



Human Journals

Research Article

December 2016 Vol.:5, Issue:2

© All rights are reserved by Michael G Lee et al.

Colonoscopy: Patients Acceptance and Experience



*Tanesha Davis, *Michael G Lee, *Dwight Whittle,
*Reneta Mignott, **Damian Francis

**Department of Medicine and **Tropical Medicine
Research Institute, The University of the West Indies,
Mona, Jamaica.*

Submission: 7 December 2016

Accepted: 12 December 2016

Published: 25 December 2016



HUMAN JOURNALS

www.ijsrn.humanjournals.com

Keywords: colonoscopy, sedation, anxiety, discomfort, acceptance

ABSTRACT

This study determined patient's acceptance and experience of colonoscopy and defined factors that contributed to procedural acceptance. Patients who underwent colonoscopy at the University Hospital of the West Indies, Jamaica, from July 2012 to January 2013 were studied. Procedural and emotional factors related to their experience and acceptance of colonoscopy were determined. Demographic and socioeconomic data were also collected. There were 117 patients, 55% female and 44% male with a mean age 56 years. Overall, 62% of females had undergone the procedure as a screening test compared to 38% of men. Most patients (94%), achieved light to moderate sedation. The experience was cited as good or excellent in 92% of patients. The majority of patients (66%) experienced some form of discomfort during the procedure and 19 % complained of pain. The bowel preparation negatively influenced the experience in 66% of patients. Although sufficient information was given to 91% of patients this did not affect the level of anxiety experienced but 76% reported this anxiety as being relieved after having spoken to the doctor prior to the procedure. Overall 97 % of patients stated that they would undergo the procedure again and 99 % would recommend this procedure. Patients undergoing colonoscopy had a favorable acceptance using mild to moderate sedation as the experience was cited as good or excellent in 92 % and 97% would repeat the procedure.

INTRODUCTION

Colonoscopy is the most widely accepted procedure for visualization of the colon and sampling of colonic mucosa and colonic lesions and it is considered the “gold standard” in the diagnosis of colonic diseases (1). It has the best sensitivity for both small and large polyps and has also been shown to decrease the incidence of colorectal cancer (CRC) in patients with adenomatous polyps after removal (2). It permits the biopsy of suspicious lesions and removal of some early carcinoma. Colonoscopy is a complete screening procedure, allowing the entire large bowel to be examined and polyps to be removed in one session. It is currently the preferred screening method for CRC and is the required procedure for confirming positive findings from other tests and also considered the standard for assessing the efficacy of other screening methods (3).

Colon cancer is preventable and the majority of these cancers arise from benign adenomatous polyps which usually takes about ten years to progress and transform into advanced colorectal cancer (4). Reduction of colorectal cancer can be achieved by an adequate screening of average-risk individuals (5). Owing to its potential for a high level of effectiveness in CRC prevention and study of outcomes associated with its use, quality colonoscopy every 10 years is the preferred CRC screening strategy (1). There has been an increase in the need for colonoscopy for screening, surveillance and as an investigative tool. It is believed this is linked to increased awareness of prevention and detection of early CRC, coupled with the increasing incidence (6).

The intrusive nature of colonoscopy may be an important hindrance that limits patients from finding this test acceptable. This will affect their willingness to undergo screening. Population-based studies reveal the acceptance rate for colonoscopy to be low. For any screening test to be effective, the acceptance rate must be over 60 percent (5,7). There are barriers experienced by patients that influence the uptake of colorectal cancer (CRC) screening. These include the failure of physicians to recommend screening, scheduling difficulties, cost, lack of insurance coverage, gaps in knowledge, fear, embarrassment, pain, and a lack of symptoms (8,9).

The limitations with colonoscopy include incomplete visualization of the colon, discomfort and pain requiring sedation. It is, therefore, important to determine the acceptance of patients undergoing colonoscopy. This study measured patient's acceptance and experience of

colonoscopy and defined factors that contributed to procedural acceptance in a population in Jamaica.

MATERIALS AND METHODS

The present cross-sectional study was performed in patients undergoing colonoscopy at the University Hospital of the West Indies (UHWI), Jamaica. Patients were enrolled between July 2012 and January 2013. The main inclusion criterion was patients undergoing colonoscopy at the UHWI. Patients who required mild to moderate sedation during the procedure were included in the study.

Patients referred for colonoscopy was seen by the gastroenterologist/endoscopist who reviewed the clinical history and performed a physical examination. The indications for colonoscopy consisted of lower intestinal symptoms, such as rectal bleeding and lower abdominal pain; suspicious colonic lesions, and stool positive for occult blood; also, screening of average risk individuals or surveillance of high-risk patients for colon cancer. Patients were excluded if they declined to give consent, requested deep sedation, or had significant co-morbidities.

All procedures were performed at the UHWI. On the morning of the procedure, before colonoscopy was performed, a written consent for the procedure was obtained, after full explanation. This was obtained by a special consent form used by the UHWI. A rectal examination was initially carried out by the gastroenterologist and the procedure then commenced. Colonoscopy was performed using standard Olympus flexible video-colonoscopes.

Conscious sedation was given prior to the insertion of the colonoscope and consisted of midazolam alone or a combination of midazolam and pethidine intravenously. Additional doses of medication(s) were given as needed to maintain sedation and comfort for the procedure.

Following colonoscopy, after recovery from the sedation, participants received an introduction with regards to the purpose of the study and a written informed consent was obtained from all patients participating in the study. A questionnaire was administered to patients by trained interviewers who were not involved in patient care. The endoscopist was not present whilst the questionnaire was being administered. The consent form and the

questionnaire were kept separate to ensure anonymity. The questionnaires were administered within 24 hrs from the completion of the procedure and took on average of 10 minutes to complete.

The questionnaire was developed by adopting instruments which contained relevant colonoscopy questions. Some questions were developed by consensus with experts (endoscopist and researchers), and others after a review of the literature for studies with similar objectives. The questionnaire had two sections; a post-operative patient component and a post-operative endoscopist aspect. The patient related questions assessed the following areas: socio-demographic (age, gender, education and employment status), pre-operative procedures (bowel preparation), and post and peri-operative procedure (sensation of pain, discomfort, embarrassment and recollection of the event). The patient related aspect also included questions related to pain tolerance, acceptance and embarrassment based on the Health Belief Model (10). The section available for the endoscopist to complete was administered prior to the questionnaire being completed with the patient to eliminate potential information bias. This section involved aspects of the procedure that could potentially influence the patient's experience during the colonoscopy. These included the length of time of the procedure, the level of procedure difficulty, and whether or not any interventions were done during the procedure.

Statistical Analyses were performed using SPSS 12.0 (SPSS Inc, USA). Univariate analysis was used to examine socio-demographic and outcome variables. Differences between categorical variables and association between specific explanatory variables and outcomes were analyzed using χ^2 tests.

The study Protocol was approved by the University of the West Indies Ethics Committee.

RESULTS

A total of 117 patients (44% male, 55% female), with a mean age of 56 years completed the study. The mean age in males was 59.7 years and in females 54.6 years. Of the patients in the study, 60 (52%) were educated up to tertiary level and 40 (34%) up to secondary school level. The remainder of the patients only received primary education or "other". Among the patient population 71 (61%), were employed either on a part time basis or full time, 38 (26%) were retired and 13% unemployed. More females were unemployed than males. Also, 83 (70%) of patients had some form of health insurance.

The indication for the procedure was recalled by all patients, 62% of females had undergone the procedure for colorectal screening as compared to 38% of men. Lower abdominal symptoms were equal amongst the sexes with distributions of 51% (males) and 49% (females). Overall, 29 (25%) of patients had undergone a previous colonoscopy and 80 (69%) knew someone who did the procedure before.

The majority of patients, 107 (91%) indicated that sufficient information was given to them prior to the procedure. Anxiety was present in 62% of patients and of these 76% reported the anxiety as being relieved after having spoken to the doctor before the procedure.

The bowel preparation was found acceptable by 88% of patients. Nausea and vomiting were reported in 14 (12%) of patients which all occurred during the prescribed bowel preparation for the procedure. The bowel preparation also affected the post procedure views as 71 (66%) of patients cited this stage as influencing in a negative manner the overall impression of the study (Table 1).

The majority, 109 (94 %), of patients, achieved mild to moderate sedation (conscious sedation) with the administration of midazolam and pethidine.

The experience was cited as good or excellent in 92% of patients (Table 1). According to the patients, 66% experienced some discomfort and 19 % complained of pain. The overall experience of colonoscopy was cited as being embarrassing in 14% of patients. Patients of lower economic status felt more anxious than their educated counterparts, however, discomfort, pain and embarrassment were largely unaffected by socioeconomic status (Table 2). Prior experience of the procedure was associated with an increased level of anxiety and discomfort but less pain and embarrassment. Patients who were doing a colonoscopy as a result of lower abdominal symptoms experienced more pain and discomfort than those doing a screening colonoscopy.

In 89 % of the cases, the endoscopist documented the procedure as being not difficult. Overall, 78 % of the cases were completed to the caecum with time to completion in less than an hour in all cases and 67 % being between fifteen to thirty minutes.

The preliminary results of the colonoscopy were discussed by the endoscopist with 106 (96%) of patients. Of the patients, 54% interviewed recalled some or all of the procedure and

46% did not recall the procedure. Overall, 97 % of patients stated that they would undergo this procedure again if it was needed and 99 % would recommend this procedure.

Of the patients who found the test unacceptable, the majority, 79%, were female.

Four patients were not sedated and of those patients, 3 (75%) experienced discomfort and 3 (75%) experienced pain.

DISCUSSIONS

Colonoscopy is the main method for investigation of the colon and has been performed routinely in Jamaica for five decades (11). In the present study, CRC screening and lower bowel symptoms were the main indications for undergoing colonoscopy. The majority of patients in our study was older than fifty years and thus would have qualified for a screening colonoscopy. The American College of Gastroenterology recommends screening of average risk African Americans to commence at age forty five (1). Colonoscopy is used as a screening tool for asymptomatic adults and screening colonoscopy has become standard practice in colon cancer prevention (12). In average risk individuals, colonoscopy every ten years is a cost-effective strategy. In average-risk persons, screening with colonoscopy was associated with reduced risk for diagnosis of incident late-stage CRC (1, 13). Colonoscopy is the recommended screening method for individuals in the increased and high-risk groups (9). Colon cancer screening is significantly lacking when compared to other forms of cancer screening for rates of participation. However, over the last few years, the number of people screened for colorectal cancer in the United States population has been increasing (14).

The majority of patients (86%) had secondary or tertiary education in this study, this is a much higher than expected, since only 16.9% of Jamaicans were enrolled in a tertiary level institution in 2006 and thus our study is biased towards this group (15). In the USA, uptake of CRC screening was higher in those with higher educational attainment but in a recent study in Saudi Arabia, the education level of patients undergoing colonoscopy was less than high school in 43.2% (14, 16). Education can impact health through its effects on personal health behaviors to make healthy choices (17). These results are consistent with the current literature which in most Western countries, individuals of low socioeconomic status (SES) are less likely to be screened than their higher income counterparts, as low-SES participants, more often report certain barriers than their higher-SES counterparts and this was more evident for colonoscopy (18). Also, individuals with the lowest educational attainment and income

levels, among whom the colorectal cancer burden is the highest, have the lowest colorectal cancer screening rates, even among insured populations (18).

Personal barriers to screening include lack of health insurance limiting access to care, aversion to bowel preparations, inadequate information, embarrassment and fear of invasive procedures (8, 9). Fear, insufficient information and bowel preparation were also cited in a previous study (8). Psychosocial barriers were also identified as a factor (13). In the present study, 97 % of patients stated that they would undergo this procedure again and 99 % would recommend this procedure if needed, indicating a high acceptance. This is in keeping with other studies in which the proportion of patients willing to return for colonoscopy in the future ranged from 73% to 100% (16, 19).

The bowel preparation is important for adequate and reliable colonoscopy. However, this preparation is a barrier for patients considering colonoscopy (8). In this study, the preparation was found acceptable by 88% of patients. This is similar to previous studies where most patients found the bowel preparation acceptable, including a split bowel preparation (20, 21). However, in a study in Italy, bowel preparation was poorly tolerated by patients undergoing colonoscopy and subject's reaction to the bowel preparation was predictive of post-procedural discomfort (22). Although the bowel preparation in the present study was acceptable it affected the post procedure views, as 66% of patients, sited this stage as influencing in a negative manner the overall impression of the study. It is of interest that of the patients who found the bowel preparation unacceptable, the majority were female. Therefore, physicians need to be aware of this aspect of the preparation for colonoscopy

The experience was cited as good or excellent in 92% of patients in this study and included patients who received light or moderate sedation (conscious sedation). Patients in our study who were doing a colonoscopy for lower abdominal symptoms experienced more pain and discomfort than those for routine screening colonoscopy. This highlights the need for a more individualized approach to sedation in colonoscopy. Patients who prior to the procedure had already been experiencing lower abdominal symptoms may benefit from deeper sedation. Sedation allows for a comfortable and acceptable experience for both patient and physician (6). Although it is understood that sedation is a recognized standard practice in Western countries it is still a matter of debate, as unsedated colonoscopy is offered in other parts of the world (16). In a previous study, the concern was raised whether sedation would affect the patient's ability to adequately complete the questionnaire. In that study, persons were

interviewed immediately after the procedure and then again twenty four hours later, they found no difference in the answers. Therefore the general consensus is that light to moderate sedation would not affect the quality or the legitimacy of the responses (23).

In this study, 62% of patients were anxious and 76% reported this anxiety as being relieved after having spoken to the doctor prior to the procedure. Some patients who were anxious cited the expected result or outcome rather than the actual procedure itself as the cause for the anxiety. Fear of the test result has been cited by patients as a barrier to CRC screening (8). Another interesting finding is that prior experience of the procedure was associated with an increased level of anxiety and discomfort but less pain and embarrassment. Colonoscopy is an invasive procedure with the potential for discomfort, embarrassment and disappointment related to unexpected findings. These concerns can result in anxiety that unfavorably decreases patient cooperation and satisfaction with the procedure (24). The effect that information provided has on anxiety is controversial. There has been the belief that the provision of extra information may cause undue anxiety but there is also evidence that the converse may be true (25). In this study, knowledge of the procedure whether via physician education or prior experience did not relieve anxiety but anxiety was relieved after speaking to the doctor prior to the procedure. Pre-colonoscopy consultation with a physician was associated with increased patient satisfaction in previous studies (19).

Colonoscopy technique is of crucial importance in detection rates of abnormalities. Previous studies indicate that more reliable colonoscopies were done by gastroenterologist as opposed to general surgeons (26). In our study, all colonoscopies were done by gastroenterologists and the majority of the patients had colonoscopies which were able to visualize the right side of the colon.

In conclusion, adequate information was provided before the procedure but this did not affect the level of anxiety but physician rapport did, prior to the procedure. Bowel preparation influenced the patient's overall experience more so in females than the males. Patients experience was generally ranked as good or excellent. The majority of persons would repeat the procedure if they needed to and would recommend the procedure to a friend.

There were limitations to the study. The high percentage of patients who had higher levels of education and higher employment status possibly prevents a generalization to the Jamaican

population. The sedation achieved was not uniform and this may affect the acceptance and experience of the procedure depending on the level of sedation achieved.

REFERENCES

1. Rex DK, Johnson DA, Anderson JC, Schoenfeld PS, Burke CA, Inadomi JM. American College of Gastroenterology Guidelines for Colorectal Cancer Screening 2008. *Am J Gastroenterol* 2009; 104: 739 – 750.
2. Lee MG, Hanchard B. Management of colon polyps by colonoscopic polypectomy in Jamaica. *West Indian Med J*. 1991; 40: 81 - 85.
3. Burt RW, Barthel JS, Bullard Dunn K, David DS, Drellichman E, Ford JM *et al.* Colorectal Cancer Screening. *J Natl Compr Canc Netw* 2010; 8: 8-61.
4. Lee MG. Colon cancer screening. *West Indian Medical Journal*. 2006; 55; 365 – 367.
5. Pignone M, Rich M, Teutsch SM, Berg AO, Lohr KN. Screening for Colorectal Cancer in Adults at average risk: A summary of the Evidence for the US preventive Services Task Force. *Ann Intern Med*. 2002; 137: 132-141.
6. Lee MG, McGaw CD, Chin L, Frankson MAC, Walters CA. Propofol Sedation in Patients Undergoing Colonoscopy in Jamaica. *West Indian Med J* 2011; 60: 284 – 288.
7. Mccloughlin RM, O' Morain CO. Colorectal cancer screening. *World J Gastroenterol* 2006; 12: 6747-6750.
8. Jones RM, Devers KJ, Kuzel AJ, Woolf SH. Patient reported barriers to colorectal cancer screening a mixed method analysis. *Am J Prev Med*. 2010; 38: 508–516.
9. American Cancer Society. Colorectal cancer Facts and Figures 2014-2016 Atlanta: American Cancer Society, 2014.
10. Janz NK, Becker MH. The Health Belief Model: a decade later. *Health Educ Q*. 1984; S11:1-47.
11. Lee MG, Martin A, Terry SI. Colonoscopy in Jamaica - a 12 year experience. *West Indian Med J* 1989; 38: 213 - 216.
12. Liberman DA, Weiss DG, Bond JH, Ahnen DJ, Garewal H, Chejfec G. Use of Colonoscopy to screen asymptomatic adults for colorectal cancer. *N Eng J Med* 2000; 343: 162-8.
13. Young PE, Womeldorf CM. Colonoscopy for colorectal cancer Screening. *J Cancer* 2013; 4: 217-226. doi:10.7150/jca.5829.
14. Meissner HI, Breen N, Klabunde CN, Vernon SW. Patterns of colorectal cancer screening uptake among men and women in the United States. *Cancer Epidemiol Biomarkers Prev*. 2006;15; 389-94.
15. Evans H, Burke O. National Report on Higher Education in Jamaica. Prepared for UNESCO-IESALC.January2006. www.iesal.unesco.org.ve/dmdocuments/biblioteca/libros/national_report.
16. Aljebreen AM, Almadi MA, Leung FW. Sedated vs unsedated colonoscopy: A prospective study. *World J Gastroenterol*. 2014; 20: 5113–5118.
17. Zimmerman EB, Woolf SH, Haley A. Understanding the relationship between education and health: A Review of the evidence and an examination of community perspectives. U.S. Department of Health & Human Services Agency for Healthcare Research and Quality. Washington, DC: Institute of Medicine; 2014. <http://www.ahrq.gov/professionals/education/curriculum-tools/population-health/zimmerman.html>.
18. James AS, Hall S, Greiner KA, Buckles D, Born WK, Ahluwalia JS. The impact of socioeconomic status on perceived barriers to colorectal cancer testing. *Am J Health Promot*. 2008; 23: 97-100.
19. Chartier L, Arthurs E, Sewitch MJ. Patient satisfaction with colonoscopy: A literature review and pilot study. *Can J Gastroenterol* 2009; 23: 203-209.
20. Burke DA, Manning AP, Murphy L, Axon ATR. Oral bowel preparation for colonoscopy. *Postgrad Med J*. 1988; 64: 772-4.
21. Altawil J, Miller LA, Antaki F. Acceptance of split-dose bowel preparation regimen for colonoscopy by patients and providers. *J Clin Gastroenterol*. 2014; 48: 47-9. doi: 10.1097/MCG.0b013e3182a9f78d.
22. Senore C, Ederle A, Fantin A, Andreoni B, Bisanti L, Grazzini G *et al.* Acceptability and side-effects of colonoscopy and sigmoidoscopy in a screening setting *J Med Screen* 2011; 18: 128–134. DOI: 10.1258/jms.2011.010135.

23. Svensson MH, Svensson E, Lasson A, Hellström M. Patient acceptance of CT colonography and conventional colonoscopy: prospective comparative study in patients with or suspected of having colorectal disease. *Radiology*. 2002; 222: 337-45.
24. Sargin M, Uluer MS, Eyüp Aydogan, Hanedan B, Tepe MI, Eryilmaz MA. Anxiety levels in patients undergoing sedation for elective upper gastrointestinal endoscopy and colonoscopy *Med Arch* 2016; 70: 112-15
25. Luck A, Pearson S, Maddem G, Hewett P. Effects of video information on precolonoscopy anxiety and knowledge: a randomized trial. *Lancet* 1999; 354: 2032-35.
26. Rabeneck L, Paszat LF, Saskin R. Endoscopist specialty is associated with incident colorectal cancer after a negative colonoscopy. *Clin Gastroenterol Hepatol*. 2010; 8:275-9. doi: 10.1016/j.cgh.2009.10.022.

Table 1: Patients experience and factors associated with colonoscopy

Patient's experience of the procedure	Distribution % (n)
Overall experience	
Poor	3% (3)
Fair	5% (6)
Good	59% (67)
Excellent	32% (38)
Factors associated with overall experience	
Bowel Preparation	66% (71)
Sedation	14% (15)
Intubation (insertion of scope)	12% (13)
Extubation (removal of scope)	0
Intervention	3% (3)
Post procedure	5% (5)

Table 2: Procedural and patient characteristics associated with patient experience of procedure

	Felt Anxious	Experienced Discomfort	Experienced Pain	Felt embarrassed
Colonoscopy done previously	56.4% (22)	52.6 % (20)	17.9 % (7)	12.5 % (5)
Indication for the procedure				
Screening colonoscopy	56.5% (26)	58.1% (25)	11.3% (5)	14.9% (7)
Lower abdominal symptoms	50% (28)	72.2% (39)	21.42% (12)	12.5% (7)
Other indications	54.4% (6)	63.3% (7)	0% (0)	10% (1)
Completed site of Colonoscopy				
+Left-sided	33% (4)	66% (8)	0% (0)	5.5% (1)
Transverse	50% (1)	50% (1)	50% (1)	0% (0)
++Right-sided	66% (52)	72% (54)	20% (5)	13.9% (11)
Sedation				
Yes	61% (65)	67% (68)	16.5% (17)	11% (12)
No	50% (2)	75% (3)	75% (3)	50% (2)
Education				
Primary or lower	80% (8)	60%(6)	30% (3)	20% (2)
Secondary	45% (27)	66% (24)	23% (9)	20% (8)
Tertiary	59% (35)	65% (38)	17% (10)	20% (1)
Other	20% (1)	60% (3)	0% (0)	0% (0)

HUMAN