

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20252005>

Letter to the Editor

Harnessing artificial intelligence in understanding endometriosis

Sir,

Artificial intelligence (AI) models, such as neural networks and machine or language learning algorithms like ChatGPT, Microsoft Bing/Copilot, Deepseek AI, Google Gemini are emerging as new tools that can change the world.¹ As technology grows, the opportunity of diagnosing, treating, and especially identifying early signs of any disease becomes wider. In the era of AI, this tool that is supported by machine learning and big data analytics is already demonstrating its potential in advancing the outcomes in healthcare.²

Endometriosis affects about 6-10 per cent of women worldwide.³ As reproductive age females are more prone

to this disease, and with the advent of AI and its easy access, they could benefit from a more action-oriented or impactful word to draw immediate attention. Combining AI with the questions of the general population can give them a better explanation of their symptoms and help identify the early signs, leading to seeking treatment at an earlier stage.

Microsoft launched its own artificial intelligence known as Bing Chat in February 2023, which was later renamed Microsoft copilot, an artificial intelligence chatbot experience based on GPT-4, integrated directly into the search engine. Table 1 contains ten common questions people often ask about Endometriosis on this AI application.

Table 1: 10 Common questions asked by people about endometriosis and its response from Microsoft Bing/Copilot.⁴

Common questions asked by people on Microsoft Bing/Copilot	Response by Microsoft Bing /Copilot
What is endometriosis?	Endometriosis is a chronic medical condition where tissue similar to the lining of the uterus (endometrium) grows outside the uterus. Common locations for this tissue include the ovaries, fallopian tubes, and the pelvic lining. This tissue behaves like the uterine lining during menstrual cycles-it thickens, breaks down, and bleeds. However, since it is outside the uterus, the blood cannot exit the body, leading to inflammation, scarring, and the formation of cysts (endometriomas).
What causes endometriosis?	The exact cause of endometriosis is unclear, but several theories exist: Retrograde menstruation: Menstrual blood containing endometrial cells flows backward into the fallopian tubes and pelvic cavity. Hormonal factors: Estrogen plays a role in stimulating the growth of endometrial-like tissue outside the uterus. Immune system dysfunction: A weakened immune system may fail to recognize and destroy misplaced endometrial tissue. Genetic predisposition: Women with a family history of endometriosis are at higher risk. Metaplasia theory: Certain cells in the pelvic area transform into endometrial-like cells.
What are the symptoms of endometriosis?	Symptoms vary but commonly include: Severe pelvic pain, especially during menstruation (dysmenorrhea). Heavy menstrual bleeding or bleeding between periods. Pain during intercourse. Painful bowel movements or urination, particularly during menstruation. Fatigue, bloating, and nausea. Infertility. Symptoms can range from mild to debilitating and are not always indicative of the condition's severity.
How is endometriosis diagnosed?	Diagnosis can be challenging because its symptoms overlap with other conditions. Common diagnostic steps include: Medical history: Understanding symptoms and family history. Pelvic exam: A manual exam to check for abnormalities like cysts or scars. Imaging tests: Ultrasound or MRI may help identify cysts or lesions.

Continued.

Common questions asked by people on Microsoft Bing/Copilot	Response by Microsoft Bing /Copilot
	Laparoscopy: This minimally invasive surgical procedure allows direct visualization of the pelvic cavity and is considered the gold standard for diagnosis. A biopsy during laparoscopy can confirm the presence of endometriosis.
Can endometriosis be cured?	There is currently no cure. Treatments focus on managing symptoms, improving quality of life, and addressing fertility issues. The condition may recur even after surgery or other interventions.
Can endometriosis occur after menopause?	While symptoms typically improve after menopause due to decreased estrogen levels, endometriosis can persist or develop in some women, particularly those undergoing hormone replacement therapy (HRT).
How does endometriosis impact mental health and quality of life?	Chronic pain, fatigue, and fertility struggles associated with endometriosis can lead to anxiety, depression, and feelings of isolation. Women often face difficulties maintaining work, relationships, and daily activities. Comprehensive care, including mental health support, is essential to help individuals manage the emotional and psychological impact.
What lifestyle changes can help manage endometriosis symptoms?	Anti-inflammatory diet: Incorporate foods like fruits, vegetables, whole grains, and omega-3 fatty acids, and reduce processed foods, red meat, and sugar. Regular exercise: Physical activity can reduce estrogen levels and alleviate pain. Stress management: Techniques like meditation, deep breathing, and counseling can help manage emotional impact. Adequate sleep: Good sleep hygiene supports overall health and pain tolerance. Avoid triggers: Some women find relief by reducing caffeine, alcohol, and gluten.
What treatments options are available for endometriosis?	Treatment depends on the severity of symptoms and the patient's goals (e.g., managing pain or preserving fertility). Options include: Pain relief: Nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen. Hormonal therapy: Birth control pills, progestins, GnRH agonists, and antagonists to reduce or suppress menstruation. Laparoscopic surgery: Removal of endometriotic tissue to relieve symptoms and improve fertility. Hysterectomy: In severe cases, the removal of the uterus may be considered, although it is not a cure. Lifestyle changes: Diet, exercise, and stress management can complement medical treatments. Complementary therapies: Acupuncture, yoga, and pelvic physiotherapy may provide additional relief.

As per the observation, this tool generates a very easy to understand language which can be helpful to the general population. Also, it provides detailed explanations to each question thereby optimizing knowledge regarding Endometriosis in general population. It is important to note that it realistically gives an answer like "Treatment depends on the severity of symptoms and the patient's goals.", which can help individuals understand their own needs and eventually can decide the best treatment plan suitable for them. It also helps individuals seek treatment in earlier stages of symptoms.

Although these tools are helpful in narrowing and providing specific answers to the questions, it is also important to note that the information can lack genuineness and legitimacy. It is recommended to check AI response in order to provide patients with current and verified information. Here in the responses, there was a lack of response that should suggest consulting the

physician in case of any symptoms, which can lead the patient to manage the symptoms at home without consulting any physician. Also, the language of artificial intelligence is easy to understand for people, leading them to think everything in it is correct and these may mislead them from the actual problem. Therefore, to overcome such situations may be a challenge.

In future, if artificial intelligence and healthcare providers collaborate and provide accurate and verified information, it will optimize patient's understanding. Artificial intelligence that is trained on medical guidelines and on the most recent literature are still underway of being developed to overcome such issues of inaccurate, unreliable and unverified sources. It's time to harness the power of AI to improve the lives of millions suffering from endometriosis. The future of artificial intelligence and reproductive medicine is a vast topic of interest, and it will for sure lead to many new horizons.

Dhwani K. Patel*

Department of medicine, Our lady of Fatima University
College of Medicine, 120 Mac Arthur Highway, Marulas,
Valenzuela City, 1440 Metro Manila, Philippines

***Correspondence to**

Dhwani K. Patel
E-mail: dhwani Patel289@gmail.com

REFERENCES

1. Cetera GE, Tozzi AE, Chiappa V, Castiglioni I, Merli CEM, Vercellini P. Artificial intelligence in the management of women with endometriosis and adenomyosis: can machines ever be worse than humans? *J Clin Med.* 2024;13(10):2950.
2. Masilamani V, Bharathyvaraj R, Elangovan VR, Ramji H, Subramanian M, Saravanan M, et al. Leveraging artificial intelligence for advancements in reproductive health. *Afr J Reprod Health.* 2024;28(11):216-7.
3. Moradi Y, Shams-Beyranvand M, Khateri S, Gharahjeh S, Tehrani S, Varse F, et al. A systematic review on the prevalence of endometriosis in women. *Indian J Med Res.* 2021;154(3):446-54.
4. Microsoft pilot/Bing. Available at: <https://copilot.microsoft.com/chats>. Accessed on 2 April 2025.

Cite this article as: Patel DK. Harnessing artificial intelligence in understanding endometriosis. *Int J Reprod Contracept Obstet Gynecol* 2025;14:2424-6.