

SPECIAL ARTICLE

Gynecology

Global trends in the uptake of specialist diagnostic ultrasound and MRI scans for endometriosis: An international cross-sectional survey

Jodie C. Avery¹  | Anna Fragkoudi¹  | Alison Deslandes^{1,2}  | Scott M. Nelson³  |
 Laurie Henry⁴  | Ajey Bhardwaj⁵  | Elif G. Topcu⁶  | Togas Tulandi⁷  |
 Jaideep Malhotra⁸  | Dov Feldberg⁹  | Eytan Barnea¹⁰  | Nikhil Purandare¹¹  |
 Edgar Mocanu¹²  | Mathew Leonardi^{13,14}  | M. Louise Hull^{1,15,16}  | on behalf of the
 FIGO Committee on Reproductive Medicine, Endocrinology, and Infertility

Correspondence

Jodie C. Avery, Robinson Research Institute, School of Medicine, University of Adelaide, Ground Floor, Norwich House, 55 King William Road, North Adelaide, SA 5006, Australia.
 Email: jodie.avery@adelaide.edu.au

Abstract

Endometriosis affects 1 in 10 women globally. We aimed to determine health provider involvement and preferred methods of obtaining an endometriosis diagnosis across international jurisdictions. A global cross-sectional survey, distributed through formal and informal FIGO Reproductive Medicine, Endocrinology, and Infertility (REI) committee networks from September through October 2024. A total of 445 respondents from 76 countries began the survey, with 360 completions. Of the respondents, 63.9% were female, with most being gynecologists. Academics and/or researchers comprised 6.7%, with 39.2% involved in research in some capacity. Endometriosis was largely diagnosed by gynecologists (95.0%), with most respondents overall describing ultrasound as the most common method of diagnosis (77.8%). Of those surveyed, 93.6% stated clinicians in their country used non-invasive imaging (predominantly ultrasound) to diagnose endometriosis before surgery. One third of respondents did not feel confident distinguishing between routine gynecological scans and specialist endometriosis imaging. Significant barriers for uptake of imaging diagnostics included access to training, cost, and geographical accessibility. Regarding adoption of non-invasive imaging in clinical care, “game-changing” effects were described, including improvements in surgical preoperative mapping, and patient-centered care, with concerns that it could increase clinical workloads. Significantly, shifts in endometriosis diagnosis, from visualization of lesions at laparoscopy to non-invasive imaging diagnostics, were observed internationally. Policies should aim to overcome barriers to uptake of imaging-based diagnostics by supporting training initiatives, reducing associated costs, and improving geographical accessibility.

For affiliations refer to page 9.

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Respondents predicted transformative changes in endometriosis care once non-invasive endometriosis diagnostics are effectively adopted.

KEYWORDS

diagnosis, endometriosis, gynecology, laparoscopy, magnetic resonance imaging, radiography, sonography, ultrasound

1 | INTRODUCTION

Endometriosis affects approximately 1 in 10 women and those presumed female at birth worldwide, occurring when endometrium-like tissue grows outside the uterus.¹ Despite menstrual pain often beginning at menarche, diagnostic delay is common, averaging 6.8 years (range 1.5–11.4 years),² though country data remain limited. Traditionally, diagnosis has been restrained by availability of diagnostic surgery, lack of training among specialist doctors and technicians, different funding and insurance models, and specialist and surgical waiting lists disrupted by global events such as pandemics. Over their diagnostic journey, women often see six or more health professionals,³ having repeated interactions with health services, creating economic burden for both individuals and health systems.⁴

Historically, laparoscopic surgery has been the mainstay of endometriosis diagnosis.⁵ However, surgical diagnosis presents significant challenges, including long waiting periods and high costs.⁶ Importantly, one third of people who undergo laparoscopy to investigate endometriosis do not receive a diagnosis, exposing them to an unnecessary and risky procedure.⁷

Systematic reviews of blood, urine, and endometrial tissue biomarkers for endometriosis demonstrate insufficient diagnostic accuracy for effective clinical use.⁸ Recent advances include the evaluation of microRNA biomarkers in plasma,⁹ saliva,¹⁰ and proteomics plasma profiles.¹¹ Some studies show diagnostic promise, yet current evidence remains insufficient for routine clinical use.

Diagnostic imaging for endometriosis has evolved significantly recently, with transvaginal ultrasound (TVUS)¹² and magnetic resonance

TABLE 1 International surveys around endometriosis diagnosis using imaging.

Author	Country	Profession/organization	n	Results
Wild et al. (2020) ¹⁷	UK	British Society for Gynaecological Endoscopy (BSGE)-accredited endometriosis centers	32	Need for standardization of MRI techniques for endometriosis as many centers were not compliant with current evidence when significant inconsistencies in MRI protocols, patient preparation, and MRI sequences performed were identified
Grigoriadis et al. (2022) ¹⁸	Greece	Practicing gynecologists	64	A delay in adopting novel diagnostic approaches in endometriosis, and confirmed urgent need for specialized ultrasound training
Crivellaro et al. (2022) ¹⁹	Canada	Radiologists	89	38% reported that they or their institution performed advanced pelvic ultrasound for endometriosis 70% stated they currently interpret pelvic endometriosis MRI - However, many centers did not perform the specialized scanning required to detect endometriosis
Menakaya et al. (2016) ²⁰	Australia	Obstetrics and gynecology fellows and trainees	409	Utilization of advanced gynecological ultrasound for endometriosis is significantly influenced by respondents' self-reported practice type and limited by the lack of local expertise
Leonardi et al. (2020) ²¹	International	Obstetrician-gynecologists	1140	Poor awareness and underutilization of specialist endometriosis ultrasonography calling for increased resource allocation for its use in surgical triaging
Leonardi et al. (2019) ²²	73 countries	International endometriosis community members	5301	Significant gaps in the understanding of diagnosing endometriosis non-surgically

Abbreviation: MRI, magnetic resonance imaging.

imaging (MRI)¹³ demonstrating high levels of diagnostic accuracy for deep and ovarian endometriosis.⁸ International guidelines from societies, such as European Society of Human Reproduction and Embryology (ESHRE),¹³ National Institute for Health and Care Excellence (NICE UK),¹⁴ Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG),¹⁵ and Society of Obstetricians and Gynecologists of Canada (SOGC),¹⁶ now recommend imaging in the diagnostic workup for endometriosis, noting that a negative imaging finding does not exclude a diagnosis of endometriosis.

Country-specific surveys have documented the uptake of imaging as a primary diagnostic tool for endometriosis. These are summarized in Table 1; however, worldwide practices have not been well documented.^{17–21} The aim of the present study was to explore the global adoption of non-invasive imaging techniques, specifically ultrasound and MRI, in the diagnosis of endometriosis, by analyzing clinician-reported experiences across health systems. The study investigates how greater uptake of imaging could influence clinical practice, aiming to inform future diagnostic guidelines and training models. Barriers and facilitators for the uptake of non-invasive imaging and differences between continents were also explored but will be addressed in a separate paper.

2 | MATERIALS AND METHODS

Between September and October 2024, an international online, cross-sectional survey was distributed via the International Federation of Gynecology and Obstetrics (FIGO) and regional networks accessed by members of the FIGO Committee on Reproductive Medicine, Endocrinology, and Infertility (REI). A convenience sample included healthcare professionals involved in the diagnosis of endometriosis. The survey aimed to capture a snapshot of practices undertaking endometriosis diagnosing across continents. Specific questions were asked about health personnel who used non-invasive endometriosis diagnosis and techniques. Multiple-choice and open-ended questions were included. Demographic questions were asked at survey commencement, including questions on jurisdictional leadership and research in the field. The 10 core questions are presented in Box 1. The order of the questions was structured to follow a logical order from broad to more specific. Questions 1–3 establish who is responsible for diagnosing endometriosis and whether non-invasive imaging is being used in this context. This is followed by more detailed questions concerning specialist training and confidence in interpreting imaging findings (questions 4–8). Finally, participants are invited to reflect on perceived barriers and potential changes in their own country (questions 9 and 10). This sequence was introduced to ensure coherence and consistency, while minimizing the risk of introducing bias through question order.

The final survey was administered on SurveyHero®, distributed internationally via FIGO's email lists, the American Association of Gynecologic Laparoscopists (AAGL), Australian Society of

BOX 1 Survey questions.

1. In your country, who are the main group of clinicians that diagnose endometriosis?
2. In your country, are clinicians using non-invasive imaging to evaluate endometriosis before surgery?
3. Which diagnostic method is predominantly used in your country?
4. Do you have gynecologists who undertake specialist endometriosis transvaginal ultrasound?
5. If yes, do they require a qualification and/or credentialing to perform these scans?
6. Do you feel confident distinguishing between specialist endometriosis scans and routine ultrasounds and/or MRI scans?
7. What proportion of clinicians is using imaging tools for the diagnosis of endometriosis in your country?
8. In your country, how widespread is the use of imaging to diagnose endometriosis?
9. What are the barriers for using imaging in endometriosis diagnosis?
10. If imaging was adopted for endometriosis diagnosis in the future, how would it change your practice?

Ultrasound in Medicine (ASUM), and social media, including the IMAGENDO® Facebook and Instagram pages. The average completion time was approximately 7 minutes. Consent was obtained as part of the survey preamble, before commencing the survey. If consent was not stated, the survey would not proceed.

Participants were required to be aged over 18 years and a healthcare professional providing reproductive services. The survey was disseminated in the three official FIGO languages (French, Spanish, and English).

Descriptive statistics included counts (n) and percentages (%) for categorical data generated using statistical programs (i.e. STATA). Analyses described sample characteristics (e.g. gender, role, qualifications, country, etc.). Frequencies were presented for all responses regarding demographics, profession and location of practice, and endometriosis diagnosis, with cross-analyses for selected questions undertaken by continent. Open-ended questions were analyzed using content analysis to identify emerging topics, the results of which will be published in another paper.

The survey was approved by the FIGO REI Committee and the University of Adelaide Human Research Ethics Committee (protocol approval no. H-2024-031) in compliance with the STROBE and CROSS statements and checklists (Appendices B and C, Tables A1 and A2).^{23,24}

3 | RESULTS

3.1 | Demographic responses

The survey attracted 445 responses: 360 respondents completed the full questionnaire and 85 began but did not complete the survey. The majority of respondents were female (63.9%) and most responses were in English (76.3%) (Table 2). Respondents were spread across all six continents (Figure 1). The countries with the most responses were Canada (13.6%), Colombia (10.3%), USA (10.0%), Australia (5.3%), Pakistan (7.5%), UK (3.1%), and India (2.8%). It is unclear how representative of the gynecology and sonography population this was, as

TABLE 2 Demographics ($n=360$).

Characteristic	n (%)
Sex	
Female	230 (63.9)
Male	129 (35.8)
Prefer not to say	1 (0.3)
Language ^a	
English	274 (76.3)
Spanish	68 (18.9)
French	17 (4.7)
Continent ^a	
Asia	93 (25.9)
North America	90 (25.1)
South America	73 (20.3)
Europe	57 (15.9)
Oceania	23 (6.4)
Africa	23 (6.4)
Total	360 (100.0)

^aOne missing.

one of the objectives of the paper was to describe this population. A full list of all 66 countries included is available in Appendix A.

3.2 | Profession and workplace

When asked about professions, roles, and qualifications, respondents self-classified as gynecologists (20.1%), medical doctors (18.7%), general practitioner/family physicians (11.1%), and obstetrician/gynecologists (10.6%). The majority worked in public hospitals (22.3%), universities (20.1%), or private clinics (18.7%). Regarding qualifications, 83.6% were qualified as gynecologists, with 4.4% stating they were sonographers and 3.1% stating they were radiologists (Table 3).

3.3 | Diagnosis of endometriosis

When asked whether clinicians used non-invasive imaging to evaluate endometriosis before surgery in their country, 93.6% answered affirmatively. The most commonly used diagnostic method was ultrasound (77.8%) followed by MRI (41.4%), with clinical symptoms (34.4%) and surgery (33.0%) occurring similarly (Table 4). In each continent, over 90% of clinicians reported using non-invasive imaging to evaluate endometriosis before surgery, except in Africa where this was 82.6%.

Of the respondents, 51.1% considered themselves leaders and 39.2% undertook research in this field. The main group that diagnosed endometriosis in particular countries were gynecologists (95.0%), followed by radiologists (15.0%).

However, when asked about the main clinician group diagnosing endometriosis, gynecologists were overwhelmingly identified (over 89% in all continents). Radiologists were predominantly the second most common group in all continents, with rates above

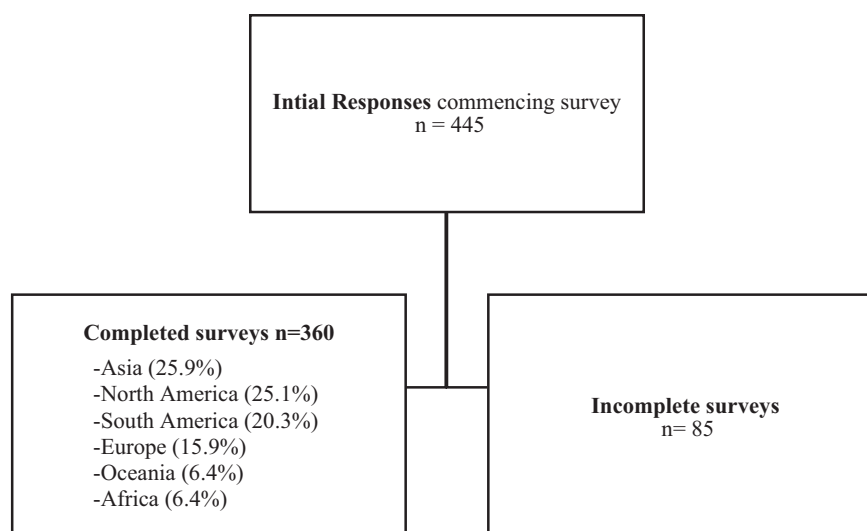


FIGURE 1 Flow chart of survey responses and continent distribution.

TABLE 3 Profession and workplace descriptors (n=360).

Descriptor	n (%)
Role^a	
Academic/researcher	24 (6.7)
Clinician	11 (3.1)
Consultant	24 (6.7)
Director	6 (1.7)
Embryologist	2 (0.6)
Fertility specialist	7 (1.9)
General practitioner/family physician	40 (11.1)
Gynecologist	72 (20.1)
Head of department	8 (2.2)
Medical doctor	67 (18.7)
Nurse	2 (0.6)
Obstetrician/gynecologist	38 (10.6)
Other	14 (3.9)
Participant/survey	7 (1.9)
Radiologist	8 (2.2)
Sonographer	11 (3.1)
Student	11 (3.1)
Surgeon	7 (1.9)
Workplace^a	
Public hospital	80 (22.3)
Private hospital	28 (7.8)
Private clinic	67 (18.7)
Primary care	1 (0.3)
University	72 (20.1)
Other	111 (30.9)
Qualifications	
Embryologist	2 (0.6)
Fertility specialist	1 (0.3)
General practitioner/family physician	9 (2.5)
Gynecologist	301 (83.6)
Midwife	1 (0.3)
Nurse	1 (0.3)
Obstetrician and gynecologist	1 (0.3)
Other clinician	3 (0.8)
Radiologist	11 (3.1)
Radiographer	1 (0.3)
Reproductive endocrinologist	9 (2.5)
Researcher	3 (0.8)
Sonologist	1 (0.3)
Sonographer	16 (4.4)
Total	360 (100.0)

^aOne missing.

10%, with the exception of Africa where 26% specified radiologists. In Oceania, sonographers were the second main group diagnosing endometriosis (17% compared to 9.0% for radiologists) (Figure 2).

TABLE 4 Diagnosis of endometriosis (n=360).

Questions	n (%)
Do you consider yourself leader in the area of endometriosis diagnosis?	
No	176 (48.9)
Yes	184 (51.1)
Do you undertake research in the area of endometriosis diagnosis?	
No	219 (60.8)
Yes	141 (39.2)
In your country, which is the main clinician group that diagnoses endometriosis? ^a	
General practitioner/Family physician	17 (4.7)
Gynecologist	342 (95.0)
Radiologist	54 (15.0)
Radiographer	3 (0.8)
Sonologist	25 (6.9)
Sonographer	22 (6.1)
Nurse practitioner	2 (0.6)
Other clinician	5 (1.4)
In your country, are clinicians using non-invasive imaging to evaluate endometriosis before surgery?	
Do not know	10 (2.8)
No	13 (3.6)
Yes	337 (93.6)
Which diagnostic method is predominantly used for the diagnosis of endometriosis in your country? ^a	
Surgery	122 (33.0)
MRI	149 (41.4)
Ultrasound	280 (77.8)
Biomarkers	27 (7.5)
Clinical symptoms	124 (34.4)
Do not know	6 (1.7)
Other diagnostic method	8 (2.2)
In your country, do you have gynecologists who undertake specialist endometriosis transvaginal ultrasound?	
Do not know	24 (6.7)
No	66 (18.3)
Yes	270 (75.0)
If yes, do they require a qualification/credential to perform these scans? ^b	
No	217 (81.0)
Yes	51 (19.0)
What proportion of clinicians are using imaging tools for the diagnosis of endometriosis in your country?	
10%	48 (13.3)
20%	42 (11.7)
50%	42 (11.7)
80%	59 (16.4)
100%	77 (21.4)
Do not know	91 (25.3)
None	1 (0.3)
In your country, how widespread is the use of imaging to diagnose endometriosis?	
Broadly used	154 (42.8)
Do not know	21 (5.8)
It is not used to diagnose endometriosis	8 (2.2)
Only certain centres	177 (49.2)

(Continues)

TABLE 4 (Continued)

Questions	n (%)
Do you feel confident distinguishing between specialist endometriosis scans and routine ultrasounds/MRI scans?	
No	118 (32.8)
Not applicable	26 (7.2)
Yes	216 (60.0)

Abbreviation: MRI, magnetic resonance imaging.

^aMultiple-choice answers.

^bTwo missing.

The majority of respondents in most continents (>75%) specified there were gynecologists who undertook specialist endometriosis TVUS; however, in Africa (52.0%) and Asia (58.0%), over half of respondents did not think this. Lastly, 13.0% of African respondents specified that they did not know.

When responses by continent were explored, the primary diagnostic methods by country indicated that ultrasound is the primary diagnostic method, with the highest proportion of respondents specifying this as the main method in Asia (89.2%), South America (83.6%), Europe (77.2%), USA (68.9%) Oceania (69.6%), and Africa (60.9%) (Figure 3). In most continents, the second most commonly used method varied between MRI, as specified by respondents from Europe (64.9%), South America (46.6%), and Africa (43.5%), with clinical symptoms in North America (50.0%), and surgery in Oceania (73.9%) and North America (44.4%).

When asked whether gynecologists in their country undertook specialist TVUS for the diagnosis of endometriosis, 75.0% replied affirmatively; however, only 19.0% stated that gynecologists required a specialist qualification to do this. When broken down by continent, the proportions of respondents reporting gynecologists with specialist qualifications were as follows: 92.0% in South America, 79.0% in North America, 58.0% in Asia, 81.0% in Europe, 83.0% in Oceania, and 52.0% in Africa.

The proportion of clinicians who used imaging tools was primarily unknown (25.3%); however, 21.4% thought that 100% of clinicians used imaging and 21.4% thought 80% used imaging. In addition, 49.2% thought that imaging was used to diagnose endometriosis "only in certain centers", while 42.8% thought it was "broadly used". Overall, 60.0% of respondents felt confident in distinguishing between specialist endometriosis scans and routine ultrasounds or MRI scans (Table 4).

3.4 | Barriers and potential change of practice for endometriosis diagnosis

Participants were asked to report on any barriers using non-invasive imaging for diagnosing endometriosis and whether its use would have any change in their practice. A total of 12 topics emerged, seven from the first open-ended question and five from the latter (Table 5). The main challenge identified was "lack of training and expertise", particularly among gynecologists, followed by "cost and accessibility issues".

When participants were asked whether the use of imaging in diagnosis endometriosis would change their practice, the majority of responses came from gynecologists, with most relating to the general impact on clinical practice, surgical and medical management, and shifts in diagnostic approach. Less emphasis was placed on patient-centered care and systemic challenges, highlighting areas for potential improvement in training, access, and service delivery.

4 | DISCUSSION

This comprehensive international survey examined global clinician practices regarding the non-invasive diagnosis of endometriosis, particularly in light of recent changes in clinical guidelines. Over 90% of clinicians used non-invasive imaging before surgery, with the majority of diagnoses made using ultrasound performed by gynecologists. MRI was used in nearly 40% of cases, while both clinical symptoms and surgery contributed to over one third of cases. Whether these practices reflect updated recommendations from societies such as ESHRE¹³ remains unclear, as this was topic was not addressed. However, the adoption of ultrasound has become increasingly widespread due to advances in technique and technology, improving the accuracy of lesion detection—from deep endometriosis to superficial disease—without the need for initial diagnostic laparoscopy.²⁵

Although ultrasound imaging has been a cornerstone of gynecological care for decades, its use has recently evolved. Incorporation of ultrasound training is now commonplace in specialist training for gynecologists internationally. Subspecializations of dedicated gynecological sonologists (a medical practitioner, who specializes in diagnostic ultrasound) are more common in many locations, with dedicated fellowship programs and qualifications, such as the Australasian Certification in Obstetrical and Gynaecological Ultrasound (COGU). Furthermore, the understanding of ultrasound's utility for diagnosing endometriosis and mapping disease before surgery has improved with the publication of the International Deep Endometriosis Analysis (IDEA) consensus statement from 2016,¹² along with subsequent recent addendums.^{26,27}

Differences still exist between countries and continents. This is due to geographical nuances in healthcare services, such as field leadership, access to clinicians and technicians, education, healthcare funding, accessibility, and technology costs. It is also important to acknowledge that the cost of non-invasive imaging varies across modalities and health system contexts, with MRI typically being more expensive than ultrasound, which may influence accessibility and clinical uptake in different countries. Cultural norms and beliefs can impact both clinician and patient engagement with imaging technologies. Despite global differences in use of diagnostic ultrasound, all continents predominantly utilized ultrasound, with Asia and South America having the highest adoption rates. Global differences in the use of diagnostic ultrasound exist. In many countries, gynecological

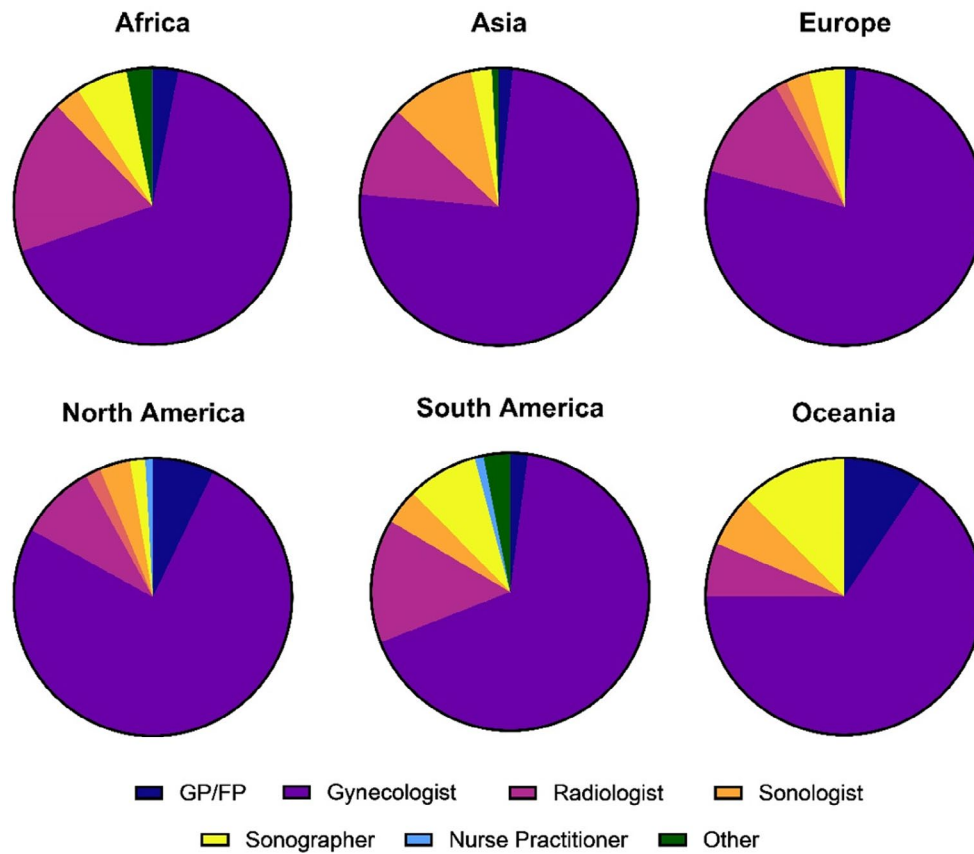


FIGURE 2 Main clinician group that diagnoses endometriosis by continent.

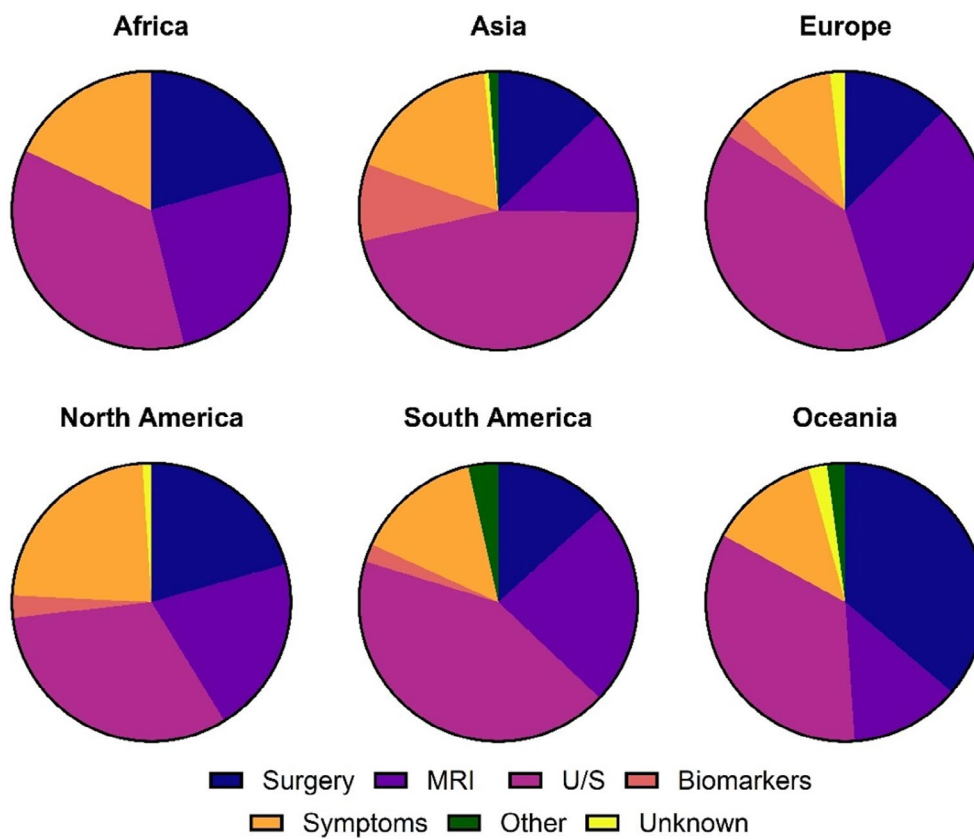


FIGURE 3 Diagnostic method used for endometriosis diagnosis by continent.

TABLE 5 Topics emerged from content analysis.

Question	Topics emerged
What are the barriers for using imaging in endometriosis diagnosis?	Training and expertise
	Cost and accessibility
	Diagnostic limitations
	Equipment quality
	Professional and institutional challenges
	Cultural and clinical resistance
If imaging was adopted for endometriosis diagnosis in the future, how would it change your practice?	Patient barriers
	General impact on clinical practice
	Shift in diagnostic approach
	Surgical medical management
	Patient-centered care
	Challenges and considerations

ultrasound is performed and interpreted by gynecologists. In others, such as Australia, USA, UK, and Canada, ultrasound is performed by a sonographer and interpreted by a radiologist. These differences make comparisons of global practices challenging, highlighting the necessity of ensuring that global guidelines cater to all relevant healthcare professionals and that training is accessible to all relevant diagnosticians, irrespective of profession.

A number of barriers to uptake of non-invasive imaging could be addressed. Training and education are increasingly necessary for specialized sonographers to free up gynecologists, increasing access to diagnosis via non-invasive imaging. However, some countries have not yet implemented this model. Further, shifting the diagnosis of endometriosis toward primary health care can accelerate timely intervention. This transition must be supported by improved access to non-invasive imaging modalities to enable earlier, more accurate identification of disease. Tools like artificial intelligence (AI) can help, not only with teaching but as a virtual mentor when expert supervision is unavailable.²⁸ Given the wide variations in health system models, costs for specialized endometriosis scans should be set at levels that are affordable for patients.

Given this change in practice, the updating of diagnostic guidelines,¹³ increase in ultrasound education for clinicians to obtain an endometriosis diagnosis, and advent of diverse AI tools to assist in use of ultrasound and MRI,^{25,29} it would be prudent to undertake this survey again in the coming years to assess temporal changes in the uptake of new diagnostic techniques.

The advantages of non-invasive imaging include greater accessibility to diagnosis, which may increase the quality of life for women with endometriosis. Furthermore, by reducing the need for surgical procedures for diagnosis, economic benefits will emerge for patients, and pressure and costs on healthcare systems will be reduced.³⁰ However, we need to ensure that the quality of the diagnostic imaging tools used is maintained. These examinations should only be undertaken by professionals with adequate training in this type of imaging.

The strengths of this study include engagement of a large number of respondents globally; however, this did not necessarily relate to population proportions. The survey was equally completed by both those who considered themselves field leaders and those who did not.

Some limitations include the proportion of the sample that did not complete the survey and were thus deemed ineligible. Many valuable data were collected from this part of the sample; however, we could not analyze it further due to lack of consent. As most FIGO members are gynecologists, our sample predominantly reflects this. Over one third of respondents also conducted research in the area, indicating high level investment and interest. This could introduce bias, as we only surveyed people within the field who have a special interest in this area. In addition, practices in some countries regarding which practitioners undertake endometriosis scans vary substantially. This means that many of the questions we asked may have not pertained to particular countries. For example, Australia has sonographers who undertake endometriosis scans; however, many European countries do not. Further, we acknowledge that differences in clinical background and health system contexts among countries may influence responses.

This study demonstrates the need for training in diagnostic modalities and interpretation and reinforces awareness of their utility. In the future, it would be valuable to target specific professions that undertake diagnostic exams for endometriosis, not only gynecologists and radiologists, but sonographers and family doctors as well. Future surveys can explore imaging for therapeutic purposes of endometriosis as well as co-morbidities and individuals using artificial reproductive techniques with the intention of pregnancy.

There is a need to assess and regulate the quality of testing. As these imaging tests become more accessible, especially with funding body rebates for patients, more clinics may claim to offer the service without any verification of completed training. This highlights the importance of credentialing imaging providers, ensuring that both patients and funding bodies receive the services they are paying for. Ultimately, the successful integration of non-invasive imaging into standard diagnostic pathways for endometriosis requires not only technological advancement but also coordinated efforts in education, policy, and clinical governance.

5 | CONCLUSION

This study highlights how specialist endometriosis scanning has influenced clinical practice and identifies areas where additional training or resources are needed. Recent guidelines from ESHRE, NICE, and other professional bodies recognize TVUS and MRI as non-invasive approaches for identifying endometriosis lesions, although these methods cannot fully exclude the disease.

Raising awareness and addressing gaps in knowledge and skills will improve access to non-invasive diagnosis. Earlier diagnosis is

likely to benefit the endometriosis community by reducing symptom normalization and diagnostic delays, while supporting treatment optimization, school attendance, and work productivity. Additional potential benefits of early diagnosis include preventing the development of complex pain syndromes and preserving fertility through timely intervention.

AUTHOR CONTRIBUTIONS

JCA: Writing—original draft, review and editing, questionnaire development, data interpretation, validation. AF: Methodology, questionnaire design, data analysis, data interpretation, writing, review and editing of the manuscript. AD, SMN, LH, AB, EGT, TT, JM, DF, EB, NP, EM: Survey distribution, review and editing of the manuscript. ML: Survey design, distribution, review and editing of the manuscript. MLH: Conceptualization, methodology, questionnaire development, data interpretation, validation, review and editing of the manuscript.

AFFILIATIONS

¹Robinson Research Institute, University of Adelaide, Adelaide, South Australia, Australia

²Specialist Imaging Partners, Adelaide, South Australia, Australia

³School of Medicine, Dentistry and Nursing, University of Glasgow, Glasgow, UK

⁴ART Center of the Department of Obstetrics and Gynecology, CHU of Liège-Citadelle Site, University of Liège, Liège, Belgium

⁵Avni Health Foundation, Seattle, WA, USA

⁶Department of Obstetrics and Gynaecology, Sisli Kolan International Hospital, Istanbul, Türkiye

⁷Department of Obstetrics and Gynecology, McGill University, Montreal, QC, Canada

⁸Rainbow IVF, Agra, India

⁹Sackler Medical School, Tel Aviv University, Tel Aviv, Israel

¹⁰Department of Obstetrics, Gynecology & Reproductive Sciences, University of Miami Miller School of Medicine, Miami, Florida, USA

¹¹Department of Obstetrics and Gynaecology, Galway University Hospital, Galway, Ireland

¹²Rotunda Hospital and RCSI, Dublin, Ireland

¹³Specialized Ultrasound for Gynecology and Ultrasound (SUGO), Hamilton, Ontario, Canada

¹⁴McMaster University, Hamilton, Ontario, Canada

¹⁵Embrace Fertility, Adelaide, South Australia, Australia

¹⁶Women's and Children's Hospital, Adelaide, South Australia, Australia

CONFLICT OF INTEREST STATEMENT

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SOPHIE, Hamilton Health Sciences, Endometriosis Australia, Medical Research Future Fund/ IMAGENDO®, and Health Canada outside the submitted work. MLH is a PI on IMAGENDO®, a University-based research initiative. She has an MRFF grant from the Australian government. The IMAGENDO® group is developing an AI based diagnostic algorithm for endometriosis scanning, holding a Patent PCT/AU2024/050999. She has received travel grants from Gideon Richter, MERCK, Organon, Bayer, Ferring and Guerbet.

DATA AVAILABILITY STATEMENT

Research data are not shared.

MEMBERS OF THE FIGO COMMITTEE ON REPRODUCTIVE MEDICINE, ENDOCRINOLOGY, AND INFERTILITY

Nikhil Purandare (chair) (Ireland), Jaideep Malhotra (past chair) (India), Jackline Akol (South Sudan), Andres Calle (Ecuador), Akira Iwase (Japan), Togas Tulandi (Canada), Craig Niederberger (USA), Edgar Mocanu (Ireland), Ivonne Diaz Yamal (Columbia), Hrishikesh Pai (India).

ORCID

Jodie C. Avery  <https://orcid.org/0000-0002-8857-9162>

Anna Fragkoudi  <https://orcid.org/0000-0001-7660-7835>

Alison Deslandes  <https://orcid.org/0000-0001-7094-3950>

Scott M. Nelson  <https://orcid.org/0000-0002-9099-3047>

Elif G. Topcu  <https://orcid.org/0000-0003-1362-6224>

Togas Tulandi  <https://orcid.org/0000-0002-5253-2565>

Jaideep Malhotra  <https://orcid.org/0000-0001-8348-3789>

Dov Feldberg  <https://orcid.org/0000-0003-4072-8437>

Eytan Barnea  <https://orcid.org/0000-0003-4677-4370>

Nikhil Purandare  <https://orcid.org/0000-0002-4718-6979>

Edgar Mocanu  <https://orcid.org/0000-0002-3094-4892>

Mathew Leonardi  <https://orcid.org/0000-0001-5538-6906>

M. Louise Hull  <https://orcid.org/0000-0003-1813-3971>

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Albania, Algeria, Argentina, Armenia, Australia, Bangladesh, Bolivia, Brazil, Cambodia, Canada, Chile, Colombia, Costa Rica, Cote d'Ivoire, Democratic Republic of the Congo, Dominican Republic, Ethiopia, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Kazakhstan, Kenya, Malawi, Malaysia, Malta, Mexico, Morocco, Nepal, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Panama, Philippines, Poland, Portugal, Republic of Guyana, Republic of Peru, Republic of South Africa, Romania, Rwanda, Serbia, Singapore, Slovakia, Somalia, South Korea, South Sudan, Spain, Sweden, Taiwan, Tunisia, Türkiye, UK, USA, Venezuela, Vietnam.

APPENDIX B

TABLE A1 STROBE statement: Checklist of items that should be included in reports of cross-sectional studies.²³

	Item no.	Recommendation	
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	✓
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	✓
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	✓
Objectives	3	State specific objectives, including any prespecified hypotheses	✓
Methods			
Study design	4	Present key elements of study design early in the paper	✓
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	✓
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	✓
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	✓
Data sources/measurement	8 ^a	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	✓
Bias	9	Describe any efforts to address potential sources of bias	✓
Study size	10	Explain how the study size was arrived at	✓
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	✓
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	✓
		(b) Describe any methods used to examine subgroups and interactions	✓
		(c) Explain how missing data were addressed	✓
		(d) If applicable, describe analytical methods taking account of sampling strategy	✓
		(e) Describe any sensitivity analyses	✓
Results			
Participants	13 ^a	(a) Report numbers of individuals at each stage of study, e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed	✓
		(b) Give reasons for non-participation at each stage	✓
		(c) Consider use of a flow diagram	✓
Descriptive data	14 ^a	(a) Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders	✓
		(b) Indicate number of participants with missing data for each variable of interest	✓
Outcome data	15 ^a	Report numbers of outcome events or summary measures	✓

(Continues)

TABLE A1 (Continued)

	Item no.	Recommendation	
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g. 95% CI). Make clear which confounders were adjusted for and why they were included	✓
		(b) Report category boundaries when continuous variables were categorized	✓
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	✓
Other analyses	17	Report other analyses done, e.g. analyses of subgroups and interactions, and sensitivity analyses	✓
Discussion			
Key results	18	Summarize key results with reference to study objectives	✓
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	✓
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	✓
Generalizability	21	Discuss the generalizability (external validity) of the study results	✓
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	✓

Note: An explanation and elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the websites of *PLoS Medicine* [<http://www.plosmedicine.org/>], *Annals of Internal Medicine* [<http://www.annals.org/>], and *Epidemiology* [<http://www.epidem.com/>]). Information on the STROBE Initiative is available at www.strobe-statement.org.

^aGive information separately for exposed and unexposed groups.

APPENDIX C

TABLE A2 Checklist for Reporting Of Survey Studies (CROSS).²⁴

Section/topic	Item	Item description	Reported on page
Title and abstract			
Title and abstract	1a	State the word “survey” along with a commonly used term in title or abstract to introduce the study's design	1
	1b	Provide an informative summary in the abstract, covering background, objectives, methods, findings/results, interpretation/discussion, and conclusions	2
Introduction			
Background	2	Provide a background about the rationale of the study, what has been previously done, and why this survey is needed	3
Purpose/aim	3	Identify specific purposes, aims, goals, or objectives of the study	3
Methods			
Study design	4	Specify the study design in the methods section with a commonly used term (e.g. cross-sectional or longitudinal)	4
Data collection methods	5a	Describe the questionnaire (e.g. number of sections, number of questions, number and names of instruments used)	4, 6
	5b	Describe all questionnaire instruments that were used in the survey to measure particular concepts. Report target population, reported validity and reliability information, scoring/classification procedure, and reference links (if any)	4, 6
	5c	Provide information on pretesting of the questionnaire, if performed (in the article or in an online supplement). Report the method of pretesting, number of times questionnaire was pre-tested, number and demographics of participants used for pretesting, and the level of similarity of demographics between pretesting participants and sample population	N/A
	5d	Questionnaire if possible, should be fully provided (in the article, or as appendices or as an online supplement)	6
Sample characteristics	6a	Describe the study population (i.e. background, locations, eligibility criteria for participant inclusion in survey, exclusion criteria)	5
	6b	Describe the sampling techniques used (e.g. single stage or multistage sampling, simple random sampling, stratified sampling, cluster sampling, convenience sampling). Specify the locations of sample participants whenever clustered sampling was applied	5
	6c	Provide information on sample size, along with details of sample size calculation	5
	6d	Describe how representative the sample is of the study population (or target population if possible), particularly for population-based surveys	5
Survey administration	7a	Provide information on modes of questionnaire administration, including the type and number of contacts, the location where the survey was conducted (e.g. outpatient room or by use of online tools, such as SurveyMonkey)	4
	7b	Provide information of the survey's time frame, such as periods of recruitment, exposure, and follow-up days	4
	7c	Provide information on the entry process: ->For non-web-based surveys, provide approaches to minimize human error in data entry ->For web-based surveys, provide approaches to prevent “multiple participation” of participants	5
Study preparation	8	Describe any preparation process before conducting the survey (e.g. interviewers' training process, advertising the survey)	4, 5

(Continues)

TABLE A2 (Continued)

Section/topic	Item	Item description	Reported on page
Ethical considerations	9a	Provide information on ethical approval for the survey if obtained, including informed consent, IRB approval, Helsinki declaration, and GCP declaration (as appropriate)	5
	9b	Provide information about survey anonymity and confidentiality and describe what mechanisms were used to protect unauthorized access	5
Statistical analysis	10a	Describe statistical methods and analytical approach. Report the statistical software that was used for data analysis	5
	10b	Report any modification of variables used in the analysis, along with reference (if available)	5
	10c	Report details about how missing data was handled. Include rate of missing items, missing data mechanism (i.e. MCAR, MAR, or MNAR) and methods used to deal with missing data (e.g. multiple imputation)	5
	10d	State how non-response error was addressed	5
	10e	For longitudinal surveys, state how loss to follow-up was addressed	
	10f	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for non-representativeness of the sample	
	10g	Describe any sensitivity analysis conducted	
Results			
Respondent characteristics	11a	Report numbers of individuals at each stage of the study. Consider using a flow diagram, if possible	6
	11b	Provide reasons for non-participation at each stage, if possible	5, 6
	11c	Report response rate, present the definition of response rate or the formula used to calculate response rate	N/A
	11d	Provide information to define how unique visitors are determined. Report number of unique visitors along with relevant proportions (e.g. view proportion, participation proportion, completion proportion)	N/A
Descriptive results	12	Provide characteristics of study participants, as well as information on potential confounders and assessed outcomes	7
Main findings	13a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates along with 95% CIs and <i>P</i> values	N/A
	13b	For multivariable analysis, provide information on the model building process, model fit statistics, and model assumptions (as appropriate)	N/A
	13c	Provide details about any sensitivity analysis performed. If there are considerable amount of missing data, report sensitivity analyses comparing the results of complete cases with that of the imputed dataset (if possible)	N/A
Discussion			
Limitations	14	Discuss the limitations of the study, considering sources of potential biases and imprecisions, such as non-representativeness of sample, study design, important uncontrolled confounders	14
Interpretations	15	Give a cautious overall interpretation of results, based on potential biases and imprecisions and suggest areas for future research	14
Generalizability	16	Discuss the external validity of the results	14
Other sections			
Role of funding source	17	State whether any funding organization has had any roles in the survey's design, implementation, and analysis	15
Conflict of interest	18	Declare any potential conflict of interest	15
Acknowledgments	19	Provide names of organizations/persons that are acknowledged along with their contribution to the research	15

Abbreviations: CI, confidence interval; GCP, good clinical practice; IRB, institutional review board; MAR, missing at random; MCAR, missing completely at random; MNAR, missing not at random; N/A, not applicable.