

## Letter to the Editor

# Evaluation of Google Gemini’s advice for irritable bowel syndrome

Sir,

An increasing number of patients now consult an artificial intelligence (AI) assistant before seeing a clinician. Large language model (LLM) chatbots have begun to shape how people look up health-related information. Google’s Gemini is a helpful personal AI assistant that drafts answers based on a user’s prompt and Google search, after which it applies safety checks.<sup>1</sup> I evaluated Gemini’s counseling for irritable bowel syndrome (IBS), a common functional gastrointestinal (GI) disorder. The main objective here was to assess the safety and reliability of an AI’s guidance against established evidence.

For this purpose, eight common IBS questions were posed. Gemini, accessed via the web on 19 August 2025 (2.5 Flash version), provided mostly correct answers. The responses were then verified by the information found in

the current medical literature (based on the British Society of Gastroenterology guidelines and the American College of Gastroenterology Guidelines).

As seen in Table 1, Gemini correctly defined IBS as a functional GI disorder involving gut-brain dysregulation with multifactorial etiologies and emphasized clinical diagnosis over invasive tests. It also noted that colonoscopy is usually not necessary if there aren’t any alarming symptoms. All of these responses align with the Rome IV recommendations. Gemini also correctly specified that IBS does not progress to a serious disease. Gemini’s management advice had several strengths. It mentions the low-FODMAP approach and trigger identification. It highlights the pros of stress reduction and offers an individualized view of pharmacological options. These themes are consistent with the guideline-endorsed strategies.<sup>2-4</sup>

**Table 1: Assessment of Gemini’s answers to common IBS questions versus guideline standards.**

Q. no.	Question	Gemini’s answer	Inference
1	What is IBS?	IBS is a common, chronic disorder of the large intestine. It is a functional GI disorder, meaning there are no visible signs of damage or disease in the GI tract, but the intestines don’t function as they should. The primary symptoms are abdominal pain or cramping, bloating, gas, and changes in bowel habits, which can include diarrhea, constipation, or alternating between the two. The exact cause is unknown, but it’s believed to involve a combination of factors, including issues with the gut-brain interaction, nerve sensitivity, and intestinal muscle contractions. Triggers can include certain foods, stress, and infections.	Clear emphasis on functional nature and gut-brain axis. While the response is a good overview of what IBS is, it lacks details about the diagnostic criteria and the characteristics of abdominal pain that are needed for an accurate definition of the condition. <sup>3</sup>
2	What causes IBS?	The exact cause of IBS is unknown, but it’s believed to be a multifactorial disorder. It often involves a problem with the "gut-brain axis," the communication system between the brain and the gut. Contributing factors can include - muscle contractions: abnormal or irregular contractions in the intestines can cause pain, bloating, and changes in bowel habits; nerve sensitivity: people with IBS may have extra-sensitive nerves in their gut, making them feel pain more acutely from normal gas or stool; severe infection: IBS can sometimes develop after a severe bout of gastroenteritis; stress: while stress doesn’t cause IBS, it can significantly worsen symptoms by affecting the gut-brain interaction; changes in gut microbes: an imbalance in the types and amounts of bacteria in the gut (microbiota) may play a role; genetics and hormones: there may be a genetic predisposition, and hormonal changes (like those during menstruation) can trigger symptoms; food intolerances: certain foods, though not a true allergy, can trigger symptoms in some individuals.	The given response is a complete summary of the known and suspected causes of IBS. <sup>2-4</sup>
3	Is IBS a dangerous	No, IBS is not a dangerous condition. It doesn’t cause permanent damage to your intestines, nor does it increase your risk for more	It tells that IBS is a chronic condition impacting quality of

Continued.

Q. no.	Question	Gemini's answer	Inference
	condition ?	serious diseases like IBD or colon cancer. While it's not life-threatening, it can be a chronic and uncomfortable condition that significantly impacts a person's quality of life. Symptoms can be disruptive and may lead to other issues, such as hemorrhoids from straining during bowel movements, or anxiety and depression due to the unpredictable nature of the disorder. It is important to see a doctor for a proper diagnosis to rule out other, more serious conditions that can have similar symptoms, like unexplained weight loss, fever, or rectal bleeding.	life rather than posing a direct threat to health or increasing the risk of other serious diseases, while stressing the importance of proper diagnosis to rule out other causes. <sup>2-4</sup>
4	What are the common symptoms of IBS?	The common symptoms of IBS primarily affect the large intestine and are often described as a cluster of related issues rather than a single problem. The most common symptoms include the following. Abdominal pain and cramping: this is a key symptom, often linked to bowel movements. The pain can be sharp, dull, or crampy and may be relieved after a bowel movement. Changes in bowel habits: this can manifest as diarrhea: frequent, loose stools, constipation: infrequent, difficult-to-pass stools, and alternating between both: switching back and forth between periods of diarrhea and constipation. Bloating and gas: a feeling of fullness or swelling in the abdomen, accompanied by increased gas. Mucus in the stool: the presence of a clear or white jelly-like substance in the stool. Feeling of incomplete evacuation: the sensation that you haven't fully emptied your bowels after a movement.	The original response captures the main symptoms well, but it can be improved by adding 'urgency' to the symptom list. Also, Rome IV requires abdominal pain at least once weekly on average; subtypes are assigned by predominant stool form via the Bristol stool form scale. The symptoms like mucus in stool and incomplete feeling of evacuation are not explicitly mentioned in the guidelines. <sup>2</sup>
5	Are tests like colonoscopy required for IBS?	Colonoscopies are not typically required to diagnose IBS. A diagnosis is usually made based on a detailed review of symptoms and medical history, following a set of criteria called the Rome IV criteria. However, a doctor might recommend a colonoscopy or other tests to rule out other, more serious conditions that can cause similar symptoms. These "red flag" symptoms can include: unexplained weight loss, anemia, blood in the stool, fever, and symptoms that begin after age 50. If these more concerning symptoms are present, a colonoscopy can help to rule out conditions like inflammatory bowel disease (IBD) or colon cancer, which require different treatment approaches.	While the response is good, it can be enhanced by mentioning that IBS is not a "diagnosis of exclusion" but a "positive clinical diagnosis": there is no single confirmatory test, and investigations such as colonoscopy are only used selectively to rule out alternative pathology when there are red flags present. <sup>2-4</sup> It should also note that a family history of IBD or colorectal cancer counts among those alarm features warranting further work-up. <sup>2</sup>
6	Which foods should people with IBS avoid?	Many people with IBS find that certain foods can trigger or worsen their symptoms. The specific triggers vary from person to person, but common culprits often include the following. FODMAPs: these are types of carbohydrates that are poorly absorbed by the small intestine. A low-FODMAP diet is a common approach to identify specific triggers. High-FODMAP foods include: certain fruits (apples, pears, peaches, mangoes), many vegetables (onions, garlic, cauliflower, broccoli), dairy products containing lactose, wheat, rye, and barley, and legumes and beans. Gluten: even without celiac disease, some people with IBS find that foods containing gluten (found in wheat, barley, and rye) can worsen their symptoms. Fatty and fried foods: high-fat meals can stimulate intestinal contractions and trigger pain. Spicy foods: the compounds in spicy foods can irritate the digestive tract. Caffeine and alcohol: these can stimulate the intestines and lead to diarrhea. Carbonated drinks: the gas in these beverages can cause bloating and discomfort. Artificial sweeteners: sugar	Mentions of FODMAPs, common triggers, individual variability, and the importance of personalized management. <sup>5</sup> Add guideline specifics: favour soluble over insoluble fibre, include the FODMAP re-introduction step, and avoid routine gluten-free diets in non-coeliac IBS. <sup>2,3</sup>

Continued.

Q. no.	Question	Gemini's answer	Inference
7	Does stress make IBS worse?	<p>alcohols like sorbitol and xylitol can have a laxative effect and cause gas.</p> <p>Yes, stress can significantly worsen IBS symptoms. The link between stress and IBS is so strong that IBS is often described as a "stress-sensitive disorder." This relationship is a two-way street: stress can trigger or exacerbate IBS symptoms, and living with the unpredictable and uncomfortable symptoms of IBS can, in turn, cause more stress and anxiety. This connection is rooted in the "gut-brain axis," a complex communication system that links the central nervous system (your brain) with the enteric nervous system (your gut). When you're stressed, your brain releases hormones like cortisol that can alter gut function, making it more sensitive and reactive. The effects of stress on the gut can lead to - changes in motility: stress can either speed up digestion, causing diarrhea, or slow it down, leading to constipation; increased gut sensitivity: your gut nerves can become more reactive, making you feel pain and discomfort more acutely from normal gas or muscle contractions; and changes in the gut microbiome: stress can alter the balance of bacteria in your gut, which plays a critical role in digestive health. Managing stress for IBS relief because of this direct link, stress management is a key part of treating IBS. Some effective strategies include - mind-body therapies: practices like meditation, yoga, and deep breathing can help calm the nervous system and reduce the stress response; regular exercise: physical activity is a proven stress reducer and can also help regulate bowel movements; cognitive behavioral therapy (CBT): this type of therapy can help you change thought patterns and behaviors that contribute to stress and anxiety, which can, in turn, improve IBS symptoms; and gut-directed hypnotherapy: this specialized form of hypnosis helps to calm the gut and reduce sensitivity. By actively managing stress, people with IBS can often significantly reduce the frequency and severity of their symptoms.</p>	<p>Explains neurobiology and lists multiple management strategies. Structured stress-management (for example, CBT, gut-directed hypnotherapy, and mindfulness) can reduce symptom burden. The evaluation is accurate and concordant with evidence for psychological therapy.<sup>2,3,5</sup></p>
8	What medicines are used for IBS?	<p>Medications for IBS are tailored to the dominant symptoms, such as diarrhea, constipation, or pain. They include the following. For constipation-predominant IBS (IBS-C): fiber supplements (e.g., psyllium), osmotic laxatives (e.g., Miralax), and prescription medications like lubiprostone (Amitiza) or linaclotide (Linzess) are often used to increase fluid in the intestines and help with stool passage. For diarrhea-predominant IBS (IBS-D): over-the-counter antidiarrheals (e.g., loperamide) can help. Prescription options include alosetron (Lotronex), eluxadoline (Viberzi), and the antibiotic rifaximin (Xifaxan) to reduce bacterial overgrowth and fluid secretion. For pain and cramping: antispasmodic medications like dicyclomine (Bentyl) can help relax the muscles in the gut. Low-dose antidepressants, such as tricyclics (TCAs) or SSRIs, are also often used to manage pain by affecting the gut-brain axis. Other treatments: probiotics may help with bloating and gas, and peppermint oil capsules are a common natural antispasmodic.</p>	<p>The discussion should specify the major exclusions for the drugs such as in eluxadoline-history of sphincter of Oddi dysfunction, prior cholecystectomy, pancreatitis, heavy alcohol use, severe hepatic impairment, or biliary obstruction.<sup>3</sup> Also, current guidelines do not recommend probiotics for global IBS (weak inconsistent evidence). Peppermint oil is a cost-effective way to help alleviate the symptoms of IBS, but keep in mind that there's little evidence to corroborate that and that it should not be used in patients with GERD.<sup>2,3</sup></p>

Despite these aspects, there were some notable shortcomings in the chatbot's answers. Most of the information provided by Gemini is generalized. It skipped the details that a specialist or guideline would consider to be important. In dietary guidance, Gemini listed many

common trigger foods, but it missed advising on the important reintroduction phase after elimination, while it cautioned against unnecessary long-term food restrictions.<sup>2,3</sup> Similarly, in pharmacotherapy, the chatbot's answer does not convey any key

contraindications.<sup>3</sup> The mention of probiotics as potentially helpful was inconsistent with recent guidelines; moreover, it failed to mention that peppermint oil should not be used by patients with gastroesophageal reflux disease (GERD).<sup>2,3</sup> These omissions show that an AI's otherwise correct answer lacks depth.

On the positive side, tools such as Gemini can help patients by providing accessible, jargon-free explanations and self-care tips at any time of day. It excels at giving consistent answers to common questions and can help reinforce a general practitioner's advice, potentially reducing the number of unnecessary clinic visits for basic information. Patients with IBS who feel isolated by their condition may also find comfort in the conversational style of a chatbot that patiently answers any follow-up queries. However, the disadvantages must also be acknowledged: chatbots may oversimplify complex medical guidance and miss symptoms that could be clinically important (as seen in the diagnostic criteria and treatment). There is also a risk of outdated or partially correct information if the model's knowledge does not incorporate the latest guidelines. It may also misinterpret the question posed by the patient if not asked correctly and give inaccurate information.<sup>1</sup> And unlike physicians, an AI model cannot offer personalized support according to an individual's medical history. This overreliance on chatbots can lead to false reassurance or even anxiety if the given information is misinterpreted.

Looking forward, future AI models integrated with up-to-date clinical guidelines and patient-specific data can help with symptom tracking, and timely medical evaluation. In IBS care, where management is highly personalized, an AI assistant can triage questions and help with diet plans, allowing clinicians to focus on more complex decisions. This requires collaboration between experts from both medicine and IT fields, and ensuring stronger accuracy safeguards.

In conclusion, this conversation with Gemini shows both the potential and current limitations of AI chatbots in health counselling. Using these in practice will require a sustainable approach, as these tools help strengthen the patient's education and enable them to make informed choices regarding their health. However, this must be done while maintaining the clinical knowledge and personalized

insight that only evidence-based medicine and healthcare professionals provide.

### **Declaration**

The author declare the use of AI as research tools in this study. The authors did not use any generative AI or AI-assisted technology for the writing or editing of this manuscript.

**Ailish H. Samuel\***

Department of Medicine, PSG Institute of Medical Sciences and Research, Coimbatore, Tamil Nadu, India

**\*Correspondence to**

Dr. Ailish H. Samuel,

E-mail: ailishsamuel1@gmail.com

### **REFERENCES**

1. Gemini. What is Gemini and how it works. 2023. Available at: <https://gemini.google/overview/>. Accessed on 15 January 2026.
2. Lacy BE, Pimentel M, Brenner DM, Chey WD, Keefer LA, Long MD, et al. ACG Clinical Guideline: Management of Irritable Bowel Syndrome. *Am J Gastroenterol.* 2021;116(1):17-44.
3. Vasant DH, Paine PA, Black CJ, Houghton LA, Everitt HA, Corsetti M, et al. British Society of Gastroenterology guidelines on the management of irritable bowel syndrome. *Gut.* 2021;70(7):1214-40.
4. Fukudo S, Okumura T, Inamori M, Okuyama Y, Kanazawa M, Kamiya T, et al. Evidence-based clinical practice guidelines for irritable bowel syndrome 2020. *J Gastroenterol.* 2021;56(3):193-217.
5. Anand K, Khatib MN. Causative Factors, Clinical Manifestations, and Therapeutic Strategies for Irritable Bowel Syndrome. *Cureus.* 2024;16(4):e58728.

**Cite this article as:** Samuel AH. Evaluation of Google Gemini's advice for irritable bowel syndrome. *Int J Res Med Sci* 2026;14:2698-701.