

## Gender preference and implications for screening colonoscopy: Impact of endoscopy nurses

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### Abstract

**AIM:** To assess the gender preferences, specifically the gender of the nursing staff (endoscopy assistants) and the impact on acceptance for screening colonoscopy (SC).

**METHODS:** Patients or relatives attending the clinics or health care workers working in a tertiary center were invited to participate in this questionnaire study. The questionnaire enquired on the general demographics (1) age, gender, ethnicity, education level, and employment status, previous history of colonoscopy, family or personal history of colonic pathologies, personal and family history of any cancers; (2) subjects were asked if they would go for an SC if they had appropriate indications (age over 50 years, family history of colorectal cancer (CRC), fecal occult blood positive, anemia especially iron deficiency anemia, bleeding per rectum with or without loss of appetite, weight loss and abdominal pain) with and without symptoms attributable to CRC; and (3) preferences for the gender of the endoscopists and assistants and whether they would still undergo SC even if their preferences were not met.

**RESULTS:** Eighty-four point seven percent (470/550) completed questionnaire were analysed. More female

subjects expressed gender preferences for the endoscopists [overall 70%; female (67.7%) and male (2.3%)] compared to male subjects [overall 62.8%; male (56%) and female (6.8%),  $P = 0.102$ ]. Similarly, more female subjects expressed gender preferences for the assistants [overall 74.5%; female (73.4%) and male (1.1%)] compared to male subjects [overall 58%, male (49.3%) and female (8.7%),  $P < 0.001$ ]. Overall, a third would decline an SC, despite having appropriate indications, if their preferences were not met. On univariate analysis, male gender, non-Malay ethnicity (Chinese and others) and previous colonoscopy experience were more likely to undergo an SC, even if their preferences were not met (all  $P < 0.05$ ). Gender and previous experience [odds ratio (OR) 1.68, 95% confidence interval (CI) 1.00-2.82,  $P < 0.05$ ] with colonoscopy (OR 4.70, 95% CI 1.41-15.66,  $P < 0.05$ ) remained significant on multivariate analysis.

**CONCLUSION:** Genders preference for the endoscopy nurses/assistants is more common than for the endoscopist among women and has implications for the success of a screening colonoscopy program.

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**Key words:** Colorectal cancer; Screening colonoscopy; Gender preference; Patient satisfaction; Endoscopy

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## INTRODUCTION

Colorectal cancer (CRC) is the third most common cancer in both men and women and remains an important cause of morbidity and mortality<sup>[1,2]</sup>. The incidence rates are reported to be increasing, especially in the developing nations, but are stable or are leveling off in the more developed nations, such as the United States and Canada<sup>[1,2]</sup>.

Currently, colonoscopy is the recommended procedure of choice for CRC screening<sup>[3-5]</sup>. Despite the effectiveness of CRC screening programs, with reduction in subsequent development of CRC and related mortality<sup>[6,7]</sup>, the uptake rates are still low. Ethnicity, socioeconomic status, public knowledge of CRC and availability of services are some of the factors that can affect the uptake of screening programs. Gender disparities among health care providers are evident in certain specialties<sup>[8-10]</sup>. A similar situation exists in the gastroenterology fraternity<sup>[11-14]</sup>. Several studies have shown that women prefer women endoscopists<sup>[15-21]</sup>. However, none of these studies have looked at the gender of the endoscopists' assistants. This study assesses preferences with regard to the genders of the endoscopists and the assistants and their implications for screening colonoscopy (SC) uptake.

## MATERIALS AND METHODS

### Setting

This study was conducted (March to June 2008) in a referral center (RIPAS Hospital) in a country with a predominant Malay population. The study was conducted in accordance with the standard set out in the Declaration of the Helsinki and ethics approval was obtained from the Institutional Medical Health and Research Ethic Committee of the Hospital, Ministry of Health.

### Subjects

Subjects included patients attending the various clinics or accompanying relatives and health care workers working in the center. Subjects were randomly approached and invited to participate in this self-administered questionnaire study. Verbal and detailed written explanations were given prior to handing out the questionnaires. Consents were also obtained. Only subjects 18 years old or above were included in the study.

### Questionnaire

**Development:** The questionnaire was provided in two versions, English and Malay. The initial questionnaire was developed in English and forward translations to Malay were carried out by two persons fluent in both languages. Inconsistencies were amended based on consensus. This process was repeated until the two versions were consistent. The questionnaire was tested ( $n = 20$ ) to assess for any problem before starting the survey.

**Data collection:** The questionnaire consisted of three parts; (1) demographic data (gender, age, ethnic group,

education level, and employment status, previous colonoscopy, family or personal history of colonic pathologies (polyps and cancer), personal and family history of any cancers (specifically CRC, other gastrointestinal cancers, pulmonary, obstetric and gynecology and breast cancers); (2) in the second section, subjects were asked if they would go for an SC assuming they had appropriate indications (age over 50 years, family history of CRC, fecal occult blood positive, anemia especially iron deficiency anemia, bleeding per rectum with or without loss of appetite, weight loss and abdominal pain)<sup>[3-5]</sup>. They were also asked if they would go for an SC if they had appropriate indications but without any gastrointestinal symptoms attributable to a CRC. All these questions required only a "yes" or "no" response; and (3) subjects were asked for their preferences for the gender of the endoscopists and assistants (nursing staff involved with the procedure). These two questions required one out of three responses (same gender, opposite gender or no preferences). The final question inquired if they would still go for an SC if they had definite indications, but without their preferences being met. Subjects were informed that colonoscopies are carried out following the practice of the unit using conscious sedation (titrated intravenous midazolam and fentanyl).

### Statistical analysis

The data were entered into the Statistical Program for the Social Sciences (SPSS, Version 10.0, Chicago IL, United States) for analysis. Univariate analysis ( $\chi^2$  test) was used to compare the categorical variables and only those variables that were found to be significant ( $P < 0.10$ ) were entered into multivariate analysis. The level of significance was set at  $P < 0.05$ .

## RESULTS

There were 470 completed questionnaire out of total 550 distributed, giving a response rate of 84.5%. The mean age of the sample was  $39.4 \pm 12.8$  years old, with a male to female ratio of 44:56. Family history of any cancer was reported at 19.8% and of these, 7.4% were CRC. The demographic data is shown in Table 1.

In the presence of appropriate indications, including symptoms attributable to CRC, 90.9% would agree to undergo an SC. However, in the absence of any symptoms, only 59.4% would agree to undergo SC ( $P < 0.05$ ).

With regard to the genders of the endoscopists, more female subjects expressed a gender preference (overall 70%; 67.7% for a female endoscopist and 2.3% for a male endoscopist), with 30% having no gender preference, compared to male subjects, of whom 62.8% ( $P = 0.102$ ) expressed a gender preference, (56% for male endoscopists and 6.8% for female endoscopists) and 37.2% had no preference.

With regard to the gender of the assistants, significantly more female subjects expressed a gender preference [overall 74.5%; female (73.4%), male (1.1%) and no

Table 1 Demographic and previous medical history of subjects

Demographic data	n (%)
Gender	
Male	207 (44)
Female	263 (56)
Race	
Malays	370 (78.7)
Chinese	75 (16.0)
Others	25 (5.3)
Educations levels	
Higher	169 (36.0)
Lower/none	301 (64.0)
Employments status	
Working	356 (75.7)
Not working	114 (24.3)
Marital status	
Married	325 (69.1)
Single	129 (27.4)
Others	16 (3.4)
Previous colonoscopy	65 (13.8)
Family history of cancer	93 (19.8)
Gastric	15 (3.2)
Colorectal	35 (7.4)
Breast	17 (3.6)
Obstetric and gynecology	8 (1.7)
Pulmonary	12 (2.6)

Table 3 Multivariate analysis showing willingness to undergo screening colonoscopy despite preferences not being met

Variables	OR	95% CI	P value
Gender			
Male vs female	1.68	1.00-2.82	0.049
Race			
Malays vs non-malays	1.94	0.910-4.130	0.086
Previous colonoscopy			
Yes vs no	4.70	1.41-15.66	0.012

OR: Odd ratio; CI: Confidence interval.

preference (25.5%)] compared to male subjects [overall 58%, male (49.3%), female (8.7%) and no preference (42%)] ( $P < 0.001$ ).

Overall, a third would decline an SC if their preferences were not met (for either or both endoscopists and assistants), even if there were indications for an SC. Factors that were associated with likelihood of agreeing to undergo SC even when their preferences were not met included male gender, non-Malay ethnicity and previous experience of colonoscopy. Education level, marital status, employment status and family history of cancers, including CRC, were not predictive (Table 2).

On multivariate analysis, male gender and previous experience of colonoscopy remained significant predictive factors for agreeing to undergo an SC, despite preferences not being met (Table 3).

## DISCUSSION

To date, there have been several studies that had looked at gender preferences during colonoscopy<sup>[15-21]</sup>. However,

Table 2 Factors associated with likelihood for subjects to agree to undergo screening colonoscopy despite their preferences not being met

Parameters	Will undergo SC	P value
Recommended age		
Yes	102 (86.4)	0.222
No	287 (81.5)	
Gender		
Male	180 (87.0)	0.033
Female	209 (79.5)	
Race		
Malays	308 (81.1)	0.043
Non-malays	81 (90.0)	
Education		
Higher	134 (79.3)	0.135
Lower/none	255 (84.7)	
Marital status		
Single	102 (79.1)	0.192
Married/widowed	287 (84.2)	
Employment		
Yes	294 (82.6)	0.854
No	95 (83.3)	
Previous colonoscopy		
Yes	62 (95.4)	0.004
No	327 (80.7)	
Family history of cancer		
Yes	76 (81.7)	0.766
No	313 (83.0)	
Family history of CRC		
Yes	28 (80.0)	0.652
No	361 (83.0)	

SC: Screening colonoscopy; CRC: Colorectal cancer.

they only assessed the preference for the gender of the endoscopists and not that of the endoscopy nurses or assistants.

Of these studies, most looked at mainly Caucasian populations<sup>[15-18,20]</sup> and one study from the States concentrated on a Hispanic population<sup>[19]</sup>. To date, there is only one study from the East, which assessed the preferences of Korean women<sup>[18]</sup>. Two studies specifically looked at female subjects<sup>[17,18]</sup>. Most of the studies recruited subjects from clinics<sup>[17-21]</sup> and two studies looked at patients who were scheduled for colonoscopy<sup>[15,16]</sup>. All these studies showed similar findings, with women expressing more preferences for female endoscopists, even among healthcare professionals<sup>[21]</sup>. The present study showed the highest preference rates reported for both women (70%) and men (62.8%). The findings of these studies are summarized in Table 4.

Generally, when patients express a preference, they usually prefer an endoscopist of the same gender. Several factors have been reported to be important and not just for endoscopic procedures<sup>[22]</sup>. Factors reported to be important include ethnicity, female gender, younger age, low income, history of abuse (either physical or emotional), being cared for by a female primary care physician, being employed, and being single<sup>[17-21]</sup>. However, not all the studies reported consistently similar findings. One of the reasons that may account for the finding in the current study is cultural differences. Asian populations are gener-

Table 4 Comparison of gender preference during colonoscopy

Authors (yr)	Subjects	Setting	Genders	Population	Gender preference
Fidler <i>et al</i> <sup>[14]</sup> , 2000	Patients undergoing colonoscopy	Endoscopy	Both	United Kingdom	Women (48%) and men (0%)
Varadarajulu <i>et al</i> <sup>[15]</sup> , 2002	Patients undergoing colonoscopy	Endoscopy	Both	United States	Overall (26%): Women (45%) and men (4.3%). No difference post procedure
Menees <i>et al</i> <sup>[16]</sup> , 2005	Subjects not scheduled	Clinics	Female	United States	44.4% expressed preference [endoscopist: Women (43%) and men (1.4%)]
Lee <i>et al</i> <sup>[17]</sup> , 2008	Subjects not scheduled for colonoscopy	Clinics	Female	South Korea	45.5% expressed preference [endoscopist: Women (32.1%) and men (13.4%)]
Schneider <i>et al</i> <sup>[18]</sup> , 2009	Patients undergoing colonoscopy	Endoscopy	Both	United States	Women (42%) and men (24%)
Zapatier <i>et al</i> <sup>[19]</sup> , 2011	Patients not scheduled for colonoscopy	Clinics	Both	United States	Overall (25.7%): Women (30.8%) and men (20.4%); women: Hispanic (35%) and Caucasian; men (20.4%): Hispanic men
Shah <i>et al</i> <sup>[20]</sup> , 2011	Patients not scheduled for colonoscopy	Primary clinics	Both	United States	Patients: Women (53%) and men (27.8%); Health care professionals: Women (43.1%) and men (26.1%)
Present study, 2012	Subjects not scheduled for colonoscopy	Clinics	Both	Southeast Asia	Endoscopists: Women (70%; women 67.7% and men 2.3%); men (62.8%; women 6.8% and 56% men) Assistants: Women (74.5%; women 73.4% and men 1.1%); men (58%; women 8.7% and 49.3% men)

ally more reserved, especially women, and are more likely to prefer to deal with health care providers of the same gender.

When the preference for the gender of the assistants was assessed, similar findings were seen. However, the preference rate for women subjects was higher compared to the rate expressed for the endoscopist. In contrast, it was slightly lower for men. This indicates that, the gender of the assistants is more important for female patients than for male patients. The reasons for this are probably similar to those found in studies looking at gender preferences among endoscopists<sup>[15-21]</sup>. Colonoscopy can be considered as invasive, uncomfortable, and embarrassing and patients usually have more interactions with the endoscopists' assistants or nurses. For women, embarrassment, feeling at ease talking to, and being examined by, female health care providers are some of the important factors. Most were willing to wait or pay extra for their preferences to be met.

When subjects' preferences were not a problem, the uptake of SC was good in the presence of symptoms attributable to colonic pathology, but not in the absence of symptoms. However, when their preferences were not met, a third would decline an SC even if an SC was indicated. On univariate analysis, male gender, non-Malay ethnicity and previous experience of colonoscopy were significant predictive factors for agreeing to undergo an SC, even if preferences were not met. Only gender and previous experience of colonoscopy remained significant on multivariate analysis. None of the previous studies assessed the uptake of colonoscopy if subjects' preferences were not met<sup>[15-21]</sup>. The finding of the present study are not unexpected. Previous studies have already shown that women expressed more preferences. Interestingly, one study showed the rates of SC did not increase when women were offered a female endoscopist in a health promotion outreach program<sup>[23]</sup>, suggesting other factors are involved<sup>[24,25]</sup>. Surprisingly, socioeconomic status and family history of cancer, including gastrointestinal cancers, did

not influence subjects' decisions for SC.

There are several limitations with the present study. First, it was a single center study and the result may not be generalizable to other populations. However, the findings are consistent with findings of previous studies. Second, the mean age of the studied population was much younger than the other studies and the recommended screening age. However, as with all screening programs, all subjects are potential screening subjects and all will eventually become eligible with time.

In conclusion, the gender of the endoscopy nurse or assistant is more important than the gender of the endoscopist among female subjects. Importantly, a third of the subjects, particularly women, would decline an SC if their preferences were not met. Male gender and previous experience of colonoscopy were predictive factors for agreeing to undergo an SC, even when their preferences were not met. Therefore, addressing the gender disparities of health care providers, not just of the endoscopists, but also of the endoscopists' assistants is important to improve the uptake rate of any SC programs.

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## COMMENTS

### Background

Colorectal cancer (CRC) is the third most common cancer and remains an important cause of cancer related mortality. Screening colonoscopy (SC) has been shown to reduce the incidence of CRC and prevent CRC related death. However, uptake of SC remains low for various reasons, including both patient and non-patient factors. Gender preference for the healthcare service providers is common and may impact on uptake rates of service delivery.

### Research frontiers

Several studies based on patients scheduled for lower gastrointestinal endoscopy and clinics have shown that gender preference for a same gender en-



doscopist is more common among women than men. This is true even among health care professionals. Most of those who expressed a gender preference were willing to wait or pay for their preferences to be met.

### Innovations and breakthroughs

Previous studies have only assessed subjects' preferences for the gender of the endoscopist. This study also assessed the subjects' preferences for the gender of the assistants and their impact on uptake of SC.

### Applications

This study showed that the gender of the endoscopist's assistants or staff nurse involved with the procedure is also important. It also showed that not meeting the preference of patients, especially women, would affect the uptake of SC if indicated. In this study of a Southeast Asian population, a third of subjects would decline an SC if their preferences were not met.

### Terminology

CRC is a malignant neoplasm of the colon and rectum and commonly develops through the adenoma-dysplasia-carcinoma sequence, which usually takes many years. SC is now the recommended screening procedure of choice for CRC, as it allows detection and removal of early neoplasms (adenoma with or without carcinoma *in situ*).

### Peer review

This study shows that gender of not just the endoscopist but also of the endoscopy nurse or assistants need to be considered in the delivery of colonoscopy and that this may impact on the uptake rate of an SC program.

## REFERENCES

- Jemal A, Siegel R, Xu J, Ward E. Cancer statistics, 2010. *CA Cancer J Clin* 2010; **60**: 277-300
- Globocan 2008 cancer fact sheet: Colorectal cancer incidence and mortality worldwide in 2008 summary. Available from: URL: <http://globocan.iarc.fr/factsheets/cancers/colorectal.asp>
- Rex DK, Johnson DA, Anderson JC, Schoenfeld PS, Burke CA, Inadomi JM. American College of Gastroenterology guidelines for colorectal cancer screening 2009 [corrected]. *Am J Gastroenterol* 2009; **104**: 739-750
- Sung JJ, Lau JY, Young GP, Sano Y, Chiu HM, Byeon JS, Yeoh KG, Goh KL, Sollano J, Rerknimitr R, Matsuda T, Wu KC, Ng S, Leung SY, Makharia G, Chong VH, Ho KY, Brooks D, Lieberman DA, Chan FK. Asia Pacific consensus recommendations for colorectal cancer screening. *Gut* 2008; **57**: 1166-1176
- Van Cutsem E, Oliveira J. Primary colon cancer: ESMO clinical recommendations for diagnosis, adjuvant treatment and follow-up. *Ann Oncol* 2009; **20** Suppl 4: 49-50
- Zauber AG, Winawer SJ, O'Brien MJ, Lansdorp-Vogelaar I, van Ballegooyen M, Hankey BF, Shi W, Bond JH, Schapiro M, Panish JF, Stewart ET, Wayne JD. Colonoscopic polypectomy and long-term prevention of colorectal-cancer deaths. *N Engl J Med* 2012; **366**: 687-696
- Kaderli R, Guller U, Muff B, Stefanelli U, Businger A. Women in surgery: a survey in Switzerland. *Arch Surg* 2010; **145**: 1119-1121
- Reed V, Buddeberg-Fischer B. Career obstacles for women in medicine: an overview. *Med Educ* 2001; **35**: 139-147
- Allen I. Women doctors and their careers: what now? *BMJ* 2005; **331**: 569-572
- Burke CA, Sastri SV, Jacobsen G, Arlow FL, Karlstadt RG, Raymond P. Gender disparity in the practice of gastroenterology: the first 5 years of a career. *Am J Gastroenterol* 2005; **100**: 259-264
- Singh A, Burke CA, Larive B, Sastri SV. Do gender disparities persist in gastroenterology after 10 years of practice? *Am J Gastroenterol* 2008; **103**: 1589-1595
- Oxentenko AS, Pardi DS, Schmoll JA, Gores GJ. Factors predicting initial career choices in gastroenterology fellows. *J Clin Gastroenterol* 2011; **41**: 445-450
- Gerson LB, Twomey K, Hecht G, Lee L, McQuaid K, Pizarro TT, Street S, Yoshida C, Early D. Does gender affect career satisfaction and advancement in gastroenterology? Results of an AGA institute-sponsored survey. *Gastroenterology* 2007; **132**: 1598-1606
- Fidler H, Hartnett A, Cheng Man K, Derbyshire I, Sheil M. Sex and familiarity of colonoscopists: patient preferences. *Endoscopy* 2000; **32**: 481-482
- Varadarajulu S, Petruff C, Ramsey WH. Patient preferences for gender of endoscopists. *Gastrointest Endosc* 2002; **56**: 170-173
- 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**: 219-223
- Lee SY, Yu SK, Kim JH, Sung IK, Park HS, Jin CJ, Choe WH, Kwon SY, Lee CH, Choi KW. Link between a preference for women colonoscopists and social status in Korean women. *Gastrointest Endosc* 2008; **67**: 273-277
- Schneider A, Kanagarajan N, Anjelly D, Reynolds JC, Ahmad A. Importance of gender, socioeconomic status, and history of abuse on patient preference for endoscopist. *Am J Gastroenterol* 2009; **104**: 340-348
- Zapatier JA, Kumar AR, Perez A, Guevara R, Schneider A. Preferences for ethnicity and sex of endoscopists in a Hispanic population in the United States. *Gastrointest Endosc* 2011; **73**: 89-97, 97.e1-4
- Shah DK, Karasek V, Gerkin RD, Ramirez FC, Young MA. Sex preferences for colonoscopists and GI physicians among patients and health care professionals. *Gastrointest Endosc* 2011; **74**: 122-127.e2
- Denberg TD, Kraus H, Soenksen A, Mizrahi T, Shields L, Lin CT. Rates of screening colonoscopy are not increased when women are offered a female endoscopist in a health promotion outreach program. *Gastrointest Endosc* 2010; **72**: 1014-1019
- Kahi CJ, Rex DK, Imperiale TF. Screening, surveillance, and primary prevention for colorectal cancer: a review of the recent literature. *Gastroenterology* 2008; **135**: 380-399
- Elta GH. Women are different from men. *Gastrointest Endosc* 2002; **56**: 308-309
- Deng SX, Gao J, An W, Yin J, Cai QC, Yang H, Li ZS. Colorectal cancer screening behavior and willingness: an outpatient survey in China. *World J Gastroenterol* 2011; **17**: 3133-3139
- Ziegler M, Schubring-Giese B, Bühner M, Kolligs FT. Attitude to secondary prevention and concerns about colonoscopy are independent predictors of acceptance of screening colonoscopy. *Digestion* 2010; **81**: 120-126

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