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Social and cultural factors are related to perceived colorectal cancer screening benefits and intentions in African Americans

Jason Q. Purnell · Mira L. Katz · Barbara L. Andersen · Oxana Palesh · Colmar Figueroa-Moseley · Pascal Jean-Pierre · Nancy Bennett

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Abstract Models that explain preventive behaviors, such as colorectal cancer (CRC) screening, do not account for social and cultural factors relevant to African Americans. This exploratory study examined the relationship between socio-cultural factors (e.g., traditional acculturative strategy, group-based medical mistrust, physician ethnicity, and group-level perceptions of susceptibility) and perceived benefits, perceived barriers, and CRC screening intentions among African Americans ($N = 198$; Age: $M = 59.7$, SD = 9.9; 65% female; 44% household income $50,000+). Hierarchical multiple regression was used to test the following models with perceived benefits, perceived barriers, and screening intentions as the outcomes: (a) traditional acculturative strategy × medical mistrust; (b) physician's ethnicity × medical mistrust; (c) group susceptibility × medical mistrust; and (d) group susceptibility × traditional acculturative strategy. Results revealed that perceiving high group susceptibility while being both more culturally traditional and less mistrustful was associated with more perception of screening benefits. Greater intention to be screened was associated with perceiving high group susceptibility while having a more traditional cultural orientation and low levels of mistrust in those with African American physicians. These results suggest that it may be beneficial to include these social and cultural factors in behavioral interventions to increase CRC screening among African Americans.

Keywords Colorectal cancer · Screening · African American · Culture

J. Q. Purnell (✉)
Health Communication Research Laboratory,
Washington University in St. Louis, 700 Rosedale Ave.,
Campus Box 1009, St. Louis, MO 63112-1408, USA
e-mail: jpurnell@gwbmail.wustl.edu

M. L. Katz · B. L. Andersen
Ohio State University, Columbus, OH, USA

O. Palesh · P. Jean-Pierre · N. Bennett
University of Rochester School of Medicine & Dentistry,
Rochester, NY 14642, USA

C. Figueroa-Moseley
University of California, Davis, Davis, CA, USA

Introduction

Colorectal cancer (CRC) is the third leading type of cancer and cause of cancer deaths among African Americans, and African Americans are 45% more likely than Whites to die of the disease (American Cancer Society 2008). CRC incidence rates also are higher for African Americans compared to Whites (American Cancer Society 2007b). More than half of the excess CRC mortality among African Americans is attributable to advanced stage disease, and 5-year survival rates are worse for African Americans than for Whites (Bradley et al. 2001; Ghafoor et al. 2002; American Cancer Society 2007b). In addition, only 38.9% of African Americans aged 50+ years have had CRC screening within recommended guidelines compared to 44.2% of Whites (American Cancer Society 2007a). Because of the increased risk of CRC among African Americans, it has been recently suggested that this population begin CRC screening at age 45 (Agrawal et al. 2005).

Although several theoretical frameworks have been proposed to understand CRC screening behavior, most studies have not included social and cultural variables relevant in this specific minority population (Becker 1974; Janz and Becker 1984; Myers et al. 1994). The Health

Belief Model has been frequently used in the CRC literature, but the model does not adequately conceptualize culture-specific factors relevant to African Americans. Thus, a study was undertaken to expand upon the Health Belief Model in order to make it culturally appropriate for the prediction of CRC screening behavior among the African American population (Purnell and Andersen 2007). In our review of the literature, we identified several key factors associated with health behaviors in racial and ethnic minority populations and in the African American population in particular, including mistrust (LaVeist et al. 2000; Thompson et al. 2004), physician ethnicity (Saha et al. 1999), group-level susceptibility (Ashing-Giwa 1999; Sanders Thompson et al. 2007), and acculturation (Snowden and Hines 1998; Risendal et al. 1999; Tang et al. 1999, 2001; Maxwell et al. 2000; Honda 2004; Abraido-Lanza et al. 2005; Ard et al. 2005; Honda and Gorin 2005; Shah et al. 2006). In our previous work, we were able to demonstrate that these sociocultural factors were significantly related to perceived barriers and benefits of CRC screening and intention to be screened. Studies that accurately reflect within-group variability while accounting for broad cultural commonalities offer the opportunity to identify salient sociocultural factors that either facilitate or impede the adoption of preventive health behaviors, like CRC screening.

The exact definition of racial groups, and even the possibility of such definition, remains controversial (see LaVeist 2005 for a discussion). However, for the purposes of this study, individuals with self-identified American nationality and ancestral origins in any of the black racial groups of Africa were defined as African American. Theorists have consistently noted that traditional African American cultural values and assumptions emphasize a collectivist cultural orientation as well as an adaptive mistrust of mainstream institutions (i.e., cultural mistrust) that is based upon a history of racial discrimination (Terrell and Terrell 1981; Myers 1993; Parham et al. 1999). The collectivist outlook characteristic of traditional African American cultural orientation and a history of discrimination may result in an increased emphasis on threats to the group, including health threats such as cancer. It is possible that this perception of group-level susceptibility may influence attitudes towards preventive health behaviors and may motivate African Americans to complete CRC screening (Ashing-Giwa 1999). Prevailing cultural patterns notwithstanding, it is important to account for the considerable variability in African American modes of cultural expression. One way of addressing this within-group diversity is by examining African American *acculturation*, which attempts to identify individuals who have maintained a traditional African American cultural orientation versus embracing mainstream cultural values (Snowden and Hines 1999; Obasi 2004). Studies have shown a significant relationship between acculturation and health behaviors, including cancer screening in Asian American, Native American and Hispanic populations (Risendal et al. 1999; Tang et al. 1999, 2001; Maxwell et al. 2000; Honda 2004; Abraido-Lanza et al. 2005; Honda and Gorin 2005; Shah et al. 2006), and among African Americans (Snowden and Hines 1998; Ard et al. 2005). In general, individuals with a more traditional, or less acculturated, cultural orientation have been screened at lower rates.

Patient trust of physicians is one of the strongest correlates of adherence to medical recommendations and treatments (Safran et al. 1998; Thom et al. 1999; O'Malley et al. 2004) and good provider-patient communication has been associated with completing CRC screening within recommended guidelines (Katz et al. 2004). Due to experiences of discrimination, African Americans may be more mistrustful of physicians and more dissatisfied with health care than Whites (LaVeist et al. 2000). Examining the construct of group-based medical mistrust (i.e., suspicion of the treatment provided to an individual's racial or ethnic group by mainstream health care systems and health professionals) investigators have reported that medical mistrust is associated with poorer adherence to breast cancer screening recommendations (Thompson et al. 2004). However, African Americans with physicians of the same race are more likely to rate their physician as excellent and to report receiving preventive care (Saha et al. 1999). This finding suggests that mistrust may be attenuated and the quality of care enhanced by having a physician of the same race. However, there are very few rigorous studies examining the impact of race concordance on patient mistrust and patient care.

This secondary analysis examined the relationship between social and cultural factors (i.e., group-level perceptions of susceptibility to colorectal cancer, African American acculturation, physician ethnicity, and group-based medical mistrust) and perceived benefits, perceived barriers, and intention to be screened for colorectal cancer. In this study we extended our previous work and predicted that the interactions between group-level susceptibility, acculturation, physician ethnicity, and mistrust would significantly influence CRC screening attitudes and intention among African Americans study participants.

Methods

Recruitment and characteristics of participants

This cross-sectional survey study was approved by the Institutional Review Board at the Ohio State University.

In order to ensure the broadest possible representation with respect to socioeconomic and other characteristics, organizations comprising a sizeable proportion of African Americans were identified and consulted in two large Midwestern cities. Among these were a large organization of African American clergy, several large social and fraternal organizations, and several places of employment. We chose to partner with these community organizations and employed a convenience sample and self-administered survey model because of the well-established difficulty of recruiting African Americans to health-related research studies (Corbie-Smith et al. 1999). We believed that by reaching African Americans through trusted institutions and a familiar investigation modality (surveys), we would increase the number of individuals willing to participate. We also viewed this as a formative stage of the research process, after which significant findings would be followed up in more rigorous future studies.

A total of 12 organizations were contacted and a letter was sent to the leaders of these organizations. The letter explained the purpose of the study and asked the leader to designate a contact person. Of the 12 organizations, 10 designated a contact person for the study, including 4 churches, 3 social/fraternal groups, and 3 work sites. The churches had memberships ranging from 1,000 to 2,000, were predominantly African American, and were all located in urban settings. Two of the African American social/fraternal groups had exclusively male memberships ranging from 100 to 150 members. The third social/fraternal group had an exclusively female membership of approximately 150–200 women. African American employees were also recruited at a local office of a national shipping company, a local hospital, and large Midwestern university. Information was not available on the total number of African American employees in these sites. Repeated attempts to reach the contact person at one church were unsuccessful, leaving 9 groups (3 of each type) participating in the study. The contact person at each site aided in coordinating the date, time, and space (e.g., church sanctuary, meeting rooms, etc.) for the assessment and assisted in the recruitment process. Announcements about the study appeared in church bulletins and in organization newsletters.

On the day of the study at each location, trained research assistants briefly explained the purpose of the study to participants and reviewed instructions for completing the self-administered questionnaire. During its development the questionnaire was analyzed for readability. It had a Flesch–Kincaid Grade Level score of 8.1, representing text written at the 8th grade reading level. Scores between 7.0 and 8.0 are considered optimal for most documents. The Flesch Reading Ease score was 59.7 on a scale from 0 to 100. Scores between 60 and 70 are considered optimal. Individuals had to be able to read and write in English in order to be eligible for the study. Participants completed the questionnaire in a group setting and were provided with $15 in appreciation of their time. When the questionnaire had been completed each participant was provided with information about CRC screening and prevention.

The study was limited to those aged 45 and older. Individuals with a personal history of cancer at any site, chronic colorectal disease (e.g., Crohn's disease or ulcerative colitis), or currently being treated for a life-threatening disease or severe mental disorder (e.g., schizophrenia, dementia, Alzheimer's disease), and pregnant women were excluded. A total of 203 African American adults were accrued to the study. Four individuals were excluded from the study due to a personal history of chronic colorectal disease, and one individual was excluded because of the age requirements of the study.

Measures

Group susceptibility

Three items from the Colorectal Cancer Screening Questionnaire (CCSQ; Vernon et al. 1997) assess perceptions of the probability of developing colorectal polyps and cancer. These items were modified for this study to assess group-level perceptions (e.g., "I believe African Americans are very likely to develop colorectal cancer or polyps"). Items are rated on a 4-point Likert scale from 1 = strongly agree to 4 = strongly disagree, and coefficient alpha was .94.

Traditional acculturation

The traditional subscale of the Measurement of Acculturation Strategies for People of African Descent (MASPAD; Obasi 2004) assesses adoption of traditional modes of cultural expression. Twenty-two items are rated on a 6-point Likert scale from 1 = strongly disagree to 6 = strongly agree, and coefficient alpha was .86. A sample item is, "It is vital for me to be actively involved in the Black community."

Physician ethnicity

Study participants who indicated that they had a regular health care provider subsequently were asked to identify the race/ethnicity of that individual. For the purposes of this study, responses were coded as African American or not African American.

Medical mistrust

The Group-Based Medical Mistrust Scale (GBMMS; Thompson et al. 2004) measures suspicion of mainstream

health care systems, treatment, and professionals. Twelve items are rated on a 5-point Likert scale from 1 = strongly disagree to 5 = strongly agree. Scores range from 12 to 60. A sample item is: "Doctors and health care workers treat people of my ethnic group like 'guinea pigs.'" Coefficient alpha was .88 for the total scale.

Perceived benefits, perceived barriers, and intentions

The Colorectal Cancer Screening Questionnaire (CCSQ; Vernon et al. 1997) consists of a set of scales to measure factors related to general (versus test-specific) colorectal cancer screening adherence based on the Health Belief Model and Social Cognitive Theory. The present study uses scales assessing barriers (worries), benefits (salience and coherence), and intention to be screened. Responses are rated on a 4-point Likert scale from 1 = strongly agree to 4 = strongly disagree. Coefficient alpha was .88 for the perceived benefits scale. The perceived barriers and intention scales are both two-item scales, and therefore estimating coefficient alpha is not possible.

Sociodemographics and health background

Participants were asked to provide information on the following sociodemographic indicators: age, gender, education, marital/partner status, individual and household income, occupation, and employment status. They also provided information regarding health insurance coverage, personal and family colorectal disease history.

CRC screening knowledge and history

The Measures for Ascertaining Use of Colorectal Cancer Screening (Vernon et al. 2004) is a set of standardized items developed by a National Cancer Institute work group consisting of CRC screening experts. These measures assess knowledge, past screening, and reason for the most recent test.

Data analysis

Hierarchical multiple regression analyses were performed to test for potential interactions between socio-cultural variables in their associations with colorectal cancer screening perceived benefits, perceived barriers, and intention. The following interactions were tested: (a) traditional acculturative strategy × medical mistrust; (b) physician's ethnicity × medical mistrust; (c) group susceptibility × medical mistrust; and (d) group susceptibility × traditional acculturative strategy. Each interaction was the final step in regression analyses with perceived benefits of screening, perceived barriers to screening, and general intention to be screened as the dependent variables. A total of 12 regression analyses were performed. Sociodemographic and access to health care variables (i.e., age, gender, household income, occupation, employment status, marital status, health insurance coverage, regular physician, and physician recommendation of CRC screening) significantly correlated with the dependent variables ($P < .05$) were controlled for in each model. Table 3 summarizes the regression analyses in which the interaction term was significant.

Because we were interested in how the sociocultural variables under investigation in this study were related to actual screening behavior, we conducted follow-up analyses comparing eligible individuals (≥50 years of age) who reported having ever been screened for colorectal cancer with those who had not been screened. We performed *t* tests of mean differences by screening status (i.e., ever screened vs. never screened) with medical mistrust, tradition acculturative strategy, and group-level susceptibility as the dependent variables. We conducted a chi-square analysis to determine whether there were significant differences in screening status as a function of physician ethnicity (i.e., African American vs. non-African American physician). We also examined the correlation of perceived benefits, perceived barriers, and screening intention with screening status for eligible individuals.

Results

Sample demographics and description

Table 1 provides a description of the study sample. The participants ($N = 198$) were mostly female (65%) with a mean age of 59.7 years (SD = 9.9 years). The majority of participants (83%) had completed at least some post-secondary education, and 25% had a household income of less than $30,000. Specifically related to colorectal disease, 11% of the participants reported a personal history of colorectal polyps. Twenty percent of the participants had a family member (i.e., grandparents, parents, siblings) diagnosed with CRC, 12% had family members diagnosed with colorectal polyps, and 8% had family members diagnosed with irritable bowel disease or other colorectal disease (e.g., ulcerative colitis or Crohn's disease). For all participants, the rate of ever having been screened by any of the four modalities was 72%. With respect to American Cancer Society recommendations for screening, 64% of those 50+ reported having had a colonoscopy in the past 10 years, 16% had sigmoidoscopy in the past 5 years, 11% had a fecal occult blood test within the past year, and 26% had a

Table 1 Characteristics of study participants

	Percent
Age (mean ± SD)	59.7 ± 9.9
Range	45–93
Gender	
Female	65
Male	35
Marital status	
Married	48
Single, widowed	52
Education	
Less than high school	3
High school	15
Some college	30
College	25
Graduate/professional	28
Household income ≥ $50,000	44
$50,000+	44
$30,000–$49,999	31
<$30,000	25
Employment	
Employed part-time and full-time	60
Retired, unemployed, or disabled	40
Occupation	
Homemaker/unskilled labor	7
Semi-skilled labor	7
Skilled craftsperson	4
Service/clerical/sales	22
Technical/semi-professional/small business owner	26
Mid-level management	15
Senior management/professional	18
Healthcare	
Health insurance	91
Regular physician/health care provider	94
Colorectal health history	
Personal history of colorectal polyps	11
Family history	
Ulcerative colitis, etc.	8
Colorectal polyps	12
Colorectal cancer	20
Colorectal cancer screening	
Physician recommendation for screening	75
Ever screened (i.e., FOBT, sigmoidoscopy, barium enema, or colonoscopy)	72

barium enema in the past 5 years. Regarding knowledge of the screening tests for CRC, 70% of the sample had heard of the FOBT, 48% had heard of flexible sigmoidoscopy, 64% had heard of barium enema, and 85% had heard of colonoscopy.

Table 2 shows the mean responses for study measures. This sample reported only moderate perceptions of group susceptibility, but had relatively strong traditional cultural orientation and moderate levels of medical mistrust. Overall study participants seemed positively disposed towards CRC screening as evidenced by mean scores on perceived benefits of screening and intention to be screened along with lower scores on perceived barriers.

Perceived benefits

Table 3 summarizes the regression analyses in which the interaction term was significant. For all perceived benefits models, variables were entered in the following order: (step 1) education, household income, and occupation; (step 2) regular physician and physician recommendation; (step 3) predictor A; (step 4) predictor B; (step 5) A × B interaction. The model testing the group susceptibility × traditional acculturative strategy interaction was significant $F(8, 168) = 5.66$, $P < .001$, and accounted for 22% of the variance (total adjusted $R^2 = .18$) in perceived benefits of screening. The interaction step was significant ($P < .05$), accounting for 3% of the variance (Cohen's $f^2 = .04$). Figure 1 presents the interaction graphically and reveals that those who perceive high group susceptibility also perceive greater benefits in screening. However, for those who perceive low group susceptibility, individuals who are also more traditional perceive greater benefits than individuals who are less traditional. In other words, individuals who perceive less group susceptibility and are also less traditional perceive the least benefit of screening.

The benefits model testing the group susceptibility × medical mistrust interaction was also significant $F(8, 182) = 8.00$, $P < .001$, and accounted for 27% of variance in perceived benefits. The interaction step was significant ($P < .01$), accounting for 4% of the variance (Cohen's $f^2 = .05$). Figure 2 presents this interaction graphically. It shows that those with low levels of mistrust are more likely to perceive benefits than those with high levels of mistrust, but that perception of high group susceptibility makes both groups more likely to perceive benefits. Individuals high in mistrust and low in their perception of group susceptibility perceive the least benefit of screening.

Perceived barriers

The order for general barriers was: (step 1) education and occupation; (step 2) regular physician and physician recommendation; (step 3) predictor A; (step 4) predictor B; (step 5) A × B interaction. None of the perceived barriers models testing interactions were significant (all P's $> .05$; data not presented).

Table 2 Means, standard deviations, and ranges of study measures

Measure	Mean	SD	Actual range	Possible range
Group susceptibility (CCSQ)	2.70	0.74	1–4	1–4
MASPAD	81.32	10.24	53–108	26–132
GBMMS	30.40	8.12	12–57	12–60
Perceived benefits (CCSQ)	3.46	0.50	2–4	1–4
Perceived barriers (CCSQ)	1.83	0.61	1–4	1–4
Screening intention (CCSQ)	3.20	0.65	1.5–4	1–4

CCSQ Colorectal Cancer Screening Questionnaire, *MASPAD* Measurement of Acculturation Strategies for People of African Descent, *GBMMS* Group-Based Medical Mistrust Scale

Perceived intention

Variables were entered in the following order for all screening intention models: (step 1) age; (step 2) education, occupation, and household income; (step 3) health insurance, regular physician, and physician recommendation; (step 4) predictor A; (step 5) predictor B; (step 6) A × B interaction. The intention model testing the physician ethnicity × medical mistrust interaction was significant $F(10, 175) = 2.55$, $P < .01$, and accounted for 13% of the variance (total adjusted $R^2 = .08$) in screening intention. The interaction step was significant ($P < .05$), accounting for 3% of the variance (Cohen's $f^2 = .03$). Figure 3 presents the interaction, showing that overall individuals with an African American physician express greater intent to be screened relative to individuals with physicians who are not African American. Though it shows some decline, this intent remains fairly stable even in the face of high levels of medical mistrust. However, for individuals with non-African American physicians, high levels of mistrust are associated with less intent to be screened. In fact, these individuals expressed the least intent to be screened.

Finally, the intention model testing the group susceptibility × traditional acculturative strategy interaction was significant $F(10, 164) = 6.69$, $P < .001$, and accounted for 30% of the variance (total adjusted $R^2 = .26$) in screening intention. The interaction step was significant ($P < .001$), accounting for 9% of the variance (Cohen's $f^2 = .13$). Figure 4 presents this interaction. There was not much difference in the expression of intent to be screened when individuals who perceived low group susceptibility were either more or less traditional in their cultural orientation. However, for individuals who perceived high group susceptibility, being highly traditional in cultural orientation resulted in considerably greater intent to be screened.

Follow-up analyses

Of the sociocultural variables in this study, only the mean level of medical mistrust was significantly different between eligible individuals who had ever been screened versus those who had never been screened ($t = 4.17$, $P < .001$). Specifically, the never screened had significantly higher levels of medical mistrust ($M = 35.32$, SD = 8.25) compared to those who had been screened ($M = 28.84$, SD = 7.29). Results of t tests examining traditional acculturative strategy and group-level susceptibility were non-significant (P's $> .05$). Similarly, the chi-square analysis examining physician ethnicity was non-significant. Screening status was significantly associated with perceived benefits ($r = .41$, $P < .001$), perceived barriers ($r = -.19$, $P = .007$), and screening intention ($r = .32$, $P < .001$).

Discussion

In light of the higher CRC mortality rates among African Americans, early detection by screening within recommended guidelines is vital for this vulnerable population. Our findings suggest that perceived benefit and intent to complete CRC screening is greatest among African Americans with high group susceptibility, high traditional cultural orientation, less mistrust of the medical system, and who report that their primary healthcare provider is an African American physician. In this study, we found greater perception of CRC screening benefits among individuals who perceived high group susceptibility to CRC, regardless of the level of traditional cultural orientation or medical mistrust. Among individuals who perceived low group susceptibility to CRC, however, perceptions of the benefits of CRC screening were increased if they had a high versus a low traditional cultural orientation. Perception of benefits also increased if low perceivers of group susceptibility had low medical mistrust compared to those with high medical mistrust. Increased expressed intention to complete CRC screening was associated with perceiving high group CRC susceptibility while being more culturally traditional, and increased CRC screening intention was also associated with having an African American physician and low medical mistrust.

Table 3 Hierarchical multiple regressions of interactions associated with perceived benefits and intention

Step and predictor	Statistics by step		Statistics by predictor	
	TR^2	R^2 change	β	t
Outcome: perceived benefits ($N = 169$)				
1. Education	0.09	0.09**	0.11	1.16
Household income			0.19	2.26*
Occupation			0.02	0.17
2. Regular physician	0.12	0.03	0.04	0.60
Physician recommendation			0.15	1.93
3. Group susceptibility	0.15	0.03*	0.09	1.20
4. Traditional acculturative strategy	0.19	0.04**	0.23	3.14**
5. Group susceptibility × traditional	0.22	0.03*	0.19	2.56*
Outcome: perceived benefits ($N = 165$)				
1. Education	0.11	0.11**	0.11	1.26
Household income			0.20	2.53*
Occupation			−0.01	−0.14
2. Regular physician	0.13	0.02	0.03	0.47
Physician recommendation			0.06	0.88
3. Group susceptibility	0.18	0.05**	0.29	4.28**
4. Medical mistrust	0.23	0.05**	−0.28	−3.92**
5. Group susceptibility × medical mistrust	0.27	0.04**	0.20	3.04**
Outcome: screening intention ($N = 176$)				
1. Age	0.02	0.02	0.11	1.43
2. Education	0.08	0.07**	0.16	1.60
Household income			0.17	1.82
Occupation			−0.03	−0.33
3. Insurance	0.10	0.01	0.03	0.33
Regular physician			−0.03	−0.39
Physician recommendation			0.09	1.20
4. Physician ethnicity	0.11	0.01	0.10	1.31
5. Medial mistrust	0.11	0.00	−0.02	−0.23
6. Physician ethnicity × medical mistrust	0.13	0.03*	0.17	2.32*
Outcome: screening intention ($N = 165$)				
1. Age	0.06	0.06**	0.12	1.53
2. Education	0.11	0.05*	0.12	1.34
Household income			0.11	1.32
Occupation			−0.02	−0.23
3. Insurance	0.14	0.03	0.12	1.60
Regular physician			0.07	0.95
Physician recommendation			0.13	1.74
4. Group susceptibility	0.14	0.00	−0.06	−0.78
5. Traditional acculturative strategy	0.21	0.07**	0.34	4.72**
6. Group susceptibility × traditional	0.30	0.09**	0.33	4.49**

Note: * $P < .05$, ** $P < .01$; reduced N's due to missing data

The results of this study suggest that African Americans who identify with a traditional cultural orientation have lower perceived benefits to CRC screening if they have low perceived group susceptibility. Individuals with a more traditional cultural orientation have increased perceived benefit to CRC screening if they perceive high group susceptibility for CRC. Since many of the MASPAD items address fidelity to one's racial/ethnic identity as a person of African descent and adherence to cultural norms, it is possible that the traditional acculturative strategy was a

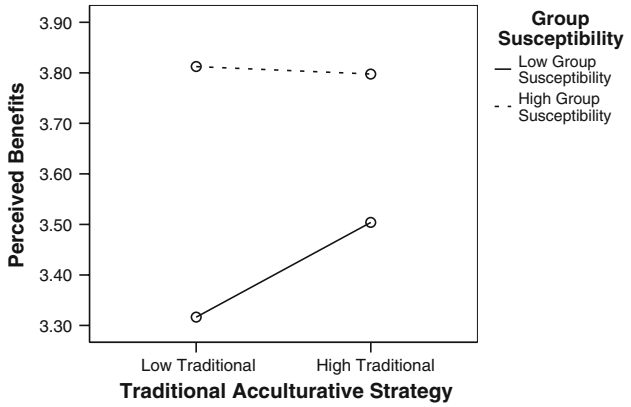

Fig. 1 Estimated perceived benefits (CCSQ) scores as a function of group susceptibility and traditional acculturative strategy

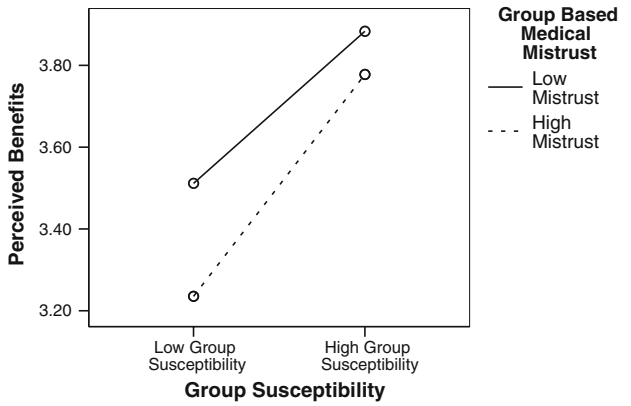

Fig. 2 Estimated perceived benefits (CCSQ) scores as a function of group susceptibility and medical mistrust

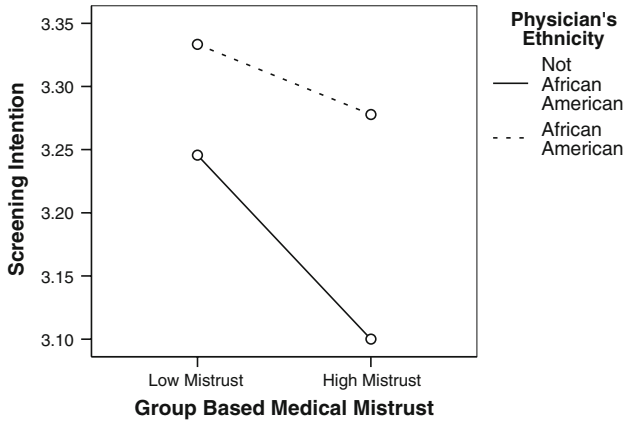

Fig. 3 Estimated screening intention (CCSQ) scores as a function of physician ethnicity and medical mistrust

proxy for a positive racial identity in this study. This may explain why results from this study differ from studies that report a negative association between traditional cultural

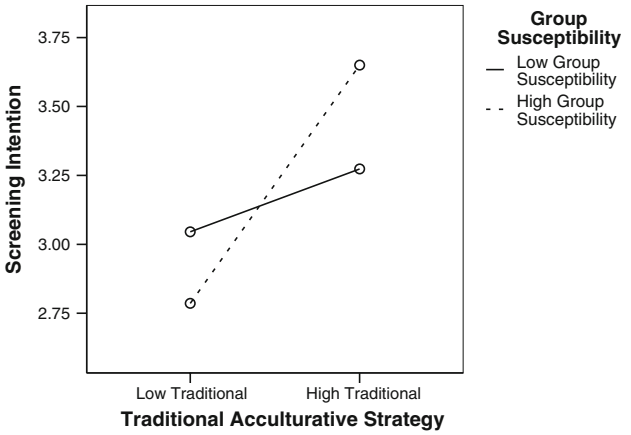

Fig. 4 Estimated screening intention (CCSQ) scores as a function of group susceptibility and traditional acculturative strategy

orientation (e.g., low acculturation) and colorectal cancer screening in other ethnic groups (Maxwell et al. 2000; Tang et al. 2001; Honda 2004; Honda and Gorin 2005; Shah et al. 2006). Despite its treatment with reference to African Americans, acculturation is likely a very different process for immigrant groups coming to this country for the first time. Many African Americans have been in the United States for several generations, and this may make ethnic identity a more appropriate measure of cultural orientation for this population. There is some evidence that the protective nature of positive racial identity leads to less risky health behaviors (Caldwell et al. 2002, 2004; Beadnell et al. 2003). This implies that behavioral interventions seeking to increase screening among this population might successfully incorporate traditional African American values (e.g., group solidarity, striving despite obstacles, and reliance on others within the group) and risk messages focused at the level of the African American community rather than exclusively at the individual level. Interventions that use existing social networks (e.g., churches, social and fraternal organizations, extended families) as vehicles for message delivery may prove especially effective at increasing CRC screening rates.

In contrast to individuals with high traditional cultural orientation and high perceived group susceptibility, study participants who perceived low group susceptibility and who were also highly mistrustful of healthcare professionals and the healthcare system perceived fewer benefits of CRC screening. The relationship of mistrust with less perception of benefits is consistent with previous research in which African Americans are more likely to express mistrust of the medical system and concerns about quality of care when contemplating CRC screening (Holmes-Rovner et al. 2002; Greiner et al. 2005). However, the concept of group susceptibility has not received as much attention in the literature. It is possible that one way to

overcome CRC screening barriers associated with medical mistrust is to focus cancer prevention and control communications at both the individual and group levels. There is evidence from previous research that African Americans are interested in receiving information regarding their racial group, as long as group-level risk information is closely paired with concrete behavioral recommendations for cancer screening (Sanders Thompson et al. 2007). Recent reports suggest that the manner in which group susceptibility information is presented to African Americans in the context of health disparities may more fruitfully focus on progress made in reversing disparities rather than emphasizing that African Americans lag behind other groups (Nicholson et al. 2008).

Having an African American physician appeared to have buffered the impact of mistrust on intention to be screened. While several studies have noted the impact of racial concordance on health care utilization and perceptions of quality of care (LaVeist and Nuru-Deter 2002; Cooper et al. 2003; LaVeist et al. 2003), more information is needed about the effect of having a same-race physician on CRC screening completion. African American physicians and other health providers may be particularly important as spokespersons to communicate CRC risk and prevention messages to African Americans. Future research should also consider whether the composition of the patient panel seen by a physician, his or her training, and the practice's access to resources has more direct impact on CRC attitudes and behaviors than ethnicity per se, as physicians treating predominantly black patients have been shown to differ significantly in terms of the quality of care they provide, including preventive services (Bach et al. 2004).

While the full range of scores on the measures of perceived benefits and screening intention were reported, mean scores were relatively high in this sample, suggesting that study participants were receptive to CRC screening overall. Therefore, study findings with regard to sociocultural motivations for CRC screening should be interpreted with caution. It is possible that the role of traditional cultural orientation, group susceptibility, medical mistrust, and physician ethnicity would be different in a sample less inclined to view the benefits of CRC screening and to report intention to be screened. Despite relatively high ratings of CRC benefits and intention to screen, there may be some gaps in the knowledge of participants, as 20% reported a family history of CRC but only 12% reported family history of polyps.

A significant proportion of the study sample (72%) also reported ever having been screened for colorectal cancer. Medical mistrust was a significant factor differentiating eligible African Americans who had been screened from those who had not in this sample. This finding suggests that alone among the sociocultural factors related to colorectal cancer screening benefits, barriers, and intention, medical mistrust is the most significant sociocultural determinant of actual screening behavior. It should be noted that the primary outcomes in this study were also significantly associated with screening behavior. To the extent that messages regarding screening emphasize group-level susceptibility and traditional cultural orientation, there may be some opportunity to blunt the impact of mistrust. African American medical professionals may also play a special role in building trust, and thereby increasing screening.

We believe that this study offers important new information that could improve behavioral interventions aimed at increasing CRC among African Americans, but there are several limitations that must be noted. First, this secondary analysis study was exploratory in nature and therefore did not proceed from *a priori* hypotheses regarding the relationships under investigation. The participants in this study were a convenience sample of African Americans from two large Midwestern cities, who may differ from African Americans in other communities. Also while gender was not a significant correlate of the outcomes addressed in this study, a majority of study participants was female and more information may be necessary before drawing conclusions regarding African American men. The sample is also limited by its primary inclusion of individuals who belong to social and/or religious groups, who may differ in important ways from individuals who are not so affiliated. The participants included in this study also had a relatively high socioeconomic status and access to health care (53% with college degree or more; 44% with household income above $50,000; 91% with health insurance; and 94% with regular physician or other health care provider), and the rate of CRC screening completion (72%) was above the rate reported nationally. However, this rate does not differ greatly from the 64.8% of African Americans who have been screened through FOBT or endoscopy in the state of Missouri (where the majority of the sample was recruited) according to the Behavioral Risk Factor Surveillance System (as reported in American Cancer Society 2008). This rate is in fact higher than the national African American screening rate by FOBT or endoscopy of 40.1% (American Cancer Society 2008), but this is an average of data from all states that have sufficient data to report on non-Hispanic blacks ranging from 39.9% in Arkansas to the 64.8% rate in Missouri.

An additional limitation of note has to do with measurement of one of the primary outcomes. There was no time frame attached to the intention items used as outcomes in our analyses, making it difficult to ascertain exactly when individuals intended to complete CRC screening. At best the interpretation of results regarding screening intention must be viewed in the context of this more general intention to be screened some time in the

future as appropriate. It is possible that sociocultural variables under consideration in this study would have had a different relationship with intention were this variable more directly tied to a specific timeframe and if it were possible to determine which individuals in the sample were due for screening in the near future. Additional research is needed with large, representative samples to confirm the relationship between medical mistrust, group-level perceptions of susceptibility, traditional cultural orientation, and physician ethnicity as they relate to CRC screening behavior. Given the possibility that these factors alone and in combination may be modified in order to encourage increased screening, interventions utilizing them may prove more effective than current strategies. Such interventions should also be tested in future research.

In conclusion, the results of this study suggest that among African Americans, traditional cultural orientation, group susceptibility of CRC, physician ethnicity, and in particular medical mistrust, play a significant role in decision making related to CRC screening. These factors should be considered when developing new behavioral interventions to increase CRC screening among African Americans. The development of new prevention and control strategies will potentially reduce the racial disparities associated with CRC.

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