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Original Article

Improving Colonoscopy Bowel Preparation and Reducing Patient Anxiety Through Recently Developed Online Information Resource: A Cross-sectional Study

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Abstract

Introduction: Invasive medical procedures such as colonoscopies can cause psychological distress and anxiety. Mycolonoscopy.ca is a multilanguage website that provides online written and video information (individual items reported in prior publications to be highly rated by patients) regarding preparation and what to expect before, during, and after colonoscopy. Information about how to access the website is included with all colonoscopy appointment materials in Winnipeg, Manitoba. We evaluated the use of mycolonoscopy.ca among patients undergoing colonoscopy and examined the association between visitation to the website and patient outcomes.

Methods: A paper-based survey was distributed to patients attending their colonoscopy appointments between 11/2019 and 3/2020. Logistic regression analyses were performed to determine the factors associated with website visitation, procedural worry, and bowel preparation scores.

Results: Five hundred and ninety-three surveys were distributed, of which 506 were completed. 17.4% of participants had visited the website before their colonoscopy. Visitors to mycolonoscopy.ca were more likely to consume a split-dose bowel preparation (63.9%) compared with non-visitors (52.5%) ($P = 0.006$). 31.3% of website visitors were very/extremely worried about their colonoscopy compared with 17.9% of non-visitors. 76.6% of individuals agreed/strongly agreed that visiting the website helped them prepare for their colonoscopy and 69.7% who visited the website agreed/strongly agreed that it helped to reduce their stress/anxiety for the procedure. In multivariable analyses, visitation to website was associated with higher adequate bowel preparation (OR:10.55; 95% CI:1.35 to 82.4).

Conclusion: Use of an informative online platform such as mycolonoscopy.ca can help to improve patient education before colonoscopy, reduce worry surrounding the procedure, and improve bowel preparation.

Keywords: *Knowledge translation*; *Patient education*; *Procedural anxiety*

INTRODUCTION

Patients undergoing invasive medical procedures frequently experience psychological distress in the form of anxiety and fear while awaiting the procedure (1–3), which may lead to reduced patient compliance (i.e., attendance to appointments and/or following periprocedural instructions) and increased adverse effects associated with the procedures (4). Colonoscopy is one of the procedures that has been noted to be associated with this psychological distress (5). Concomitant with increasing use of colorectal cancer screening and surveillance, colonoscopy has become a commonly performed medical procedure (6). Previous studies have identified several ways in which pre-procedure anxiety can negatively impact colonoscopy including increased levels of perceived pain, increasing length of procedure, inadequate bowel preparation, and even prolonged recovery time (7–10). Anxiety concerning colonoscopy is also a commonly cited barrier to uptake of CRC screening recommendations (11).

Patient education before colonoscopy has been shown to have several positive effects on patient outcomes including reduction in anxiety and improved patient experience (12). Educational intervention has also been shown to improve the adequacy of bowel preparation (13,14), which is a crucial component of preparing for a colonoscopy procedure. Poorly prepared colons result in missed neoplastic lesions and increased need for repeat procedures (15). However, educational tools in different forms (information leaflets, videos, and nurse or physician counselling) have been found to have

WHAT IS KNOWN?

- Invasive medical procedures such as colonoscopies can cause psychological distress and anxiety.
- Adherence to bowel preparation instructions is variable.
- There is no existing literature that describes the effects of the visitation to an online information platform before patients' colonoscopy procedure on patient outcomes.

WHAT IS NEW HERE?

- Visiting an informational website can be associated with reduction in pre-colonoscopy worry, improved adherence to recommended bowel preparation and adequate bowel preparation.

varying rates of efficacy for improving adequacy of bowel preparation (16,17).

There is no existing literature that describes the effects of the visitation to an online information platform before patients' colonoscopy procedure. Online materials have several advantages, including making the information readily accessible, a low cost per patient compared to a telephone or in-person consultation, and the ability for patients to review the specific sections of information that are of interest to them. A previous literature review described an improvement in knowledge scores or clinical outcomes when computer-based patient education was compared with traditional instruction (18). The findings suggest computer-based education as a potential effective strategy for patient education on colonoscopy preparation. However, even though many clinical practices use online information materials, their effect on colonoscopy related patient outcomes remains to be evaluated.

Mycolonoscopy.ca is a website that we developed in 2017 to help improve patient experience with colonoscopy procedures and optimize bowel preparation. The website includes written information about the colonoscopy procedure, pre- and post-procedural routines, sedation, and how to adjust regular medications including insulin before colonoscopy. It also displays videos showing patients' perspectives on the procedure and a step-by-step tutorial of how to take split-dose bowel preparation. A link on the website also addresses frequently asked questions by patients. All material on the website is provided in both English and French. Translations of written materials to multiple languages, including Ojibway are also posted. The individual materials were developed based on patient and provider input and literature review. We then asked other patients to review and compare the newly developed/revised materials to the previous ones in terms of information quality and patient preference. In the head-to-head comparison using the same participants in a within-subjects design, the newly developed/revised materials were rated highly with regards to amount of information, clarity, trustworthiness, readability/understandability, how new or familiar the information was, and preference (19,20).

The materials on the website were developed based on previous research on the information needs of patients. Prior research suggested that there are wide variations in information preferences among patients (21) and that it is best to provide information to patients in a variety of different formats (e.g., brochure, video examples) to accommodate the information preferences of different patients.

Information about accessing the website is provided alongside appointment materials to all patients undergoing an outpatient colonoscopy procedure in the endoscopy units attached to the hospitals in the city of Winnipeg. Approximately 80% of endoscopies in the city are performed in these units. Individuals undergoing colonoscopy in the city receive written materials and no verbal communication, although they can call nurses for clarifications. The use of the website by those undergoing colonoscopy and effect of the website on patient outcomes has not been previously evaluated.

The purpose of the current study was to evaluate the current use of mycolonoscopy.ca website by patients undergoing colonoscopies. The aims and objectives were to (1) determine their impressions on the complete website and (2) to determine if there is an association with visiting the website and reduction in worry surrounding the procedure, adequacy of bowel preparation, and bowel preparation scores.

METHODS

Survey

A survey instrument (Supplementary Material) was developed using items from previously validated or used similar surveys (19,20,22). The survey instrument was divided into four sections including questions related to mycolonoscopy.ca, colonoscopy preparation, baseline anxiety and depression screening and demographics. The first section pertaining to the quality and effectiveness of mycolonoscopy.ca was only for those individuals who had visited the website. The second section about colonoscopy preparation asked questions about prior history of colonoscopies, method and type of bowel preparation used, and worry surrounding the bowel preparation, colonoscopy, and colonoscopy findings. The anxiety and depression screening questions asked were taken from the validated PROMIS (Patient-Reported Outcomes Measurement Information system) instruments (23). Finally, the demographics section included questions about age, gender, number of years of education, and ethnicity.

Participants and Recruitment

The paper-based survey was handed out to patients upon arrival for their outpatient colonoscopy at endoscopy suites attached to the two largest hospitals in Manitoba (Health Sciences Centre and St. Boniface Hospital). The surveys were distributed by the registration clerk at the endoscopy units, when clinical workflow allowed distribution and collection. Surveys were distributed to individuals who could provide independent consent, respond in English, and to those who had time before their scheduled colonoscopy. The completed surveys were collected between November 2019 and March 2020. The collection was stopped when the endoscopy units closed for the initial response to the COVID-19 pandemic. All survey responses were collected in sealed boxes, so that responses remained anonymous to the endoscopy unit staff. Responses were linked by the hospital numbers to the electronic endoscopy reports to determine the quality of the bowel preparation at the colonoscopy. Recording of the Boston Bowel Preparation scale score (a validated scale for

bowel cleanliness) is mandatory in the endoscopy reporting system used at the two hospitals.

Measures

The participants were categorized into those that visited the website, those who were aware of the website but did not visit, and those who did not visit the website. Degree of procedural worry was categorized from an ordinal scale created by the research team as very/extremely worried versus not at all worried/ slightly or moderately worried. This facilitated analyses, as the original 5-point scale resulted in some classes that were sparse. Creating a dichotomous measure allowed use of logistic regression with degrees of worry as dependents. Type of bowel preparation used was categorized a split dose versus non-split dose. Boston bowel preparation scale scores were categorized as adequate for ≥6 versus inadequate. Baseline anxiety and depression levels were assessed by calculating T-scores on the PROMIS instruments.

Data and Analyses

Data were extracted into an Excel file and analyzed using the SAS 9.4. Variables were described using percentages, means, and ranges. Fisher's exact test and Chi-square test were performed on the categorical variables.

Unadjusted and adjusted logistic regression analyses were performed to assess for associations with adequacy of bowel preparation (Boston Bowel Preparation Score of 6-9), preprocedure worry, and website visitation. Variables examined in relation to use of the web site (Supplementary Tables A and B) were assessed in the unadjusted analysis. Factors significant at $P < 0.10$ were used in the adjusted analyses.

The study was approved by the University of Manitoba Research Ethics Board and the research resource impact committee of both hospitals.

RESULTS

The survey was given to 593 patients upon arrival for their colonoscopy procedure. Of the 593, there were 83 individuals who did not complete the survey due to unwillingness to participate, lack of time before the procedure, or inability to read the paper survey without visual aids. An additional four individuals did not indicate whether they had visited the website mycolonoscopy.ca. Of the 506 individuals who completed the survey, only 17.4% ($n = 88$) had visited the website before their colonoscopy procedure.

Majority of participants believed that they followed instruction well or very well, whether they had visited the website (98.8%) or not (97.8%). Tolerability of bowel preparation on a scale of 1 to10 was the same between the two groups (median 8). Among reasons for why individuals were having a colonoscopy procedure, the only statistically significant difference was amongst those who were having rectal bleeding. 27.5% of patients who visited the website identified this as the reason for their colonoscopy compared with 17.4% of those that did not visit ($P = 0.044$).

Demographics

The demographics and characteristics of the study participants are listed in Table 1. Among website visitors, 57% identified as female. 53% of those individuals who were aware of the website who did not visit were female, and 55% of those who were unaware of the website were female. Those who were unaware of the website were slightly older and had a lower education level. The median age of visitors was 57 years. The median age of non-visitors who were aware of the website was 56 years, and those who were unaware of the website had a median age of 61 years. Forty-four per cent of website visitors had completed education to the university level versus 38% of those were not aware of the website. Seventy eight percent of visitors and non-visitors were of Caucasian ethnicity. There were no significant differences in prior colonoscopy exposure or indications of the colonoscopy.

Colonoscopy Preparation

Visitors to mycolonoscopy.ca and those that had heard of the website were more likely to consume a split-dose bowel preparation (64% and 68%, respectively) compared with non-visitors (53%) ($P = 0.006$) (Table 2). Individuals who consumed split-dose bowel preparation had a median Boston bowel preparation score of 9, compared with a score of 7 for individuals who did not ($P < 0.0001$).

Bowel Preparation Scores

The median Boston bowel preparation scores for individuals who visited the website was 8.5, compared with 9 for those that had heard of the website but did not visit it and 8 for those that had never heard of the website ($P = 0.013$).

In the multivariable logistic regression model (Table 3) for adequate bowel preparation, higher levels of baseline depression were associated with poorer preparation (OR 0.96, 95% CI: 0.92 to 0.99), whereas consuming a split-dose laxative preparation was associated with better bowel preparation (OR 2.08; 95% CI: 1.04 to 4.16) as was visiting the website (OR 10.55; 95% CI 1.35 to 82.4, when compared with those who were unaware of the website) and white ethnicity. In a separate multivariable post-hoc logistic regression model, including number of prior colonoscopies (categorized as none, 1 and 2 or more) as an additional adjustment variable, there was a similar strong association between visiting the website and adequate bowel preparation (OR 10.32; 95% CI: 41.29 to 82.3, when comparing those visiting the website with those who were unaware of the website).

Difference in Degree of Worry Between Website Visitors and Non-visitors

Table 4 provides the results stratified by website visitors, website-aware non-visitors and those unaware of the website and each level of worry. Since the responses of website-aware non-visitors and those unaware of the website were similar, these groups were aggregated for this analysis.

Of individuals who visited the website, 18.8% were very or extremely worried about the bowel preparation while only 8.9% of non-visitors had this degree of worry ($P = 0.015$). When asked about the colonoscopy procedure itself, 20% of website visitors answered that they were very or extremely worried while only 10.7% of non-visitors answered the same ($P = 0.026$). Nineteen per cent of website visitors were very or extremely worried about the results of the colonoscopy compared with 9.7% of non-visitors ($P = 0.030$). Combining the questions regarding worry yielded that 31.3% of website visitors were very or extremely worried about at least one aspect compared with 17.9% of non-visitors ($P = 0.009$).

Table 1. Description of study participants

Descriptive	Visited website (*N* = 88)	Aware/Not visit (*N* = 130)	Unaware of website (*N* = 288)	P
Male	43%	47%	45%	0.84
Age Median (Interquartile)	57 (45–63)	56 (47–66)	61 (49–68)	0.029
Caucasian	78%	78%	77%	0.97
N Responded	72	120	258	
How many colonoscopies have you had before?				
None	37%	28%	28%	0.38
One	29%	32%	28%	
Two or more	34%	41%	44%	
N Responded	83	130	283	
When was your last colonoscopy?				
Within the past year	13%	13%	14%	0.86
One to two years ago	12%	18%	18%	
More than 2 years	75%	69%	69%	
N Responded	52	94	204	
Marital status				
Married or living as married	79%	77%	71%	0.44
Separated or divorced	7%	8%	13%	
Widowed	4%	3%	5%	
Single, never married	10%	13%	11%	
N Responded	73	120	264	
How many years of education have you completed (highest)?				
0–9	4%	0	3%	0.018
10–11	6%	5%	10%	
12	14%	23%	17%	
College	32%	19%	33%	
University	44%	53%	38%	
N Responded	71	119	261	
Indication for Colonoscopy				
1 Diagnostic	50%	39%	42%	0.85
2 IBD	8%	11%	11%	
3 CRC Surveillance	14%	22%	20%	
4 CRC Screening	24%	23%	23%	
5 other/unknown	5%	5%	5%	
N Responded	80	121	275	
Anxiety T score				0.98
N Responded	70	120	261	
Median (Interquartile)	50.8 (45.9–57.4)	51.5 (45.9–57.4)	52.1 (43.2–58.4)	
Depression T score				
N Responded	68	118	260	0.51
Median (Interquartile)	41.4 (38.2–52.1)	44.7 (38.2–52.1)	44.7 (38.2–50.9)	

Interestingly, in a multivariable analysis, visiting the website was associated with being very/extremely worried about bowel preparation (OR: 2.66; 95% CI: 1.18 to 6.00; model covariates: sex, baseline anxiety and depression), but not with worry about colonoscopy itself (OR: 1.25 955 CI: 0.49 to 3.15; model covariates age, sex, baseline anxiety, baseline depression, prior colonoscopy, and indication for colonoscopy) or with results of the colonoscopy (OR: 2.07; 95% CI: 0.85 to 5.05; model covariates: age, baseline anxiety, baseline depression, prior colonoscopy, and indication for colonoscopy).

Evaluation of mycolonoscopy.ca

Most participants who visited the website agreed or strongly agreed that the information was easy to read (88%) and the website was easy to navigate (84.4%). 76.6% of these individuals agreed or strongly agreed that visiting the website helped them prepare for their colonoscopy. 82.1% of visitors agreed or strongly agreed that the website provided trustworthy and reliable information. Most individuals (69.7%) who visited the website agreed or strongly agreed that it helped to reduce their stress/anxiety for the procedure. 84.4% agreed or strongly agreed

Table 2. Description of bowel preparation use by the study participants

Descriptive	Visited website (*N* = 88)	Aware/not visit (*N* = 130)	Unaware of site (*N* = 288)	P
When did you take the LIQUID bowel preparation medicine?				
All of it yesterday	35%	31%	43%	0.031
Half of it yesterday and half today	64%	68%	53%	
All of it today	0	1%	2%	
Other	1%	0	3%	
N Responded	83	129	280	
How much of the laxative were you able to finish?				
About a quarter or less of it	5%	0	2%	0.041
About half of it	0	1%	3%	
About three-quarters of it	19%	12%	12%	
All of it	76%	87%	84%	
N Responded	83	127	278	
How well were you able to follow the instructions?				
Very well	75%	71%	73%	0.95
Well	24%	27%	24%	
Poorly	1%	2%	2%	
Very poorly	0	0	0.70%	
N Responded	83	129	279	
Tolerability of the bowel preparation medication.				
N Responded	77	119	274	
Median (Interquartile range)	8 (6–9)	8 (6–10)	8 (6–10)	0.44
Individual Bowel Preparation laxatives used				
N Responded	83	130	283	
PicoSalax	17%	15%	20%	0.42
Peglyte, GoLytely, Colyte	80%	83%	72%	0.031
Dulcolax	67%	77%	79%	0.086
Other Laxatives	4%	5%	4%	0.94
Unknown	1%	2%	4%	0.25

Table 3. Multivariable logistic regression analysis for factors associated with Adequate Bowel Preparation (Boston Bowel Preparation Scale Score ≥6)

	Univariable model for factors used in the final model		Multivariable models*	
	N	OR (95% CI)	OR (95% CI) *N* = 391	OR (95% CI) *N* = 382
Visited Website	470	3.01 (1.04–8.73)	10.55 (1.35–82.4)	
Aware of website, no visit		1.68 (0.81–3.52)	1.42 (0.63–3.22)	
Unaware		reference	reference	
Male vs. Female	469	2.28 (1.20–4.36)	1.75 (0.83–3.68)	2.39 (1.05–5.45)
White vs. other	416	2.83 (1.45–5.54)		2.83 (1.35–5.95)
Depression T score	412	0.96 (0.93–0.995)	0.96 (0.92–0.99)	0.96 (0.93–1.002)
Split Dose Yes vs. No	457	2.28 (1.23–4.22)	2.08 (1.04–4.16)	2.08 (1.02–4.26)
Consumed ≥75% Bowel prep Laxative	453	2.81 (0.88–9.01)	2.27 (0.51–10.0)	3.32 (0.72–15.3)
Worry about preparation (very/extreme vs. less)	440	0.41 (0.19–0.93)	0.40 (0.16–0.99)	0.45 (0.18–1.09)

*Website visitation (primary analysis) and ethnicity were assessed in separate multivariable analysis, as the analytical model collapsed with both in same model.

that they would recommend the website to someone undergoing a colonoscopy and 75% agreed or strongly agreed that they gained new knowledge from visiting it. 13.6% of visitors answered that there was information they were seeking that could not be found on the website. The majority of these individuals were seeking further information about specific food restrictions and dietary suggestions leading up to the colonoscopy.

Table 4. Worry associated with colonoscopy

Descriptive	Visited website (*N* = 88)	Aware/not visit (*N* = 130)	Unaware of site (*N* = 288)	*P*
How worried were you about the bowel preparation?				
Not at all worried	30%	36%	41%	0.017
Slightly worried	34%	33%	31%	
Moderately worried	18%	21%	19%	
Very Worried	15%	8%	7%	
Extremely Worried	4%	2%	1%	
N Responded	80	121	274	
How worried are you about the colonoscopy?				
Not at all worried	23%	28%	28%	0.024
Slightly worried	24%	39%	35%	
Moderately worried	34%	22%	26%	
Very Worried	15%	6%	8%	
Extremely Worried	5%	5%	2%	
N Responded	80	121	272	
How worried are you about the results of the colonoscopy?				
Not at all worried	18%	26%	22%	0.19
Slightly worried	41%	36%	44%	
Moderately worried	23%	29%	24%	
Very Worried	15%	8%	6%	
Extremely Worried	4%	2%	4%	
N Responded	79	120	271	
Maximum of 3 'How worried' Questions				
Not at all worried	4%	12%	13%	0.0099
Slightly worried	33%	33%	36%	
Moderately worried	33%	38%	32%	
Very Worried	23%	12%	13%	
Extremely Worried	9%	5%	5%	
N Responded	80	121	275	

Table 5. Multivariable logistic regression analysis for factors associated with Website use

	Univariable models for factors used in the final model		Multivariable model	
	N	OR (95% CI)	*N*	OR (95% CI)
Age	503	0.99 (0.97–1.001)	469	0.99 (0.97–1.01)
How many colonoscopies have you had before?				
None	496	reference		reference
One		0.74 (0.41–1.34)		0.85 (0.45–1.62)
Two or more		0.58 (0.33–1.02)		0.65 (0.35–1.21)
Worry about aspects of colonoscopy (very/ extremely vs. less)				
Bowel preparation	475	**2.37 (1.23–4.59)**		**2.37 (1.22–4.63)**
Colonoscopy	473	**2.09 (1.11–3.94)**		
Results	470	**2.18 (1.13–4.19)**		

Bold ORs are statistically significant.

Factors Associated With Website Use

In multivariable analysis, the only variable that was associated with visiting the website (Table 5) was very/extremely worried about the colonoscopy. No other factors were independent predictors.

DISCUSSION

Our study suggests that use of an informative online platform such as mycolonoscopy.ca can help to improve patient education before colonoscopy, reduce worry surrounding the procedure, and improve the likelihood of adequate bowel preparation.

Individuals who visited the website had an overall higher degree of worry surrounding colonoscopy by 13.3% compared with those that did not visit the website. In multivariable analysis, visiting the website was associated with worry regarding colonoscopy preparation, but not for colonoscopy procedure itself or for colonoscopy results. It is possible that patients with higher levels of worry surrounding colonoscopy preparation are more likely to attempt to reduce their anxiety by visiting a website with more information about the colonoscopy. However, importantly, despite higher worry about colonoscopy among participants visiting the website, most agreed or strongly agreed that the information on the website helped to decrease their procedural anxiety/stress before colonoscopy. This reduction in anxiety or stress may help to prevent the known adverse outcomes associated with pre-procedural anxiety as previously outlined. Information provision before procedures allows for patients to engage in shared decision-making regarding their care (24) as well as serving to alleviate situational anxiety (25).

Our findings are supported by a randomized trial published in 1999 that demonstrated that patients who were assigned to watch an information video immediately (1 to 5 hours) before the colonoscopy had significantly decreased levels of anxiety (measured using a validated questionnaire) before colonoscopy compared with those that did not (26). However, providing the ability to watch a video is likely not feasible in many endoscopy units. In addition, watching a video immediately before colonoscopy would likely not address anxiety leading up to the appointment and would not aid in the preparation itself. There are also some controlled trials that suggest information provision before colonoscopy does not have an impact on pre-procedural anxiety (16,27). Response to the information is likely dependent upon the type of information provided, the format in which it is provided, and characteristics of the respondents receiving the information. Our findings suggest that online access to reliable information, may result in a significant reduction in peri-procedural stress and anxiety.

Visitors to the website were more likely to consume the recommended split-dose laxative preparation for colonoscopy compared with those that did not. Individuals who were aware of the website were also more likely to consume split-dose bowel preparation. This may be attributable to the fact that individuals who were aware but chose not to visit the website, may have already been well-informed regarding the colonoscopy procedure. Split-dose bowel preparation has been found to be better tolerated by patients, resulting in improved patient compliance and less side effects (28) and visitation to the website may aid to encourage individuals to use split-dose preparation. Importantly, bowel preparation scores for individuals who visited the website and those who were aware of the website were better than those who were not aware of the website, including in the multivariable model directly adjusting for exposure to previous colonoscopy and use of split-dose bowel preparation. Better bowel preparation is essential to improve the outcomes of colonoscopy including detecting lesions, improving adenoma detection rates, and preventing need for repeat procedures (29).

Limitations and Future Directions

Although there was a subjective decrease in anxiety and stress for individuals who visited the website before their colonoscopy, further studies in the form of a controlled trial are required to determine whether individuals who have a higher degree of pre-existing worry benefit from visiting our website compared with controls with a similar degree of worry who do not visit the website. This would help determine whether our findings are associations or have cause/effect relationship. We did adjust for several factors in the multivariable analysis (i.e., baseline anxiety and depression, demographics), which suggests our findings are not pure associations. Only one in five patients visit the website when it is provided passively by distribution of a card attached to appointment materials, therefore alternative distribution methods need to be considered. This has led us to discuss alternative dissemination methods, including using a single page sheet detailing information on the website. The effect of wider and concerted dissemination efforts will need to be assessed in future studies. Whether or not visiting the website leads to lower no-show rates also needs to be determined. Each individual undergoing colonoscopy is unique and in ideal circumstances, should have one to one discussion with a health care provider after reviewing the generic information materials, for more targeted educational interventions for their specific remaining concerns. The current study was limited to those who could respond in English; however, the website has information in multiple languages, which needs to be further highlighted to the referring physicians so that they inform non-English speakers on the available resources.

In conclusion, our study demonstrated that visiting an informational website can be associated with reduction in pre-colonoscopy worry, improved adherence to recommended bowel preparation and adequate bowel preparation.

Supplementary Data

Supplementary data are available at *Journal of the Canadian Association of Gastroenterology* online.

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Conflict of Interest

H.S. has consulted to Amgen Canada, Bristol-Myers Squibb Canada, Sandoz Canada, Roche Canada, Takeda Canada, Guardant Health, Pendopharm, Ferring Canada. No potential conflicts/financial disclosures for the rest of the authors.

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