.

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FIGURE 1.
Conceptual model of current study

Table 1

Sample Characteristics

Characteristics (<i>N</i> = 129)	Number	Percent ^{<i>a</i>}
<u>Gender</u>		
Male	64	49.6
Female	65	50.4
<u>Age^{<i>b</i>}</u>		
50-59 years	81	63.8
60-69 years	36	28.4
70-79 years	5	3.9
80 years and over	5	3.9
<u>Educational Level^{<i>b</i>}</u>		
High School Graduate or less	43	34.7
Some College	63	50.8
Bachelor's Degree or higher	18	14.5
<u>Marital Status^{<i>b</i>}</u>		
Divorced	39	30.7
Married	38	30.0
Single/never married	30	23.6
Widow/widower	20	15.7
<u>Personal Income^{<i>b</i>}</u>		
Less than \$9,000	10	8.3
\$10,000 to \$29,000	40	33.3
\$30,000 to \$49,000	44	36.7
\$50,000 to \$69,000	20	16.7
\$70,000 to \$89,000	6	5.0
<u>Health Insurance</u>		
Yes	129	100
No	0	0

^{*a*}Percentage indicates valid percentage.

^{*b*}Because of missing data, *n* values do not total sample size.

Table 2

Correlations Between Variables (N = 129)

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Collectivism	—										
2. Religiosity	.36 ^b	—									
3. Racial pride	.13	.23 ^b	—								
4. Present-time orientation	-.24 ^b	-.18 ^a	-.10	—							
5. Future-time orientation	.37 ^b	.45 ^b	.02	-.32 ^b	—						
6. Colorectal Cancer Beliefs	.26 ^b	.21 ^a	-.14	-.33 ^b	.35 ^b	—					
7. Family Influence	.04	.14	.26 ^b	.03	.13	.09	—				
8. Family support	.40 ^b	.27 ^b	-.04	-.31 ^b	.30 ^b	.50 ^b	.11	—			
9. Informed decision	.16	.15	.06	-.31 ^b	.11	.30 ^b	.03	.24 ^b	—		
10. FOBT	.03	.03	.15	-.27 ^b	-.01	-.22	.08	.13	.36 ^b	—	
11. Colonoscopy	.16	.32 ^b	.077	-.12	.28 ^b	-.25 ^b	.24 ^b	.19 ^a	.12	.18	—

Note.

^a $p < .05$,

^b $p < .01$

Table 3

Correlations Between Variables (N = 129)

Measure	1	2	3	4	5	6	7	8
1. Primary Care Provider	—							
2. High Blood Pressure	.06	—						
3. Diabetes	.07	.15	—					
4. High Cholesterol	-.04	.29 ^b	.13	—				
5. Fetal Occult Blood Test	.03	-.01	-.05	.04	—			
6. Colonoscopy	.27 ^b	-.10	-.23 ^a	.04	.18 ^a	—		
7. Education	.20 ^a	-.04	.02	.13	.19 ^a	.21 ^a	—	
8. Income	.16	-.04	.05	.15	.31 ^a	.19 ^a	.45 ^b	—

Note.

^a $p < .05$,^b $p < .01$

Table 4
Multiple Regression Analysis-Study Variables (Colonoscopy)

	<i>B</i>	<i>SE B</i>	β	<i>t</i>	Sig. of <i>t</i>
(Constant)	−1.411	.784		−1.800	.075
Collectivism	.002	.020	.013	.122	.904
Religiosity	.028	.013	.231	2.132	.035 ^a
Racial Pride	.000	.000	−.110	−1.198	.234
Present Time Orientation	.002	.022	.009	.084	.933
Future Time Orientation	.021	.024	.099	.878	.382
CRC Beliefs	.004	.004	.129	1.038	.302
Family Influence	.013	.015	.087	.916	.362
Social Support	−.003	.005	−.064	−.522	.603
Informed Decision	−.001	.012	−.010	−.094	.925
High Blood Pressure	−.132	.093	−.132	−1.421	.159
Diabetes	−.007	.119	−.006	−.061	.951
Primary care provider	.574	.173	.351	3.306	.001 ^a
Education	.014	.061	.024	.231	.818
Yearly income	−.028	.055	−.057	−.512	.610

R^2 .030

F 1.95

^a*P* < .05

^b*P* < .01