

# Motivating Factors Associated With Receipt of Asymptomatic Colonoscopy Screening

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## ABSTRACT

**Background:** Colonoscopy is the preferred screening method for colorectal cancer (CRC). This study aimed to identify factors motivating a beneficial health behavior, that is, the decision to complete a colonoscopy.

**Methods:** We surveyed 91 primarily urban minority health care workers who were ineligible for a large randomized controlled trial due to self-reported asymptomatic colonoscopy screening. Participants were asked an open-ended question about what made them get screened. Responses were classified as external or internal motivations.

**Results:** The most commonly reported external motivation was a primary care physician's recommendation ( $n = 60$ , 65.9%). Other external motivations were familiarity with CRC or polyps through family or work ( $n = 16$ , 17.6%) and pressure from relatives or friends ( $n = 8$ , 8.8%). Seventeen respondents were deemed self-motivated; these individuals were more likely have income over \$50K/year ( $P < 0.05$ ) and to be US born ( $P = 0.05$ ); they were more likely to mention being age-appropriate for screening ( $P < 0.05$ ); knew more people who had colonoscopies ( $P < 0.001$ ); they were less likely to believe that most of the age-appropriate population in New York City has been screened ( $P < 0.01$ ) and less likely to be deterred from colonoscopy by work schedule ( $P < 0.001$ ) or by having to take a powerful laxative ( $P < 0.001$ ).

**Conclusions:** A primary care physician's recommendation may be the most prevalent motivating factor in patients' decisions to receive a colonoscopy, but a subgroup seeks CRC screening on their own. Analysis of the motivations of individuals who have sought colonoscopy screening may offer useful insights into motivating those who have not.

**Keywords:** Colon cancer, colonoscopy, screening

## INTRODUCTION

In the United States, of cancers impacting both men and women, colorectal cancer (CRC) is the second leading cause of cancer-related deaths.<sup>[1]</sup> In 2014, it is estimated that there will be 136,830 cases of CRC and that 50,310 will result in mortality.<sup>[2]</sup> Screening tests for colonoscopy can reduce the incidence via polyp

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removal,<sup>[3-5]</sup> and screening is recommended for all men and women over age 50.<sup>[5,6]</sup> The US Preventive Services Task Force recommends the following three CRC screening tests: high-sensitivity fecal occult blood test, sigmoidoscopy, and colonoscopy.<sup>[7]</sup> The favored screening test of the American College of Gastroenterology is the colonoscopy.<sup>[6]</sup> A benefit of the colonoscopy is the ability to identify and remove abnormal polyps.<sup>[3]</sup> Data from the 2010 Behavioral Risk Factor Surveillance System on the prevalence of CRC screening among adults indicates that 64.5% of 50-75 year old respondents aged had received one of the three recommended CRC screening tests, with 60.3% screened by colonoscopy.<sup>[8]</sup> This is more than a 10% increase from 2002, indicating that strides have been made in reaching CRC screening goals.<sup>[8]</sup> It is important to note that reports from the past and present indicate that the populations who do not fulfill screening requirements are those with low levels of income and education.<sup>[8-11]</sup> Minority populations are also less likely to receive timely recommended screening.<sup>[2,12-14]</sup>

An important aim of public health research is to improve understanding about ways to promote decisions conducive to health. Research typically focuses on individuals exhibiting risk behaviors. This study aimed to identify factors motivating a beneficial health behavior, that is, the decision to complete a colonoscopy. Analysis of the motivations of individuals who have sought colonoscopy screening may offer useful insights into motivating those who have not.

## METHODS

### Study design and participants

This study was ancillary to a larger study, The Healthy Colon Project II, a randomized trial funded by the American Cancer Society to evaluate the incremental effectiveness of alternative interventions for increasing rates of CRC screening among a sample that was age-eligible (>50 years), but had not been screened. For this cross-sectional sub-study, 91 primarily urban minority health care workers who were ineligible for the main trial because they had self-reported asymptomatic colonoscopy screening, were interviewed by telephone.

### Study instrument and variable assessment

We interviewed the first 100 participants who were ineligible because they had completed CRC screening. After excluding those who completed a test other than a colonoscopy and those who received the test because they were symptomatic, we arrived at our sample size. Participants were all over age 50 and were insured. The interview included an open-ended question, "Tell me, what made you get your (first) CRC screening test when you did? Responses were recorded verbatim

and subsequently classified as external or internal. External motivation had a source outside the individual. Self-motivation came from within the individual and with no mention of an outside source. Development of the survey was guided by our past research with this population.<sup>[15]</sup> Trained research assistants conducted the interviews, and a senior statistician, who was not linked to the population of participants, coded and analyzed all of the data (P.Z.). The time interval for this data collection was 2/26/10 and 11/7/10.

### Statistical analysis

Use of qualitative data proved important as open-ended questions allowed for the use of follow-up questions to get detailed information about what motivated the participants to receive CRC screening. Descriptive statistics, including frequencies and percentages, or means and standard deviations (SD), were calculated, and differences were assessed with Chi-square, and the Mann-Whitney U-test. This study was approved by the Institutional Review Boards at Teachers College, Columbia University, Columbia University Medical Center, and William Paterson University.

## RESULTS

Seventy-four participants (81.3%) were deemed externally motivated and 17 (18.7%) were internally (self) motivated. Table 1 displays demographic characteristics and beliefs by motivational status. The mean age was 59.8 (5.4 SD). The most commonly reported motivation was external, and that was that respondents heeded their primary care physician's recommendation ( $n = 60$ , 65.9%). Other external motivations were having had exposure to CRC or polyps through family or work ( $n = 16$ , 17.6%) and having been pressured to get tested by relatives or friends ( $n = 8$ , 8.8%). Seventeen participants mentioned none of these external motivations and offered responses such as "knew it was important," "made appointment on my own;" these individuals were deemed self-motivated. Compared with the externally motivated, the self-motivated were more likely to have an income over \$50K/year (46.2% vs. 16.4%,  $P < 0.05$ ) and to be US born (35.3% vs. 12.2%,  $P = 0.05$ ); they were more likely to mention that they were age-appropriate for the test (58.8% vs. 28.4%,  $P < 0.05$ ), knew more people who had had colonoscopies (median 6, range = 2-25 vs. median 3, range = 0-20, ( $P < 0.001$ ); they were less likely to report thinking that most of the age-appropriate population in New York City had received colonoscopy screening (35.3% vs. 77.0%,  $P < 0.005$ ) and less likely to be deterred from colonoscopy by work schedule (0% vs. 50%,  $P < 0.001$ ) or by having to take a powerful laxative (11.8% vs. 62.2%,  $P < 0.001$ ). Though just

**Table 1: Demographic characteristics and beliefs for self-motivated versus externally motivated CRC screening colonoscopy<sup>a</sup>**

	n, mean (SD)		t	df	
	Self-motivated	Externally motivated			
Age	16, 59.1 (5.6)	60, 60 (5.4)	0.570	74	
	n (%)			Chi-square	P*
	Self-motivated (n=17)	Externally motivated (n=74)	Total (n=91)		
US born	6 (35.3)	9 (12.2)	15 (16.5)	3.82	0.051
Caribbean born	6 (37.5)	49 (67.1)	55 (61.8)	3.70	0.054
Education beyond high school	10 (58.8)	23 (31.9)	33 (37.1)	3.19	0.074
Income >\$50K/year	6 (46.2)	11 (16.4)	17 (21.3)	4.11	0.043
Thinking about all of NYC, do you think > half aged 50+ have had a colonoscopy?	6 (35.3)	57 (77.0)	63 (69.2)	9.43	0.002
PCP displays educational material	9 (56.3)	20 (28.2)	29 (33.3)	3.46	0.063
Mention age as a reason for screening	10 (58.8)	21 (28.4)	31 (34.1)	4.43	0.035
Factors affecting R's decision to get a colonoscopy					
Other health issues	0 (0.0)	5 (6.8)	5 (5.5)	0.26	0.608
Work schedule	0 (0.0)	37 (50.0)	37 (40.7)	12.3	0.000
Fear of cancer	1 (5.9)	5 (6.8)	6 (6.6)	0.00	1.000
Family responsibility	1 (5.9)	5 (6.8)	6 (6.6)	0.00	1.000
Fear of procedure	2 (11.8)	13 (17.6)	15 (16.5)	0.05	0.827
Colonoscopy is not safe	2 (11.8)	3 (4.1)	5 (5.5)	0.45	0.504
Other negative feelings	5 (29.4)	30 (40.5)	35 (38.5)	0.33	0.566
Embarrassing	3 (17.6)	8 (10.8)	11 (12.1)	0.14	0.713
Laxative	2 (11.8)	46 (62.2)	48 (52.7)	120.1	0.000
Sedative	2 (11.8)	8 (10.8)	10 (11.0)	0.00	1.000
Escort	1 (5.9)	9 (12.2)	10 (11.0)	0.10	0.752
Other reasons not	3 (17.6)	7 (9.5)	10 (11.0)	0.30	0.587
Nothing you can do	5 (29.4)	17 (23.0)	22 (24.2)	0.06	0.806
	Median, range	Median, range	Mann-Whitney U	P	
How many friends or relatives can you think of that have had a colonoscopy? **	6, 2-25	3, 0-20	3.23	0.001	

SD=Standard deviation, CRC=Colorectal cancer, NYC=New York City, PCP=Primary care physician, ANOVA=Analysis of variance. \*Chi-square P with continuity correction.

\*\*Mean (SD), ANOVA F, P, \*Percentages are based on number responding

missing statistical significance ( $P = 0.063$ ), it is interesting to note that more than half (56.3%) of the self-motivated versus under a third (28.2%) of the externally motivated reported that their doctors displayed educational materials. Table 2 serves as a depiction of the open-ended questions asked to all participants along with examples of follow-up questions.

## DISCUSSION

Our findings indicate that a heterogeneous set of motivations led respondents to receive asymptomatic colonoscopy screening. Over 80% of respondents reported external motivations, most notably a recommendation

from a primary care physician. Our prior research on CRC screening in an independent sample,<sup>[16,17]</sup> has highlighted the importance of a recommendation from a primary care physician. This is consistent with the finding that physicians are the most trusted source of health information and demonstrates the importance of physicians' recommendations for increasing rates of CRC screening. In this paper, we also describe characteristics that distinguish the self-motivated from the externally motivated. This study was limited by the cross-sectional design and a small sample size. In addition, because the participants in the study work in a health care setting this could make them more privy to the need for a screening test. Nevertheless, this study contributes to the sparse

**Table 2: Open-ended question and examples of follow-up questions**

Question	Examples of follow-up questions
Tell me, what made you get your (first) CRC screening test when you did?	<p>Can you think of something specific that made you do it at that particular time?</p> <p>Did you make an appointment as soon as you reached the recommended screening age?</p> <p>Did you see something or read something that prompted you to book your screening appointment? If so, what might that have been?</p> <p>Did you get encouragement from family?</p> <p>Did you get encouragement from friends?</p> <p>Did you get encouragement from a physician?</p> <p>Are you generally up to date on your required screening tests, and this was on the list of what was recommended?</p> <p>Did you know someone who had CRC or another type of cancer?</p>

CRC=Colorectal cancer

research related to factors motivating the decision to complete a colonoscopy.

Analysis of the motivations of individuals who have sought colonoscopy screening versus those who have not has yielded important findings. To place these ideas about motivation for screening in a broader theoretical context, we recognize motivation is a necessary, but not sufficient, factor influencing initiation or maintenance of behavioral changes. Even if motivated, some individuals may not be able to act on their motivation or have adequate social support to reinforce their choices.<sup>[17]</sup>

Literature on correlates of cancer screening, namely that minorities,<sup>[18]</sup> those of lower socioeconomic status,<sup>[18,19]</sup> and those with lower levels of education<sup>[18,19]</sup> are less likely to be screened. This study fills a gap in the literature by focusing on factors that motivated participants from a primarily minority population to complete CRC screening. To the extent that similar motivating factors can be generalized to other settings and populations requires further study.

## CONCLUSIONS

Most of the characteristics we found to be associated with self-motivation are not amenable to change (e.g., birthplace) or are difficult to change (e.g., income); others may be addressed through education. These latter include knowledge about the age at which CRC screening is recommended, tolerability of preparation, and facilitation in taking time off from work. The significance of this last factor is that while health insurance may cover direct medical cost, other financial costs may interfere with motivation or ability to act on motivation to be screened.

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