Published in final edited form as:

Behav Med. 2015 ; 41(2): 41–48. doi:10.1080/08964289.2014.897930.

Colonoscopy-specific fears in African Americans and Hispanics

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Abstract

Although fears of colonoscopy may deter African Americans and Hispanics from having a screening colonoscopy, little is known about these fears. This study sought to: (1) identify the proportion of African Americans and Hispanics who experience colonoscopy-specific fears; and, (2) identify factors associated with these fears. Data were collected at an academic hospital in New York City between the years of 2008-2010. Following a primary care visit, African Americans (N=383) and Hispanics (N=407) who received a recommendation for a screening colonoscopy completed a questionnaire that assessed: colonoscopy-specific fears (e.g., fear of the pain associated with the colonoscopy), demographics, and psychological variables. Presence of colonoscopy-specific fears was endorsed by 79.5% of participants. Multiple regression analyses revealed that being female ($p<0.001$), speaking English ($p<0.001$), having greater perceived risk of colorectal cancer (CRC) ($p<0.01$), greater worry about risk of CRC ($p<0.01$), greater fear of CRC ($p<0.001$) and lower levels of self-efficacy of having a colonoscopy ($p<0.01$) were associated with greater colonoscopy-specific fears. The results can inform interventions designed to assuage fears and improve screening colonoscopy adherence in African Americans and Hispanics.

Keywords

Fears; Colorectal Cancer Prevention; Screening Colonoscopy

Colorectal cancer (CRC) remains the third leading cause of cancer death in the United States¹. Seeking to prevent CRC, the U.S. Preventive Services Task Force (USPSTF) recommends that average risk people between the ages of 50 and 75 undergo regular CRC screening.^{2,3} Of the recommended screening tests, a colonoscopy is considered the gold standard.⁴ Unlike most CRC screening tests, the screening colonoscopy allows for both the detection and removal of precancerous and cancerous lesions.¹ Epidemiological research has found an association between colonoscopy rates and CRC mortality.⁵ In fact, it is estimated that regular screening colonoscopies can prevent up to 65% of all CRCs.¹

Despite the USPSTF's published recommendations, national screening colonoscopy rates remain suboptimal. The American Cancer Society's 2012 report on Cancer Prevention and Early Detection stated that only 56% of the U.S. population received an endoscopic screening for CRC within the recommended time frame (i.e., colonoscopy per 10 years or flexible sigmoidoscopy per 5 years).⁶ Even more troublesome, endoscopic screening rates are lower for African Americans and Hispanics (53% and 45% respectively) compared to those of whites (59%),⁶ which likely creates and perpetuates CRC morbidity and mortality disparities.

Research has attempted to identify barriers to screening colonoscopy uptake in these at-risk populations (i.e., African Americans and Hispanics). These studies have consistently found that, among other factors, fear of the colonoscopy procedure is a significant barrier.⁷⁻⁹ That is, patients who report being fearful of various components of the procedure such as the laxative preparation or pain during the procedure are less likely to have a screening colonoscopy. Consistent with this previous literature, our research group has found that, amongst low-income, African Americans and Hispanics receiving patient navigation for a screening colonoscopy, there is a significant bivariate relationship between higher levels of colonoscopy-specific fears and lower rates of screening colonoscopy uptake.^{10,11}

Although extensive research has found that colonoscopy-specific fears deter African American and Hispanic patients from having a screening colonoscopy, little is known about these fears. In particular, no research to date has examined the proportion of African Americans and Hispanics that are in fact experiencing these fears. Research conducted with a general patient population suggests that although these fears are common they are not universal (e.g., 62% of a sample endorsed at least one colonoscopy-related concern/fear¹²). However, it is unknown whether these statistics can generalize to African American and Hispanic populations. Therefore, the first aim of the present study was to identify the proportion of African American and Hispanic patients who experience colonoscopy-specific fears.

Furthermore, to our knowledge, no research to date has identified factors that may be associated with colonoscopy-specific fears in African American and Hispanic populations. The Transactional Model of Stress and Coping¹³ provides a potential framework to guide our understanding of colonoscopy-specific fears in this population. This model posits that, when faced with a stressor, one's primary appraisal (i.e., evaluation of the significance of the stressor), secondary appraisal (i.e., perceived ability to control the stressor), and coping efforts jointly impact one's emotional states.¹³ We have drawn from this model to propose potential factors that may be associated with colonoscopy-specific fears. Therefore the secondary aim of the study was to explore if primary and secondary appraisals of the threat of developing CRC, as well as one's coping efforts were related to colonoscopy-specific fears. As depicted in Figure 1, it is hypothesized that, when faced with a stressor (i.e., threat of developing CRC), a patient's primary appraisal (e.g., perceived risk of developing CRC, fear of CRC), secondary appraisal (e.g., perceived ability to prevent CRC), and coping efforts (e.g., social support) will influence his or her level of colonoscopy-specific fears. Based on previous literature examining fears of other medical procedures,^{14,15} we further hypothesize that demographic variables (e.g., being female) will be associated with greater

levels of colonoscopy-specific fears. The results from this study will inform interventions designed to assuage these fears and subsequently improve screening colonoscopy rates in African American and Hispanic communities.

Methods

Procedures

Participants were enrolled in a larger randomized clinical trial examining the efficacy of patient navigation on screening colonoscopy uptake among urban minorities.^{10,16,17} The parent study was approved by the Institutional Review Board. Patients were eligible for the parent study if they: 1) were at least 50 years old and at average-risk for CRC; 2) attended a non-acute clinic visit with a primary care physician; 3) received a primary care physician referral for a screening colonoscopy; and 4) had not had a screening colonoscopy within the last five years (our institutional policy). Eligible patients were recruited to the parent study immediately following their primary care appointment in which they received a recommendation for a screening colonoscopy. Consented participants met with a research assistant in a private area to complete a 30-minute baseline questionnaire that assessed demographic, psychological, and social variables. All assessments were verbally-administered in the participants' preferred language (Spanish or English). Participants were compensated \$20.00 for completing the assessment.

Data were collected between 05/2008 and 11/2010, during which 872 participants enrolled in the parent study. The present study conducted secondary data analyses exclusively on the subset of participants who self-identified as African American or Hispanic (N=793). Three participants did not complete the colonoscopy-specific fears questionnaire, and thus they were excluded from the final data analyses. The final sample consisted of 790 participants.

Participants were predominantly female (67.7%) and their ages ranged from 49-84 (M=59.4; SD=7.6). As part of standard clinical procedures, when patients are nearly 50 years old (the recommended age for average risk patients to begin regular screening colonoscopies), primary care physicians may elect to refer them for a screening colonoscopy. Thus, our sample included two participants who were 49 years old at the time of the primary care appointment. Table 1 depicts additional demographic and medical information.

Measures

Colonoscopy-specific fears—Manne's 6-item Fear of Colonoscopy Scale (personal communication) was used to assess levels of fear associated with various aspects of the colonoscopy procedure (e.g., possible medical complications of the colonoscopy, pain associated with the colonoscopy). Items were rated on a 5-point Likert scale (1=not at all fearful and 5=extremely fearful). This scale has been used in previous studies examining barriers to screening colonoscopy uptake.^{7,10,11} A mean score was calculated to generate an average fear score, where higher scores indicate higher levels of fear. In the current sample, the scale demonstrated good internal consistency (Cronbach's alpha = 0.85).

Demographics/Medical information—Demographic and medical histories (i.e., age, race/ethnicity, preferred language, income, education, personal history of cancer, family history of cancer) were collected in a self-report questionnaire.

Fear of Colorectal Cancer—One item, drawn from previous literature,¹⁸ was used to assess participants' fear of CRC. The item asked "Is thinking about colorectal cancer emotionally stressful?" This item was rated on a 3-point Likert scale (1=not at all; 3=very much).

Perceived Risk—Perceived risk of developing CRC was assessed using three separate items drawn from the Health Information National Trends Survey 2005 (HINTS 2005).¹⁹ The items assessed: (1) perceived risk: "How likely do you think it is that you will develop colorectal cancer in the future? Would you say that your chance of getting colorectal cancer is...? (1=very low; 5=very high)"; (2) perceived relative risk: "Compared to the average [man/woman] your age, would you say that you are...?" (1=less likely to get colorectal cancer; 3=more likely to get colorectal cancer); and, (3) worry about risk: "How often do you worry about getting colorectal cancer?" (1=rarely or never; 4=all the time). The items were not designed to be a unitary scale and thus each item was analyzed separately.

Fatalism—A 5-item measure, adapted from the Powe Fatalism Inventory,²⁰ was used to assess fatalistic beliefs about CRC (e.g., "I believe if someone gets cancer their time to die is near"). Items were scored dichotomously (yes/no). A mean score was calculated to generate an average fatalism score where higher scores indicated higher levels of fatalism. In the current sample, the scale demonstrated good internal consistency (Cronbach's alpha = 0.83).

Self-efficacy—A 10-item measure was used to assess participants' confidence in their ability to complete a screening colonoscopy. The measure was adapted from prior literature examining self-efficacy of having a mammogram.²¹ Participants were asked to indicate how confident they felt about performing certain tasks (e.g., "I can arrange other things in my life to have a colonoscopy") based on a 5-point Likert-type scale (1=strongly disagree and 5=strongly agree). A mean score was calculated to generate an average self-efficacy score, where higher scores indicate higher levels of self-efficacy. In the current sample, the scale demonstrated good internal consistency (Cronbach's alpha = 0.88).

Physicians' interpersonal communication—The 4-items from the Interpersonal Communications subscale of the components of Primary Care Instrument (CPCI)²² were used to assess physicians' overall communication (e.g., "I can easily talk about personal things with my doctor"). In addition, four additional items were added to assess physicians' communication about screening colonoscopy (e.g., "I can easily talk about having a colonoscopy with my doctor"). The 8-items were scored on a five point Likert scale (1=strongly disagree; 5=strongly agree). The mean of the 8-items was calculated to generate an average interpersonal communication score where higher scores indicate better communication. In the current sample, the scale demonstrated good internal consistency (Cronbach's alpha = 0.85)

Social Influence—A 4-item scale, adapted from previous literatures,²³ was used to assess friends' and family members' support of, and influence on, one's decision to have a screening colonoscopy (e.g., "My close friends think that I should have a colonoscopy"). Items were rated on a 4-point Likert scale (1 = strongly disagree; 4 = strongly agree). A mean score was calculated to generate an average social influence score, where higher scores represent greater social support for having a colonoscopy. In the current sample, the scale demonstrated excellent internal consistency (Cronbach's alpha = 0.90).

Statistical Analyses

The first aim of the study was to examine the proportion of African American and Hispanic participants who endorsed colonoscopy-specific fears. Colonoscopy-specific fear scores were dichotomized into two groups: presence of fear (mean score > 1) and absence of fear (mean score = 1). Frequencies were run to determine the overall percentage of participants that endorsed the presence of fear (mean score > 1). We also examined the percentages of participants endorsing each item of the scale (item score > 1). Then, in order to examine the levels of participants' fears, we analyzed the items continuously, with lower mean scores representing lower levels of fear (1 = not fearful at all) and higher mean scores representing higher levels of fear (5 = extremely fearful).

The second aim of the study was to examine the predictors of colonoscopy-specific fears. For this aim, colonoscopy-specific fear was treated as a continuous variable. A variable reduction strategy was implemented. First, bivariate correlations were run to determine which of the constructs outlined in our proposed model were significantly correlated with levels of colonoscopy-specific fears. Then, variables that reached clinical significance were entered into a multiple regression equation to determine the unique correlates of colonoscopy-specific fears. In accordance with Cohen's published guidelines²⁴, we deemed correlations with a Pearson's $r \geq 0.10$ as clinically significant.

Results

Aim 1: What proportion of African Americans and Hispanics report colonoscopy-specific fears?

Of the 790 participants, 79.5% endorsed the presence of colonoscopy-specific fears, as defined by a mean score greater than one (1 = not at all fearful). When analyzing each item independently, 63.2% endorsed fear of the overall colonoscopy, 58.6% of the actual procedure, 56.7% of pain during the procedure, 53.5% of possible medical complications during the procedure, 37.1% of the procedure's prep (e.g., taking laxatives), and 24.2% of telling their family members about the results of the procedure.

In order to examine the levels of participants' fears, we analyzed the items continuously, with lower mean scores representing lower levels of fear (1 = not fearful at all) and higher mean scores representing higher levels of fear (5 = extremely fearful). The mean colonoscopy-specific fears score for the sample was 2.06 (2 = a little bit fearful). As depicted in Figure 2, participants reported higher levels of fear about the actual procedure and its

potential side effects (i.e., medical complications or pain) and lower levels of fear about the colonoscopy prep and telling their family members about the results of the procedure.

Aim 2: What are the factors associated with levels colonoscopy-specific fears?

Bivariate analyses were first run in order to identify the factors that were significantly related to colonoscopy-specific fears. As depicted in Table 2, zero-order correlations revealed that the following factors were significantly related to greater levels of colonoscopy-specific fears: gender (being female), greater perceived risk, greater perceived relative risk, greater worry about risk, greater fear of CRC, lower levels of self-efficacy, and language (speaking English/bilingual). When the significant variables were entered into a multiple regression, perceived relative risk no longer reached clinical significance and thus was dropped from the model. The final regression model accounted for 19.9% of the variance $F(6,687) = 28.43, p < 0.001$. The results (see Table 3) revealed that being female ($b=0.42, p<0.001$), speaking English/bilingual ($b=-0.34, p <0.001$), having greater perceived risk ($b=0.09, p<0.01$), greater worry about risk ($b=0.15, p<0.01$), greater fear of CRC ($b=0.30, p<0.001$) and lower levels of self-efficacy of having a colonoscopy ($b=-0.20, p < 0.01$) were all uniquely and significantly associated with greater levels of colonoscopy-specific fears.

Comment

The primary aim of the present study was to examine the proportion of African American and Hispanics who endorsed colonoscopy-specific fears. The results revealed that the vast majority (79.5%) of the participants endorsed the presence of colonoscopy-specific fears; however, the level of these fears was relatively low. On average, participants reported having “a little bit of fear” of the screening colonoscopy. However, we have found that even this low level of fear deters African American and Hispanics from having a screening colonoscopy.^{10,11} As such, it is critical to develop an intervention to assuage this fear in order to improve screening colonoscopy uptake.

In order to identify the aspects of the screening colonoscopy that were particularly fear-provoking, each item of the colonoscopy-specific fears scale was analyzed separately. The results showed that participants experienced greater levels of fear about the actual procedure and its potential side effects (i.e., medical complications or pain) and lower levels of fear about the colonoscopy prep or telling their family members about the results of the procedures. Drawing from these findings, interventions designed to reduce colonoscopy-specific fear should focus on fears about the procedure and its side effects rather than the other aspects of the colonoscopy.

The second aim of the study was to examine factors associated with colonoscopy-specific fears. The results revealed that the Transactional Model for Stress and Coping provided a good framework for understanding colonoscopy-specific fear. Specifically, we found that aspects of participants' primary appraisal of the stressor of CRC (i.e., fear of CRC, perceived risk, worry about risk) as well as their secondary appraisal of the stressor (i.e., self-efficacy of having a screening colonoscopy) were significantly and uniquely associated with greater colonoscopy-specific fears. Moreover, with regard to demographic variables,

females and participants who are predominantly English-speaking/bilingual had significantly higher levels of colonoscopy-specific fears. However, contrary to our hypotheses, perceived relative risk of developing CRC, fatalism, social support, and other demographic variables (i.e., personal/family history of CR, age, education, race) were not associated with colonoscopy-specific fears.

These results can directly inform the development of future interventions. In particular, patients who are female and whose predominant language is English/bilingual are at greatest risk of experiencing colonoscopy-specific fears and thus may be most appropriate for a targeted intervention. Moreover, interventions that address aspects of the Transactional Model of Stress and Coping may be particularly efficacious in reducing colonoscopy-specific fears. For example, cognitive therapy²⁵ could aim to reduce patients' fear by directly targeting one's primary (fear of CRC, perceived risk of CRC) and secondary appraisals (self-efficacy of having a colonoscopy). By reducing these fears, there is great potential to increase screening colonoscopy rates and, as a result, decrease CRC morbidity and mortality disparities.

There are limitations to the study that should be considered when applying the results. First, the present study was cross sectional and thus causation or directionality cannot be inferred. A second limitation to our study is that the colonoscopy-specific fear scale has not been validated in an independent African American and Hispanic sample. Research is needed to validate this scale with this specific population. Finally, a third limitation is that the present study conducted secondary data analyses on a larger dataset. Because the study aims were theorized post hoc, some important aspects of the Transactional Model of Stress and Coping were not studied. In particular, the model emphasizes the influence of coping efforts on anxiety. For the present study, we examined how social support from family, friends, and health care providers may influence one's fear about a screening colonoscopy. While social support is considered an important aspect of one's coping repertoire, there are other ways in which people cope with stressors. In particular, the Transactional Model of Stress and Coping emphasizes the importance of both situation-specific coping strategies (e.g., emotion focused coping and problem focused coping) as well as a person's overall dispositional coping style¹³. Future research should examine the relationship between a person's multifaceted coping strategies and his or her colonoscopy-specific fears. These future research efforts can add to the current study results to help us better understand colonoscopy-specific fears amongst African Americans and Hispanics.

Acknowledgments

Preparation of this manuscript was supported by the National Cancer Institute (R01CA120658; R03CA17342; 5R25CA081137-13) and the American Cancer Society (122931-PF-12-117-01-CPPB). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Cancer Institute, National Institutes of Health or the American Cancer Society.

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Figure 1.
Theorized correlates of colonoscopy-specific fear.

Figure 2.
Mean score for each fear item on the colonoscopy-specific fear scale

Table 1

Demographics/medical information (N=790)

Demographic Variable	N (~ %)
Race/Ethnicity	
African American	383 (48.5%)
Hispanic	407 (51.5%)
Language	
English/Bilingual	557 (70.5%)
Spanish only	233 (29.5%)
Insurance Type	
Medicare	218 (27.6%)
Medicaid	443 (56.1%)
Private	122 (15.4%)
Self-Pay	7 (0.9%)
Income	
\$10,000	355 (44.9%)
\$10,000-\$19,999	148 (18.7%)
\$20,000-\$29,999	81 (10.3%)
\$30,000-\$39,999	60 (7.6%)
\$40,000-\$49,999	20 (2.5%)
\$50,000	31 (3.9%)
Unknown	95 (12.0%)
Marital Status	
Married/living with partner	213 (27.0%)
Single/living without partner	575 (72.8%)
Unknown	2 (0.3%)
Education	
8 th grade	163 (20.6%)
9 th grade – 12 th grade	435 (55.1%)
1 year college – 2 years college	112 (14.2%)
2 years college – 4 years college	58 (7.3%)
Post college	17 (2.2%)
Unknown	5 (0.6%)
Family history of cancer	
Yes	433 (54.8%)
No	353 (44.7%)
Unknown	4 (0.5%)
Personal history of cancer	
Yes	63 (8.0%)
No	725 (91.8%)
Unknown	2 (0.3%)

Table 2

Bivariate correlates of colonoscopy-specific fear

Variable	African Americans and Hispanics (N = 793) Pearson r
Demographics	
Income	-.03
Age	-.07 ¹
Education	.07*
Marital Status	.04
Race	-.06
Gender	.20 ***
Language	-.14 ***
Primary Appraisal	
Perceived future risk	.16 ***
Perceived relative risk	.10 **
Worry about risk	.22 ***
Fear of CRC	.30 ***
Secondary Appraisal	
Self-Efficacy	-.17 **
Fatalism	.01
Coping Efforts	
Social Influence	-.04
Physicians' interpersonal communication	-.09 **

*
p<.05**
p<.01***
p<.001¹ Note: The effect of age on colonoscopy-specific fear for African Americans and Hispanics was a statistical trend ($p=.06$)

Note: Correlations coefficients > 0.10 are in bold

Table 3

Multiple regression predicting colonoscopy-specific fears

Variable	B	SE B	β	<i>p</i>
Gender	0.42	0.07	0.20	0.000**
Language	−0.34	0.08	−0.16	0.000***
Perceived future risk	0.09	0.03	0.10	0.005**
Worry about risk	0.15	0.05	0.10	0.003**
Fear of CRC	0.30	0.04	0.25	0.000***
Self-Efficacy	−0.20	0.06	−0.11	0.002**

*
p 0.05**
p 0.01***
p 0.001