



ARTÍCULO ORIGINAL

Patient preferences and perceptions of inflammatory bowel disease monitoring tools: a cross-sectional survey from a specialized gastroenterology clinic in Panama

Preferencias y percepciones de los pacientes sobre las herramientas de monitoreo de la enfermedad inflamatoria intestinal: una encuesta transversal en una clínica especializada de gastroenterología en Panamá

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ABSTRACT

Objectives: The aim of this study was to evaluate patient preferences and perceptions regarding commonly used tools for monitoring inflammatory bowel disease (IBD), including colonoscopy, intestinal ultrasound (IUS), computed tomography or magnetic resonance imaging (CT/MRI), and fecal calprotectin (FC). **Materials and methods:** A cross-sectional anonymous electronic survey was administered to adult patients with a confirmed diagnosis of IBD attending a specialized private gastroenterology clinic in Panama. Eighty-two patients were invited to participate, and fifty-one completed the survey. Intestinal ultrasound was associated with the highest levels of satisfaction and acceptability. **Results:** Colonoscopy was most frequently perceived as providing physicians with the most useful clinical information and as the test that best helped patients understand their disease status. When asked which single test they would prefer to repeat for ongoing disease monitoring, most participants selected IUS. These findings suggest that patients favor non-invasive monitoring strategies, although colonoscopy continues to be perceived as the diagnostic reference standard. **Conclusions:** Improving patient education regarding the clinical value of IUS may facilitate broader adoption of patient-centered monitoring approaches in routine practice.

Keywords: Ultrasonography; Inflammatory Bowel Disease; Patient Acceptance of Health Care; Patient Education (source: MeSH NLM).

RESUMEN

La enfermedad inflamatoria intestinal requiere monitorización periódica mediante diferentes herramientas diagnósticas. **Objetivos:** El objetivo de este estudio fue evaluar las preferencias y percepciones de los pacientes respecto a las modalidades de seguimiento utilizadas en la práctica clínica. **Materiales y métodos:** Se realizó un estudio transversal mediante una encuesta electrónica anónima aplicada a pacientes adultos con enfermedad inflamatoria intestinal atendidos en una clínica especializada en Panamá. Participaron 51 pacientes. **Resultados:** El ultrasonido intestinal mostró los mayores niveles de satisfacción y aceptabilidad, mientras que la colonoscopia fue percibida como la prueba que proporciona la información clínica más útil y la que mejor ayuda a comprender el estado de la enfermedad. Cuando se preguntó qué prueba preferirían repetir para el seguimiento, la mayoría eligió el ultrasonido intestinal. **Conclusiones:** Estos hallazgos sugieren que los pacientes prefieren modalidades no invasivas de monitorización, aunque la colonoscopia continúa siendo considerada el estándar de referencia.

Palabras clave: Ultrasonografía; Enfermedades Inflamatorias del Intestino; Aceptación de la Atención de Salud; Educación de Pacientes (fuente: DeCS BIREME).

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INTRODUCTION

Inflammatory bowel disease (IBD) is a chronic condition that requires ongoing monitoring to assess disease activity, guide therapeutic decisions and reduce the risk of long-term complications ⁽¹⁻³⁾. Colonoscopy has traditionally been considered the reference standard for assessing intestinal inflammation ^(4,5), while biomarkers such as fecal calprotectin (FC), as well as cross-sectional imaging modalities including computed tomography (CT) and magnetic resonance imaging (MRI), are widely used as surrogate tools for disease monitoring. However, many of these modalities are invasive, uncomfortable, or resource-intensive, factors that may negatively influence patient willingness to undergo repeated assessments over time ⁽⁶⁻⁸⁾.

In recent years, intestinal ultrasound (IUS) has emerged as a non-invasive, radiation-free imaging modality that can be performed at the point of care. Growing evidence supports its utility in IBD for diagnosis, assessment of disease activity, monitoring of treatment response, and detection of complications, particularly in Crohn's disease ^(6,7,9,10). Despite these advantages, the integration of IUS into routine clinical practice remains variable, and its role within standard monitoring algorithms continues to evolve, especially in regions where access to specialized imaging may be limited ⁽¹¹⁾.

While the diagnostic performance of IUS has been widely studied, less attention has been given to how patients perceive different monitoring tools ^(8,12). Patient experience, including comfort, acceptability, and perceived usefulness, plays a key role in adherence to monitoring strategies in chronic diseases such as IBD ⁽¹²⁾. Understanding patient perspectives may therefore help clinicians tailor follow-up strategies and support a more patient-centered approach to care.

The aim of this study was to evaluate patient preferences and perceptions regarding commonly used IBD monitoring tools, including colonoscopy, IUS, CT/MRI, and laboratory

testing with FC, in a specialized gastroenterology clinic in Panama.

MATERIALS AND METHODS

Study design and population

This cross-sectional study was conducted using an anonymous electronic survey administered to adult patients (≥ 18 years) with a confirmed diagnosis of IBD. Eligible participants had attended a follow-up visit at a specialized private gastroenterology clinic in Panama within the preceding two months with prior experience with at least two monitoring modalities as part of their disease follow-up. Patients with either Crohn's disease or ulcerative colitis were invited to participate. Participation was voluntary, and all responses were collected anonymously.

Survey instrument

The survey explored patient perceptions of four commonly used IBD monitoring modalities: colonoscopy, IUS, CT or MRI, and FC. Participants were asked to comment on all the monitoring modalities they had been subjected to since their initial diagnosis. Participants were asked to select a single response for each question. The questionnaire used was specifically developed for this study and was not formally validated.

Patient perceptions were assessed across four predefined domains: satisfaction, acceptability, perceived utility, and overall preference (Table 1). Satisfaction was evaluated by asking participants, "*which of these tests have you experienced the greatest overall satisfaction with*", considering factors such as comfort, preparation, and the overall testing experience. Acceptability was assessed by asking "*Which of these tests do you find easiest to accept or undergo?*". Perceived utility was explored by asking which modality best helped patients understand their disease status. Additional questions assessed which test participants believed provided physicians with the most

Table 1. Survey Questions Used to Assess Patient Preferences and Perceptions of IBD Monitoring Tools.

Domain	Survey question	Response options
Prior exposure	Which of the following tests have you undergone as part of your inflammatory bowel disease monitoring?	Colonoscopy; Intestinal ultrasound (IUS); Computed tomography or magnetic resonance imaging (CT/MRI); Laboratory testing with fecal calprotectin
Satisfaction	Which of these tests have you experienced the highest overall satisfaction with?	Colonoscopy; Intestinal ultrasound (IUS); CT/MRI; Fecal calprotectin
Acceptability	Which of these tests do you find easiest to accept or undergo?	Colonoscopy; Intestinal ultrasound (IUS); CT/MRI; Fecal calprotectin
Perceived utility (patient perspective)	Which test best helps you understand your disease status?	Colonoscopy; Intestinal ultrasound (IUS); CT/MRI; Fecal calprotectin
Perceived utility (physician perspective)	Which test do you believe provides your physician with the most useful clinical information?	Colonoscopy; Intestinal ultrasound (IUS); CT/MRI; Fecal calprotectin
Overall preference	If you needed to repeat only one test for disease monitoring, which would you choose?	Colonoscopy; Intestinal ultrasound (IUS); CT/MRI; Fecal calprotectin

Participants were instructed to select a single response for each question. The survey was self-administered, anonymous, and distributed electronically.

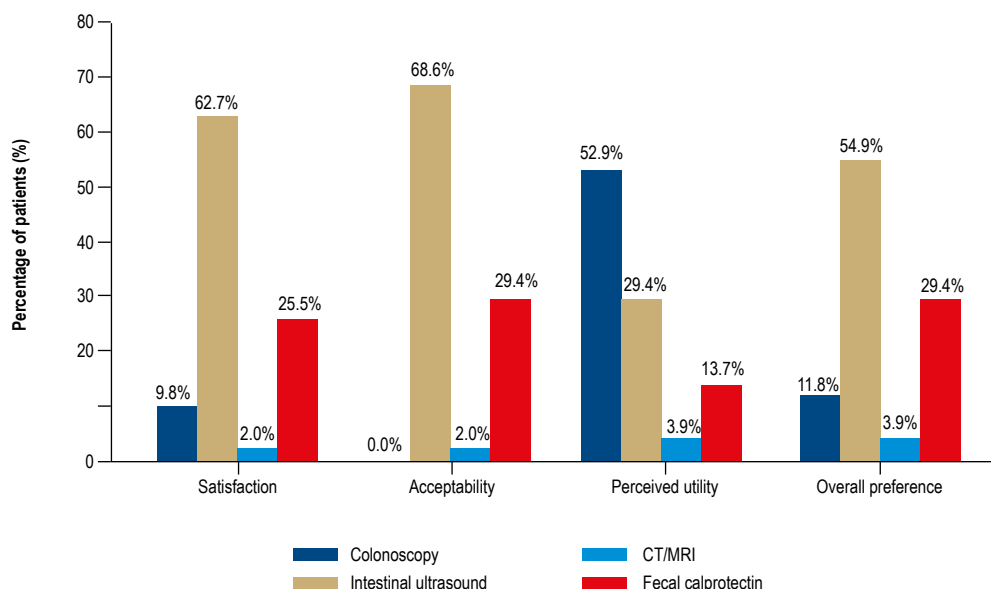


Figure 1. Patient preferences and perceptions of inflammatory bowel disease monitoring tools.

Bars represent the percentage of patients selecting each modality for satisfaction, acceptability, perceived utility for understanding status of the disease and overall preference.

useful clinical information and which modality they would prefer to repeat if ongoing monitoring were required. The questionnaire was self-administered, distributed electronically, and designed to be completed in a short time. No identifying personal information was collected beyond basic demographic and disease characteristics.

Statistical analysis

Descriptive statistics were used to summarize demographic data, disease characteristics, and survey responses. Categorical variables were reported as frequencies and percentages, and continuous variables were summarized using medians.

Ethical considerations

This study was conducted using an anonymous and voluntary survey and did not involve identifiable patient information; therefore, formal ethics committee approval was not required.

RESULTS

Patient characteristics

A total of 82 eligible patients were invited to participate, and 51 (62.2%) completed the survey. Among respondents, 58.8% were female, and the median age was 38 years. Crohn's disease was reported by 64.7% of participants, while 35.3% had ulcerative colitis. All participants had previously undergone colonoscopy. IUS and laboratory testing with fecal calprotectin had been performed in 46 patients (90.2%), while 25 (49.0%) had undergone cross-sectional imaging with CT or MRI.

Satisfaction and acceptability

Satisfaction was highest for intestinal ultrasound, selected by 32 respondents (62.7%), followed by 13 (25.5%) for FC, 5 (9.8%) for colonoscopy, and 1 (2.0%) for other cross-sectional imaging (Figure 1). Similarly, IUS was the most accepted tool in 35 of the participants (68.6%), followed by 15 (29.4%) for FC, 1 (2.0%) for CT/MRI. No participants selected colonoscopy as the most acceptable modality.

Perceived utility and overall preference

When asked which modality best helped them understand their disease status, colonoscopy was most frequently selected (27 patients - 52.9%), followed by 15 respondents for IUS (29.4%), 7 for FC (13.7%), and lastly, 2 patients for CT/MRI (3.9%). Most patients believed colonoscopy provided physicians with the most useful clinical information (32 patients - 72.5%), whereas 5 selected each IUS and FC (9.8%) and only 4 selected CT/MRI (7.8%).

Regarding overall preference, when participants were asked which test they would choose to repeat if they could only choose one, IUS was preferred by 28 respondents (54.9%), followed by 15 for FC (29.4%), 6 for colonoscopy (11.8%), and 2 for CT/MRI (3.9%).

DISCUSSION

In this cross-sectional survey, patients with IBD demonstrated a clear preference for IUS as a monitoring tool, primarily driven by higher satisfaction and acceptability. These findings highlight the importance of incorporating patient

experience into the selection of monitoring strategies in a chronic condition that requires repeated assessments over time ^(10,12).

The high acceptability of IUS observed in this study is likely related to its non-invasive nature, absence of bowel preparation, and its ability to provide immediate feedback during clinical encounters. These features may explain why more than half of respondents selected IUS as the modality they would prefer to repeat if ongoing monitoring were required. In contrast, colonoscopy was associated with lower satisfaction and acceptability, despite its perceived diagnostic superiority, likely due to the burden of pre-procedure preparation, sedation, and its invasive nature ⁽¹²⁾.

Our findings are consistent with prior studies evaluating patient perceptions of IBD monitoring tools. In a systematic review by Goodsall *et al.*, 63% of 1846 patients reported greater satisfaction with non-invasive monitoring modalities such as FC and IUS ⁽⁸⁾. Similarly, more recent studies evaluating patient experience with point-of-care intestinal ultrasound have demonstrated high levels of satisfaction and acceptability, further supporting its role as a patient-centered monitoring tool in IBD ⁽¹²⁾. Together, these observations reinforce the growing relevance of non-invasive strategies within patient-centered care models ⁽¹³⁾.

Despite this preference, colonoscopy remained the modality most participants perceived as providing physicians with the most useful clinical information and continues to be deeply embedded in patient understanding as the reference standard for disease assessment. This highlights an important gap between patient comfort and perceived diagnostic value. One possible explanation for this discrepancy is limited patient awareness of the diagnostic performance of IUS.

Indeed, multiple studies have shown that IUS offers high accuracy in assessing disease activity and treatment response, with performance comparable to colonoscopy and MRI in selected clinical contexts ^(8,9,14). For example, Allocca *et al.* demonstrated that IUS achieves high diagnostic accuracy across multiple disease parameters, including localization (91%), detection of ulcerations (96%), strictures (81%), fistulas (98%), and abscesses (96%), with sensitivity and specificity for ulcer detection reaching 92% and 100%, respectively ⁽¹⁴⁾. These findings support the role of IUS as a reliable and clinically meaningful tool for disease assessment.

From a practical standpoint, improving patient education regarding the role, strengths, and limitations of IUS may help bridge the gap between patient preference and perceived clinical utility. This is particularly relevant in treat-to-target strategies, where frequent and timely assessment of disease activity is recommended ⁽³⁾. Increasing patient awareness of the diagnostic capabilities of IUS may therefore facilitate greater acceptance of non-invasive monitoring approaches in routine practice.

This study provides novel patient-centered data from a Latin American clinical setting, where access to specialized diagnostic tools and healthcare resources may vary. In this context, non-invasive and accessible modalities such as IUS may offer practical advantages while aligning with patient preferences. To our knowledge, data evaluating patient perceptions of IBD monitoring strategies in Latin America remain limited, and our findings contribute to addressing this gap in the literature.

Several limitations should be acknowledged. This was a cross-sectional, single-center study with a relatively small sample size, which may limit the generalizability of the findings. In addition, the study population was derived from a specialized clinic, which may introduce selection bias. The survey instrument was not formally validated, and responses may have been influenced by prior experiences or physician counseling. Furthermore, recall bias may have affected patient responses, particularly as patients may have forgotten details of their experience with certain modalities if they were performed some time prior to the survey. Also, not all participants had been exposed to all monitoring modalities, which may have influenced their ability to make direct comparisons. Finally, we did not perform subgroup analyses according to disease type or prior exposure to specific monitoring modalities, as the sample size was considered insufficient to support meaningful comparisons. Nevertheless, the consistency of responses across multiple domains supports the overall robustness of the findings. Future studies with larger, multicenter cohorts and validated instruments are needed to further confirm these observations and better understand potential variability in patient preferences.

In conclusion, while patients found IUS to be more acceptable and satisfactory for monitoring their IBD, colonoscopy remains widely perceived as the diagnostic reference standard. Targeted patient education regarding the diagnostic utility and accuracy of intestinal ultrasound may help bridge this gap, reassure patients, and facilitate broader adoption of patient-centered, non-invasive monitoring strategies in routine clinical practice. Future studies should evaluate the impact of such educational interventions on patient perceptions, adherence, and shared decision-making.

REFERENCES

1. Hashash JG, Limdi JK, Shapiro JM, Shah SA. Medical management of inflammatory bowel diseases. *BMJ*. 2025;391:e079050. doi: 10.1136/bmj-2025-079050.
2. Peyrin-Biroulet L, Sandborn W, Sands BE, Reinisch W, Bemelman W, Bryant RV, *et al.* Selecting Therapeutic Targets in Inflammatory Bowel Disease (STRIDE): Determining Therapeutic Goals for Treat-to-Target. *Am J Gastroenterol*. 2015;110(9):1324-38. doi: 10.1038/ajg.2015.233.
3. Turner D, Ricciuto A, Lewis A, D'Amico F, Dhaliwal J, Griffiths AM, *et al.* STRIDE-II: An Update on the Selecting Therapeutic Targets in Inflammatory Bowel Disease (STRIDE) Initiative of the International Organization for the Study of IBD (IOIBD):

- Determining Therapeutic Goals for Treat-to-Target strategies in IBD. *Gastroenterology*. 2021;160(5):1570-1583. doi: 10.1053/j.gastro.2020.12.031.
4. American Society for Gastrointestinal Endoscopy Standards of Practice Committee; Shergill AK, Lightdale JR, Bruining DH, Acosta RD, Chandrasekhara V, *et al.* The role of endoscopy in inflammatory bowel disease. *Gastrointest Endosc*. 2015;81(5):1101-21.e1-13. doi: 10.1016/j.gie.2014.10.030.
 5. Dekker E, Nass KJ, Iacucci M, Murino A, Sabino J, Bugajski M, *et al.* Performance measures for colonoscopy in inflammatory bowel disease patients: European Society of Gastrointestinal Endoscopy (ESGE) Quality Improvement Initiative. *Endoscopy*. 2022;54(9):904-915. doi: 10.1055/a-1874-0946.
 6. Kucharzik T, Taylor S, Allocca M, Burisch J, Ellul P, Iacucci M, *et al.* ECCO-ESGAR-ESP-IBUS Guideline on Diagnostics and Monitoring of Patients with Inflammatory Bowel Disease: Part 1. *J Crohns Colitis*. 2025;19(7):jjaf106. doi: 10.1093/ecco-jcc/jjaf106.
 7. Yanai H, Feakins R, Allocca M, Burisch J, Ellul P, Iacucci M, *et al.* ECCO-ESGAR-ESP-IBUS Guideline on Diagnostics and Monitoring of Patients with Inflammatory Bowel Disease: Part 2. *J Crohns Colitis*. 2025;19(7):jjaf107. doi: 10.1093/ecco-jcc/jjaf107.
 8. Goodsall TM, Noy R, Nguyen TM, Costello SP, Jairath V, Bryant RV. Systematic Review: Patient Perceptions of Monitoring Tools in Inflammatory Bowel Disease. *J Can Assoc Gastroenterol*. 2020;4(2):e31-e41. doi: 10.1093/jcag/gwaa001.
 9. Chavannes M, Dolinger M, Cohen-Mekelburg S, *et al.* Chavannes M, Dolinger MT, Cohen-Mekelburg S, Abraham B. AGA Clinical Practice Update on the Role of Intestinal Ultrasound in Inflammatory Bowel Disease: Commentary. *Clin Gastroenterol Hepatol*. 2024;22(9):1790-1795.e1. doi: 10.1016/j.cgh.2024.04.039.
 10. Allocca M, Jairath V, Sands BE, Rubin DT, Caron B, Laurent V, *et al.* International consensus on the use of intestinal ultrasound in inflammatory bowel disease trials. *J Crohns Colitis*. 2025;19(9):jjaf170. doi: 10.1093/ecco-jcc/jjaf170.
 11. Abraham BP, Reddy D, Saleh A. Integrating Intestinal Ultrasound into an Inflammatory Bowel Disease Practice: How to Get Started. *Crohns Colitis* 360. 2023;5(3):otad043. doi: 10.1093/crocol/otad043.
 12. Gore E, Femino C, Aronsky I, Miller A, Zelman SR, Winter MW, *et al.* The Patient Experience with Point-of-Care Intestinal Ultrasound for Inflammatory Bowel Disease Monitoring: A Multicenter Study. *Dig Dis Sci*. 2026;71(2):569-577. doi: 10.1007/s10620-025-09390-4.
 13. van Wassenae EA, van der Klift RR, Staphorst MS, van der Lee JH, Benninga MA, Koot BGP. The child's perception on monitoring inflammatory bowel disease activity. *Eur J Pediatr*. 2022;181(3):1143-1149. doi: 10.1007/s00431-021-04315-5.
 14. Allocca M, Fiorino G, Bonifacio C, Furfaro F, Gilardi D, Argollo M, *et al.* Comparative Accuracy of Bowel Ultrasound Versus Magnetic Resonance Enterography in Combination With Colonoscopy in Assessing Crohn's Disease and Guiding Clinical Decision-making. *J Crohns Colitis*. 2018;12(11):1280-1287. doi: 10.1093/ecco-jcc/jjy093.