

Gender and Physician differences in the Physician-Patient Discussion Prior to Open Access Colonoscopy

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Abstract: *Objective:* The purpose of our study was to examine the discussion prior to open access colonoscopy (OAC) to assess for areas of improvement.

Methods: An anonymous questionnaire was administered to consecutive patients undergoing OAC.

Results: 426 subjects completed the questionnaire. Male subjects reported a mean 9.7 \pm 4.3 minutes of discussion about CRCS, colonoscopy procedure and preparation compared to female subjects at 7.6 \pm 4.3 min. 52% of participants felt that they were adequately informed prior to OAC. Women were less likely to have discussed other forms of CRCS (OR 0.36, p <0.001), risks of colonoscopy (OR 0.45, p =0.005) medications to avoid (OR 0.51, p =0.012) and were half as likely to feel adequately informed by their practitioner (OR 0.40, p <0.001). Of all PCPs, women felt that GYNs best informed them about their procedure (OR 12.5, p =0.005). Subjects with a relationship for 10 years or greater with their doctor were 43% more likely to be adequately informed (OR 1.43, p =0.00).

Conclusion: Despite the time devoted by PCPs patients, particularly women, are least likely to feel informed about the CRCS process. With the increasing efforts to improve CRCS compliance, strategies must be developed to prompt PCPs to discuss the CRCS process with their patients.

Keywords: Colorectal Cancer, screenings, gender, preventive service, colonoscopy.

INTRODUCTION

In 2009, colorectal cancer (CRC) is expected to account for approximately 146,970 new diagnoses and 49,920 deaths in the United States [1]. This accounts for a >5% lifetime risk of colorectal cancer in both sexes. Despite recommendations from the American Cancer Society, U.S Multi-society Task force on Colorectal Cancer and the United States Preventive Services Task Force, colorectal cancer screening compliance remains suboptimal [2]. The Behavioral Risk Factor Surveillance Survey found a 60% adherence rate for all accepted modalities in 2006, markedly lower than that for breast or cervical cancer screening [3].

The majority of CRC screening recommendations are delivered by primary care providers. Data from the 2006-2007 National Survey of Primary Care Physicians' Recommendations and Practices for Breast, Cervical, Colorectal and Lung Cancer Screening demonstrate that colonoscopy is the most frequently recommended test despite the array of modalities that are available [4]. This practice pattern has changed considerably from 1999-2000 data where fecal occult blood test (FOBT) was the predominantly recommended

modality. Mounting evidence demonstrating the efficacy of colonoscopy led to Medicare's declaration of reimbursement for screening colonoscopy in average risk patients aged 50 and older in 2001 [5-7]. With the increased demand for colonoscopy, an open access system bypassing a gastroenterology consult in healthy individuals has been endorsed to help defray the cost of colonoscopy and decrease the wait time for the procedure in hopes of improving CRC screening compliance.

Further evaluation of the pre-procedure discussion prior to open access colonoscopy may help target specific areas to increase CRC screening compliance. Previous studies have shown that there is a limited discussion regarding colon cancer screening between primary care providers and patients [8, 9]. The aim of our study was to assess the physician-patient discussion prior to open access colonoscopy in the community setting from the patients' perspective. We planned to determine the length and content of discussion that occurs for open-access colonoscopy and compare discussions between male and female patients.

METHODS

The study was conducted at a single specialty gastroenterology practice comprised of 8 gastroenterologists and 5 nurse practitioners in Norfolk, Virginia with a practice size

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of approximately 16,000 patients from January 2008 to September 2008. Institutional review board approval was obtained through Eastern Virginia Medical School, which granted a waiver of consent because of the anonymity of data the survey procedure. A one-page cover letter and survey were developed with questions created in a close-ended fashion to maximize response rates. A pilot test of the survey was performed with patient volunteers to ensure comprehension. Consecutive patients referred for open access colonoscopy with the indication of colon cancer screening were solicited while awaiting their procedure. Respondents were instructed by personnel that the study was entirely voluntary and their decision to fill out the survey would not impact their procedure in any way. Staff were available to answer any questions regarding the survey.

Respondents answered a 19 question survey instrument. (Appendix 1) Data obtained included subjects' age, gender, ethnicity, and referring physician type and gender. Patients were asked to specify how many times per year and for how many years they had been seeing their primary care provider. They were asked if this was their first colonoscopy and if their provider discussed the benefits of CRC screening, other CRC screening methods besides colonoscopy, medications to avoid prior to colonoscopy, and the risks of colonoscopy. Subjects listed the number of minutes their referring doctor discussed CRC screening, the colonoscopy procedure and colonoscopy preparation. Additional questions assessed whether the participants felt that they were adequately informed about the colonoscopy procedure, if they had received a handout/brochure about colonoscopy, if they would have preferred an appointment with a gastroenterologist prior to their procedure and what influenced them to have the colonoscopy scheduled.

Statistical Analysis

A univariate general linear model was utilized to assess the effects on the time (in minutes) that was reported for discussion of various topics. Binary logistic regression was then used to examine how various patient, physician, and historical variables predicted pre-colonoscopy discussion of various topics (all coded as yes/no). In all models, *p* values < 0.05 were considered significant, and results are presented as regression coefficients and odds ratios, all with 95% confidence intervals. Data were analyzed using SPSS version 16.

RESULTS

Demographics

A total of 431 subjects were approached while awaiting open access colonoscopy, of which 426 subjects completed the questionnaire for a 99% response rate. Study characteristics are listed in Table 1. Fifty-two percent of the population was female. The majority of participants were Caucasian (70%), and 22% were African American. The average age was 52.8 (±5.3) yrs. Subjects had seen their primary care physicians for 7.9 (±7.6) yrs and averaged two visits/yr. Sixty-three percent of primary care providers were male. Forty seven percent of referring physicians were family practice, 39.2% were internists (IM), and 8.9% were gynecologists. Since most of the physicians were male (64.8%) and patients demonstrated more gender balance (47.5% male), female patients were 5.4 times less likely

(OR = 5.35, *p* < .001; 95% CI: 3.38-8.46) than male patients to be matched with a gender-concordant physician.

Table 1. Characteristics of the Study Population

Characteristic	N%
Race	
Caucasian	300 (91%)
African American	94 (9%)
Asian	13 (3.1%)
Other	19 (4.4%)
Age (years)	
Mean (SD)	52.8 ± 5.3 yrs
Patient Gender	
Female	223 (52%)
Male	203 (48%)
Referring Physician Gender	
Male	269 (63%)
Female	157 (37%)
Physician Specialty	
Family Medicine	201 (47.2%)
Internal Medicine	167 (38.2%)
Obstetrics/Gynecology	38 (8.9%)
Other	20 (5.7%)
Preventive Practices	
Colorectal Cancer	186 (76%)
Mammography	230 (94%)
PAP smear	198 (81%)
Average PCP visits/year	2.4 ± 1.7
Average years with PCP	7.9 ± 7.6

CRC Screening Discussion Length

Male participants reported a mean 9.7 ±4.3 minutes of discussion about CRC screening, the colonoscopy procedure and preparation compared to women who reported 7.6 ±4.3 min, although this difference was not statistically significant. Female physicians' discussions were reported as not significantly longer than their male cohorts, measuring 11.2 ±1.9 vs. 10.8 ±1.9 min, respectively. There were significant differences in reported discussion time between specialties (*F* (3,394) = 3.36, *p* = .019), with family practitioners (12.6 ±4.1 min) having significantly more (*p* = .039) discussion regarding CRC screening/open access colonoscopy than internal medicine physicians (7.8 ±4.0 min) and marginally more (*p* = .096) than gynecologists (6.7 ±4.8 min).

CRC Screening Discussion Content

Fifty-seven percent of subjects recalled discussing the benefits of CRC screening. Twenty-five percent of subjects discussed alternative CRC screening methods besides colonoscopy. Women were less likely than men to have dis-

cussed other forms of CRC screening (OR 0.36, $p < 0.001$; 95% CI: .24-.60).

OAC Procedure Discussion

Twenty percent of participants reported discussing the risks of open access colonoscopy with their practitioner. Twenty-three percent reported discussing the medications to avoid prior to their open access colonoscopy. Slightly more than half (52%) felt that they were adequately informed prior to open access colonoscopy. However, only 15.6% of participants would have preferred an appointment with gastroenterology prior to open access colonoscopy. Women were half as likely to be adequately informed by their practitioner (OR 0.40, $p < 0.001$; 95% CI: 0.32-0.72), the risks of colonoscopy (OR 0.45, $p = 0.005$; 95% CI: 0.29-0.77) and medications to avoid (OR 0.51, $p = 0.012$; 95% CI: 0.35-0.86). Seventy percent of participants reported that they did not receive a handout or brochure regarding the open access colonoscopy procedure.

Referring Physician Factors

Of all primary care providers, participants felt that gynecologists best informed them about their OAC procedure (OR 9.01, $p = 0.01$; 95% CI: 1.61-51.44). Patients listed physician recommendation (67%) as the number one reason to undergo open access colonoscopy. Participants with a relationship for 10 years or greater with their physician were 43% more likely to feel adequately informed (OR 1.43, $p = 0.00$; 95% CI: 1.09-2.56). Gynecologists (OR 9.5, $p = 0.005$; 95% CI: 1.77-40.36) and internal medicine doctors (OR 4.3, $p = 0.042$; 95% CI: 1.02-16.48) were most likely to discuss benefits of CRCs with subjects. Female physicians were the most influential in a patient's decision to undergo a colonoscopy (OR 1.63, $p = 0.04$; 95% CI: 1.01-2.58).

DISCUSSION

Open access colonoscopy is a modality utilized by primary care providers to reduce the risk of CRC in their patients. With improved availability through open access referral and continued CRC screening education, overall CRC screening adherence is slowly improving, although remains significantly lower to breast and cervical cancer screening [3]. This study examined the pre-procedure discussion prior to open access colonoscopy, focusing on the time spent discussing CRC screening and open access colonoscopy particularly related to gender and referring provider characteristics. Our findings demonstrate that despite a mean discussion time of 7.5 minutes or more, only slightly >50% felt adequately informed prior to their procedure. This finding underscores the importance of physician recommendation; as a significant driving force in CRC screening despite not feeling adequately informed about open access colonoscopy. Physician recommendation in our population was the number one reason for undergoing open access colonoscopy. This corresponds to previous studies citing physician recommendation as an important factor influencing a patient decision to undergo CRC screening [10-16]. To improve future open access colonoscopy patient education and thus increase patient adherence, we must ensure patient reception of an open access colonoscopy handout that would explain the value of open access colonoscopy in preventing CRC, the

actual procedure and address frequently asked questions. Denberg *et al.* demonstrated an improvement of 11.7 percentage points in colonoscopy adherence in patients receiving an educational brochure for on CRC screening and colonoscopy, yet 70% of participants in our study failed to receive this [17]. Other studies have demonstrated that patients' interest in undergoing cancer screening increases once they received information [18-23]. Therefore, continuing to target primary care and gastroenterology providers for practice-based improvements for in OAC for CRC screening is critical.

Overall, female patients had felt less well informed about open access colonoscopy than did men and were less likely to have discussed alternative forms of CRC screening, and feel adequately informed by their practitioner of the risks of colonoscopy and medications to avoid. The reasons for the above are unknown. One may hypothesize that embarrassment in discussing open access colonoscopy may account for this as women have associated embarrassment with flexible sigmoidoscopy and colonoscopy [24, 25]. Women in this study were also less likely to have gender concordant physicians as the majority of our practitioners were male. Due to lack of gender concordant physician, women may be less inclined to ask questions about open access colonoscopy and talk to their male practitioners. Previously, Kerssens *et al.* demonstrated that women felt that they talked more easily to female than to male health professionals [26].

In past studies, gynecologists have been shown to be less likely to recommend CRC screening than internists and family practitioners [27, 28]. In a 2006 survey of gynecologists and nurse practitioners, FOBT (76.2%) was the preferred CRC screening modality compared to colonoscopy (28.3%) [29]. However American College of Obstetrics & Gynecology (ACOG) announced new recommendations in October 2007, emphasizing colonoscopy as the preferred method for CRC screening. This recommendation may have impacted our study [30]. We suspect that recent education on CRC screening and colonoscopy due to the ACOG announcement impacted our study, as gynecologists' best informed their patients about open access colonoscopy and CRC screening benefits.

Female physicians also were the most influential in our participants' decision to undergo a colonoscopy. This correlates with previous studies demonstrating that female physicians were far more likely to recommend CRC screening than their male counterparts [31, 32]. Additionally, in a retrospective series of patients undergoing upper endoscopy, having a female physician was associated with increased prevalence of CRC screening at the time of upper endoscopy and increased CRC screening completion in the 6 months afterward [33]. Our finding also corresponds to other preventive health behaviors. Data from the gynecologic and primary care literature demonstrate that patients of female physicians are also more likely to undergo breast and cervical cancer screening than patients of male physicians [34, 35].

Our study has some potential limitations. The primary limitation of our study is that it relied on participant self-report; therefore, recall bias may have been introduced. Participants may have over/underestimated the discussion time and may have incorrectly recalled their CRC screening discussions with their providers. However, in some case patient

report has been shown to be more reliable than the medical record. The medical record may under-document counseling and educational advice [36, 37]. There may be a demographic bias of our population since the majority of our population was Caucasian. Therefore, our findings may not be generalized to other ethnic groups. Our study was cross-sectional in nature and thus precludes causal inferences. Lastly, close to 50% of our respondents' physicians were family practitioners and this may have skewed our results when evaluating physician behaviors.

Despite the time devoted by PCPs, patients do not feel well informed about open access colonoscopy and CRC screening. Specifically, women are least likely to feel informed about the CRC screening process. Female physicians had the most impact on the decision to undergo open access colonoscopy. In continuing to improve CRC screening compliance, additional strategies must be in place to prompt PCPs to discuss the CRCS process with their patients.

APPENDIX 1

1. Please check the gender of the doctor who referred you:

- Male
- Female

2. Please check the type of doctor who referred you:

- Family Practice
- Internal Medicine
- Obstetrics/Gynecology
- Other: (please list)

3. Please list your age in years: _____

4. Ethnic group (please check all that apply)

- Caucasian
- Asian
- Black or African-American
- American Indian/Alaska Native
- Latino or Hispanic

5. Please check your gender:

- Male
- Female

6. How many times per year do you see your primary care doctor? _____

7. How many years have you been seeing your primary care doctor? _____

8. Is this the first time you are undergoing a colonoscopy?

- Yes
- No (Please list how many previous times _____)

9. Did your referring doctor discuss other colon cancer screening methods such as stool tests, barium enema or flexible sigmoidoscopy with you?

- Yes
- No

10. Please list the number of minutes that your referring doctor discussed colorectal cancer screening. _____

11. Please list the number of minutes that your doctor discussed the colonoscopy procedure that you are having today. _____

12. Please list the number of minutes that your referring doctor discussed what was involved in preparing for the colonoscopy. _____

13. Did your doctor discuss the benefits of CRC screening?

- Yes
- No

Appendix 1. contd....

14. Did your doctor discuss medications that you were to avoid prior to the colonoscopy?
- Yes
- No
15. Did your doctor discuss the risks of the colonoscopy procedure such as perforation or bleeding?
- Yes
- No
16. Do you believe you were adequately informed about the colonoscopy procedure?
- Yes
- No
17. Did you receive a handout or other type of brochure on the colonoscopy procedure?
- Yes
- No
18. Would you have liked an appointment with a gastroenterologist before your procedure to further explain the colonoscopy procedure and preparation?
- Yes
- No
19. What influenced you the most to get this procedure done?
- My doctor recommended it
- I have a family member with polyps or colon cancer
- My family
- Newspaper, TV publicity (Katie Couric)

Other, Please List

REFERENCES

- [1] Jemal A, Siegel R, Ward E, Hao Y, Xu J, Thun MJ. Cancer statistics. *CA Cancer J Clin* 2009; 59(4): 225-49.
- [2] Levin B, Lieberman D, McFarland B, *et al.* Screening and surveillance for the early detection of colorectal cancer and adenomatous polyps, a joint guideline from the American Cancer Society, the US Multi-Society Task Force on Colorectal Cancer, and the American College of Radiology. *CA Cancer J Clin* 2008; 58(3): 130-60.
- [3] Centers for Disease Control & Prevention (CDC). Use of colorectal cancer tests--United States, 2002, 2004, and 2006. *Morb Mortal Wkly Rep* 2008; 57(10): 253-8.
- [4] Klabunde CN, Lanier D, Nadel MR, McLeod C, Yuan G, Vernon SW. Colorectal cancer screening by primary care physicians: recommendations and practices, 2006-2007. *Am J Prev Med* 2009; 37(1): 8-16.
- [5] Winawer SJ, Zauber AG, Ho MN, *et al.* Prevention of colorectal cancer by colonoscopic polypectomy. The National Polyp Study Workgroup. *N Engl J Med* 1993; 329(27): 1977-81.
- [6] Citarda F, Tomaselli G, Capocaccia R, Barcherini S, Crespi M. Efficacy in standard clinical practice of colonoscopic polypectomy in reducing colorectal cancer incidence. *Gut* 2001; 48(6): 812-5.
- [7] Thiis-Evensen E, Hoff GS, Sauar J, Langmark F, Majak BM, Vatn MH. Population-based surveillance by colonoscopy: effect on the incidence of colorectal cancer. Telemark Polyp Study I. *Scand J Gastroenterol* 1999; 34(4): 414-20.
- [8] Canada RE, Turner B. Talking to patients about screening colonoscopy--where conversations fall short. *J Fam Pract* 2007; 56(8): E1-9.
- [9] Denberg TD, Melhado T, Coombes JM, *et al.* Predictors of nonadherence to screening colonoscopy. *J Gen Intern Med* 2005; 20(11): 989-95.
- [10] Griffith KA, McGuire DB, Royak-Schaler R, Plowden KO, Steinberger EK. Influence of family history and preventive health behaviors on colorectal cancer screening in African Americans. *Cancer* 2008; 113(2): 276-85.
- [11] Brawarsky P, Brooks DR, Mucci LA, Wood PA. Effect of physician recommendation and patient adherence on rates of colorectal cancer testing. *Cancer Detect Prev* 2004; 28(4): 260-8.
- [12] Mandelson MT, Curry SJ, Anderson LA, *et al.* Colorectal cancer screening participation by older women. *Am J Prev Med* 2000; 19(3): 149-54.
- [13] Lewis SF, Jensen NM. Screening sigmoidoscopy. Factors associated with utilization. *J Gen Intern Med* 1996; 11(9): 542-4.
- [14] Kelly RB, Shank JC. Adherence to screening flexible sigmoidoscopy in asymptomatic patients. *Med Care* 1992; 30(11): 1029-42.
- [15] Myers RE, Trock BJ, Lerman C, Wolf T, Ross E, Engstrom PF. Adherence to colorectal cancer screening in an HMO population. *Prev Med* 1990; 19(5): 502-14.
- [16] Weitzman ER, Zapka J, Estabrook B, Goins KV, *et al.* Risk and reluctance: understanding impediments to colorectal cancer screening. *Prev Med* 2001; 32(6): 502-13.
- [17] Denberg TD, Coombes JM, Byers TE, *et al.* Effect of a mailed brochure on appointment-keeping for screening colonoscopy: a randomized trial. *Ann Intern Med* 2006; 145(12): 895-900.
- [18] Wagner TH. The effectiveness of mailed patient reminders on mammography screening: a meta-analysis. *Am J Prev Med* 1998; 14(1): 64-70.

- [19] Vernon SW. Participation in colorectal cancer screening: a review. *J Natl Cancer Inst* 1997; 89(19): 1406-22.
- [20] Taylor VM, Hislop TG, Jackson JC, *et al.* A randomized controlled trial of interventions to promote cervical cancer screening among Chinese women in North America. *J Natl Cancer Inst* 2002; 94(9): 670-7.
- [21] Richardson JL, Mondrus GT, Danley K, Deapen D, Mack T. Impact of a mailed intervention on annual mammography and physician breast examinations among women at high risk of breast cancer. *Cancer Epidemiol Biomarkers Prev* 1996; 5(1): 71-6.
- [22] Wardle J, Williamson S, McCaffery K, *et al.* Increasing attendance at colorectal cancer screening: testing the efficacy of a mailed, psychoeducational intervention in a community sample of older adults. *Health Psychol* 2003; 22(1): 99-105.
- [23] Pignone MP, Bucholtz D, Harris R. Patient interest and preferences for colon cancer screening. *J Gen Intern Med* 1998; 13(suppl 1): 96.
- [24] Menees SB, Inadomi JM, Korsnes S, Elta GH. Women patients' preference for women physicians is a barrier to colon cancer screening. *Gastrointest Endosc* 2005; 62(2): 219-23.
- [25] Farraye FA, Wong M, Hurwitz S, *et al.* Barriers to endoscopic colorectal cancer screening: are women different from men? *Am J Gastroenterol* 2004; 99(2): 341-9.
- [26] Kerssens, JJ, Bensing JM, Andela MG. Patient preference for genders of health professionals. *Soc Sci Med* 1997; 44(10): 1531-40.
- [27] Lewis JD, Asch DA, Ginsberg GG, *et al.* Primary care physicians' decisions to perform flexible sigmoidoscopy. *J Gen Intern Med* 1999; 14(5): 297-302.
- [28] Hawley ST, Levin B, Vernon SW. Colorectal cancer screening by primary care physicians in two medical care organizations. *Cancer Detect Prev* 2001; 25(3): 309-18.
- [29] Menees SB, Patel DA, Dalton V. Colorectal cancer screening practices among obstetrician/gynecologists and nurse practitioners. *J Womens Health (Larchmt)* 2009; 18(8): 1233-8.
- [30] ACOG Committee Opinion No. 384 November 2007: colonoscopy and colorectal cancer screening and prevention. *Obstet Gynecol* 2007; 110(5): 1199-202.
- [31] Shokar NK, Nguyen-Oghalai T, Wu H. Factors associated with a physician's recommendation for colorectal cancer screening in a diverse population. *Fam Med* 2009; 41(6): 427-33.
- [32] Borum ML. Cancer screening in women by internal medicine resident physicians. *South Med J* 1997; 90(11): 1101-5.
- [33] Menees SB, Scheiman J, Carlos R, Mulder A, Fendrick AM, *et al.* Gastroenterologists utilize the referral for EGD to enhance colon cancer screening more effectively than primary care physicians. *Aliment Pharmacol Ther* 2006; 23(7): 953-62.
- [34] Lurie N, Margolis KL, McGovern PG, Mink PJ, Slater JS. Why do patients of female physicians have higher rates of breast and cervical cancer screening? *J Gen Intern Med* 1997; 12(1): 34-43.
- [35] Henderson JT, Weisman CS. Physician gender effects on preventive screening and counseling: an analysis of male and female patients' health care experiences. *Med Care* 2001; 39(12): 1281-92.
- [36] Wilson A, McDonald P. Comparison of patient questionnaire, medical record, and audio tape in assessment of health promotion in general practice consultations. *Br Med J* 1994; 309(6967): 1483-5.
- [37] Callahan EJ, Bertakis KD. Development and validation of the Davis Observation Code. *Fam Med* 1991; 23(1): 19-24.

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