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Familial risk and colorectal cancer screening health beliefs and attitudes in an insured population

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Abstract

Objective. To examine the relationship between health beliefs and attitudes toward colorectal cancer screening, strength of family history risk, and being appropriately screened for colorectal cancer.

Methods. In February 2004, 7000 randomly selected members of a multi-specialty group practice located in Boston, MA were mailed a brief survey that was used to ascertain colorectal cancer family history. A follow-up survey that contained questions representing selected constructs of the Health Belief Model, Theory of Planned Behavior, and healthcare experiences was then mailed to all 355 individuals who reported a family history in the initial survey and 710 randomly selected participants with no colorectal cancer family history.

Results. Participants who were appropriately screened had higher mean scores for perceived cancer risk, subjective norms, and perceived benefits and lower scores for perceived barriers. Multivariate findings indicate that having high perceptions of risk for colorectal cancer was a significant correlate of being screened appropriately among individuals with a strong family history.

Conclusions. For those at greatest colorectal cancer risk due to family history, ensuring that these individuals understand their personal risk might lead to increased colorectal cancer screening participation. Future intervention research is warranted to examine if raising perceptions of risk can increase screening behaviors in individuals with colorectal cancer risk due to family history.

Keywords: Colon cancer; Cancer screening; Health beliefs; Family history

Introduction

Clinical practice guidelines recommend the routine screening of adults for colorectal cancer (CRC) (U.S. Preventive Services Task Force, 2002; Winawer et al., 2003; Rex et al., 2000; Smith et al., 2006). CRC screening affords both the opportunity to detect CRC at an early stage when successful treatment is likely and, depending on the screening test, can prevent some cancer by the detection and removal of precancerous polyps (Winawer et al., 2003).

Individuals with a family history of CRC, who are at increased risk (Fuchs et al., 1994; Johns and Houlston, 2001), could experience the greatest benefit from participating in CRC screening. Current practice guidelines stratify by risk and recommend that individuals with a strong family history (e.g., first-degree relative with onset before age 60 or multiple first-degree relatives) be screened more aggressively than average risk people with colonoscopy starting at an earlier age (Winawer et al., 2003). Studies examining CRC screening behaviors of individuals with an elevated risk due to family history have generally found that these individuals are more likely to participate in CRC screening than average-risk individuals (Richardson et al., 1995; Manne et al., 2002; Madlensky et al., 2003; Codori et al., 2001; Thrasher et al., 2002; Murff et al., 2007; Longacre et al., 2006). However, it is unclear from these studies if individuals with CRC family

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history are being screened more frequently and aggressively as outlined in clinical practice guidelines.

Cross-sectional studies have examined factors associated with CRC screening among individuals with a family history of CRC (Manne et al., 2002; Madlensky et al., 2003; Codori et al., 2001; Jacobs, 2002; Rawl et al., 2005; Blalock et al., 1990). Findings from these studies vary, with only physician recommendation emerging as a correlate consistently associated with CRC screening in individuals with a family history of CRC (Manne et al., 2002; Madlensky et al., 2003; Codori et al., 2001; Seeff et al., 2004; Coughlin and Thompson, 2005). Research examining the relationship between health beliefs and attitudes toward CRC screening among individuals at greater risk due to family history is not well established. Central to explaining cancer screening is a strong theoretical framework that can provide a foundation for population-specific intervention strategies (Rakowski and Breslau, 2004).

In the present study, we investigated the predictive power of selected constructs from the Health Belief Model (HBM; Rosenstock, 1974) and Theory of Planned Behavior (TPB; Ajzen, 1991) to examine how these constructs differ across different strata of CRC family risk and to examine their association with being appropriately screened for CRC screening. The HBM was selected to examine perceived risk and perceived benefits and barriers. These constructs have previously been shown to be associated with CRC screening in individuals with a family history of CRC screening (Manne et al., 2002; Stark et al., 2006), although it is unclear if these constructs vary based on stratified risk. Subjective norms from the TPB were included to examine potential influence from family and close friends. TPB proposes that individuals will more likely engage in a behavior if they perceive close referents as wanting them to participate in the behavior. Studies have found a strong association between CRC screening and family encouragement and degree of sibling closeness (Madlensky et al., 2003; Manne et al., 2002).

Methods

Study population

Study participants were patients at Harvard Vanguard Medical Associates (HVMA), a multi-specialty group practice with locations throughout the Boston metropolitan area. To be eligible, participants must have been simultaneously insured by Harvard Pilgrim Health Care, enrolled at HVMA for the past 5 years, and between the ages of 35 and 55 years of age. We sampled this age group to ensure that individuals in need of CRC screening before age 50 years, due to family history, were included. Patients were excluded if they had gastrointestinal conditions, mental health disorders, serious life-threatening health conditions, or a request on file not to participate in research. A total of 31,959 patients were eligible.

Data collection

In February 2004, 7000 eligible members were randomly selected and mailed an 11-item short survey. A reminder postcard to all non-responders was sent 3 weeks later. A total of 1872 surveys were returned (28% response rate). In September 2004, a follow-up mail survey containing 37-items was sent to 355 individuals who reported a family history in the initial survey and 710 randomly selected participants who reported no family history (total, $n=1065$). A second follow-up survey was sent to non-respondents 3 weeks later. A total of 833 participants returned the follow-up survey (79% response rate).

Measures

Family history

Participants were asked to list the relationship and age of CRC diagnosis of biologically related family members. Study participants were then grouped according to risk strata based on national clinical practice guidelines (Winawer et al., 2003). Participants with a first degree relative with CRC onset before age 60 or two or more first degree relatives with CRC were classified as having a "strong" family history. Those with either a first degree relative with onset after age 60 or two or more second degree relatives with CRC were classified as having an "intermediate" risk. Study participants with a family history not meeting these criteria were classified as having a "weak" family history. Those with no family history were categorized as "none."

Appropriately screened

The electronic medical record and insurance claim database were searched to examine if study participants had been appropriately screened for CRC according to HVMA guidelines. Individuals with a strong family history were appropriately screened if they had a colonoscopy beginning at age 40 and repeated every 5 years. Those with intermediate family history were appropriately screened if screening began at age 40 with flexible sigmoidoscopy every 5 years and fecal occult blood test (FOBT) yearly, colonoscopy every 10 years, or double barium enema every 5 years. For those with weak or no family history, appropriate screening was defined as having flexible sigmoidoscopy every 5 years and fecal occult blood test 3 of 5 years, or colonoscopy every 10 years, all starting at age 50 years.

Table 1
Demographic characteristics of respondents ($n=511$ [a]), Boston, MA, 2004

	n	%
Gender		
Female	307	60.1
Male	204	39.9
Age		
35–39 years	27	5.3
40–44 years	42	8.2
45–49 years	69	13.5
50 and over	375	73.0
Race		
American Indian/Native Alaskan	2	.4
Asian/Pacific Islander	13	2.6
Black	25	5.0
Hispanic	11	2.2
White	445	88.8
Multiracial/Other	5	1.0
Education		
<12 years	4	.08
High school graduate	90	17.6
College graduate	417	81.6
Income ($)		
<20,000	6	1.2
20,000–34,999	14	2.9
35,000–49,999	31	6.4
50,000–74,999	108	22.3
≥75,000	325	67.1
Familial risk for CRC		
None	221	43.2
Weak	115	22.5
Intermediate	135	26.5
Strong	39	7.6

[a] Cross tabs may not add up to 511 due to missing data.