Epidemiology, Clinical Characteristics, and Treatment Options of Endometriosis Among Women Attending Gynecology Clinics: A Cross-Sectional Study

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ABSTRACT

Endometriosis is a chronic inflammatory gynaecological disorder characterized by the presence of endometrial-like tissue outside the uterine cavity, commonly affecting women of reproductive age and frequently associated with pelvic pain, dysmenorrhoea, dyspareunia, and infertility. It significantly impairs quality of life and reproductive health, with variable clinical presentation and often delayed diagnosis. This cross-sectional study was conducted among women diagnosed with endometriosis attending the gynaecology clinics at Samawah Hospital for Maternity and Children, Al-Muthana, Iraq, between 1 January 2024 and 1 January 2026. The study aimed to determine the demographic characteristics, common clinical presentations, reproductive profile, and treatment outcomes of women diagnosed with endometriosis. A total of 60 women with confirmed endometriosis were included. Data were collected through face-to-face interviews and medical record review using a structured questionnaire. The mean age of participants was 33.2 ± 5.2 years, and most were urban residents (60.0%) and married (80.0%). Among married women, 58.3% had a history of infertility, with a mean duration of 3.4 ± 2.1 years, while 29.2% were nulliparous. Overweight and obesity were common, affecting 38.3% and 23.3% of participants, respectively. The most frequent clinical presentation was dysmenorrhoea (83.3%), followed by chronic pelvic pain (78.3%), dyspareunia (51.7%), and infertility (46.7%). Regarding management, 43.3% received combined medical and surgical treatment, 40.0% received medical therapy alone, and 16.7% underwent surgical treatment only. Complete improvement was reported in 31.7% of patients, while 48.3% showed partial improvement. Endometriosis remains a major source of pain and infertility, requiring early diagnosis, individualized management, and improved access to multidisciplinary care to optimize long-term outcomes.

Keywords: Endometriosis, Dysmenorrhoea, Chronic pelvic pain, Infertility, Dyspareunia, Reproductive health

INTRODUCTION

Endometriosis is a chronic, estrogen-dependent inflammatory disorder characterized by the presence of endometrial-like tissue outside the uterine cavity, most commonly affecting the ovaries, pelvic peritoneum, and other pelvic structures. It is a significant gynecological condition associated with chronic pelvic pain, dysmenorrhea, dyspareunia, and infertility, and it substantially impairs quality of life and productivity among affected women (1). Despite its high clinical impact, endometriosis remains underdiagnosed and often presents with delayed diagnosis due to its variable clinical manifestations and lack of noninvasive diagnostic tools.

Globally, endometriosis affects approximately 10% of women of reproductive age, corresponding to nearly 190 million women worldwide, making it a major public health concern (2). Prevalence estimates vary depending on the population studied and diagnostic methods used, ranging from 5–10% in the general population to as high as 18–42% among women presenting with gynecological symptoms such as pelvic pain or infertility (3). The disease most commonly affects women in their reproductive years, particularly between the ages of 20 and 40, with peak incidence reported in younger age groups (4).

The clinical presentation of endometriosis is highly heterogeneous. While some women remain asymptomatic, others experience severe pelvic pain, menstrual irregularities, and subfertility, with up to 30–50% of affected women experiencing infertility (5). Chronic inflammation, altered immune responses, and hormonal dysregulation are thought to play key roles in disease pathogenesis, although the exact mechanisms remain incompletely understood. Several theories have been proposed, including retrograde menstruation, coelomic metaplasia, and genetic predisposition, reflecting the multifactorial nature of the disease (6).

A range of risk factors has been associated with the development of endometriosis. These include early menarche, short menstrual cycles, low body mass index, family history, and environmental exposures, as well as reproductive factors such as nulliparity and infertility (7). Genetic susceptibility also plays a significant role, with studies suggesting that up to 50% of disease risk may be heritable (8).

The diagnosis of endometriosis remains challenging and is often delayed by several years. Although laparoscopy with

histological confirmation remains the gold standard, advances in imaging techniques such as transvaginal ultrasound and magnetic resonance imaging have improved noninvasive diagnostic capabilities (1).

Management of endometriosis is aimed at relieving symptoms, improving quality of life, and preserving fertility. Treatment options include pharmacological therapies, such as nonsteroidal anti-inflammatory drugs (NSAIDs), hormonal treatments (e.g., combined oral contraceptives, progestins, and GnRH analogs), and surgical interventions, particularly in severe or refractory cases (1). Despite available treatments, recurrence rates remain high, and long-term management is often required.

This study aims to determine the demographic, common clinical presentations and reproductive characteristics of women diagnosed with endometriosis and to describe the distribution of endometriosis according to age, parity, and other risk factors and to evaluate the types of treatment options used for the management of endometriosis in the study population.

METHODS

This study was a cross-sectional study conducted among women diagnosed with endometriosis attending the gynaecology clinics, Samawah hospital for maternity and children, AlMuthana/ Iraq, during the period from the 1st of January 2024, to 1st of January 2026. The study aimed to determine the demographic, common clinical presentations and reproductive characteristics of women diagnosed with endometriosis and to evaluate the types of treatment options used for the management of endometriosis in the study population.

The study included Women of reproductive age (15-49 years) with a confirmed diagnosis of endometriosis who consented to participate in the study. Women with incomplete medical records or those who declined participation were excluded.

A confirmed diagnosis of endometriosis was considered documented in the medical records by one or more of the following methods: laparoscopic diagnosis, histopathological confirmation, radiological findings suggestive of endometriosis (such as ultrasound or MRI).

Data were collected using a structured questionnaire and medical record review. Data collection was performed through direct face-to-face interviews with the participants and by reviewing their medical records. The questionnaire included several sections covering sociodemographic characteristics (such as age, residence, marital status, education, and occupation), menstrual history (including age at menarche, menstrual regularity, and duration of bleeding), and reproductive history (parity, gravidity, infertility, and miscarriage history).

Clinical data included presenting symptoms such as dysmenorrhea, chronic pelvic pain, dyspareunia, dyschezia, dysuria, abnormal uterine bleeding, and infertility. Information regarding the duration of symptoms and any family history of endometriosis was also collected.

Treatment-related data included current and previous treatment modalities. Medical treatment options included analgesics, combined oral contraceptive pills, progestins, gonadotropin-releasing hormone (GnRH) agonists or antagonists, and other hormonal therapies. Surgical treatment options included laparoscopic excision or ablation, ovarian cystectomy, adhesiolysis, and hysterectomy with or without oophorectomy. Combined medical and surgical management approaches were also recorded.

Data regarding response to treatment (complete, partial, or no improvement) and recurrence of symptoms were documented when available.

Data were entered, cleaned, and analyzed using the Statistical Package for Social Sciences (SPSS) version 26. Continuous variables were presented as mean ± standard deviation, while categorical variables were expressed as frequencies and percentages. A p-value of less than 0.05 was considered statistically significant.

Informed consent was obtained from all participants before data collection. Confidentiality was maintained by anonymising the data and using identification codes instead of names.

RESULTS

A total of 60 women diagnosed with endometriosis were included in this study. The mean age of the participants was 33.2 ± 5.2 years, ranging from 18 to 45 years. Most participants were urban residents (60.0%) and married (80.0%). Regarding educational level, 40.0% had a college education or higher, as shown in Table 1.

The mean age at menarche was 12.9 ± 1.4 years, and the majority of participants reported regular menstrual cycles (70.0%). Among married women (n = 48), 29.2% were nulliparous, and 58.3% had a history of infertility. The mean duration of infertility was 3.4 ± 2.1 years. Overweight and obesity were common, affecting 38.3% and 23.3% of participants, respectively, as shown in Table 2.

The most common clinical presentation was dysmenorrhoea (83.3%), followed by chronic pelvic pain (78.3%) and dyspareunia (51.7%). Infertility was reported by 46.7% of the participants, as presented in Table 3.

Regarding treatment, 40.0% of patients received medical therapy alone, 16.7% underwent surgical treatment, and 43.3% received combined medical and surgical management. In terms of treatment outcomes, 31.7% of patients reported complete improvement, 48.3% showed partial improvement, and 20.0% reported no improvement, as shown in Tables 4 and 5.

Table 1: The sociodemographic characteristics of the study participants

Variables		No.	%
Age	Mean ± SD Range	33.24 ± 5.2 (18-45)	
Residence	Rural	24	40.0
	Urban	36	60.0
Educational level	Primary	14	23.3
	Secondary	22	36.7
	College and higher	24	40.0
Marital status	Single	12	20.0
	Married	48	80.0

Table 2: The menstrual and reproductive history of the study participants

Variables		No.	%
Age at menarche	Mean ± SD	12.9 ±1 .4	
Menstrual cycle	Regular	42	70.0
	Irregular	18	30.0
Parity (n=48)	Nullipara	14	29.2
	1-2	20	41.7
	3-4	10	20.8
	>5	4	8.3
History of miscarriage (n=48)	Yes	18	37.5
	No	30	62.5
History of infertility (n=48)	Yes	28	58.3
	No	20	41.7
Duration of infertility	Mean± Sd	3.4 ±2.1	
BMI	Mean± Sd	27.1 ±5.5	
	Underweight	3	5.0
	Normal	20	33.3
	Overweight	23	38.3
	Obese	14	23.3

Table 3: Clinical presentation of endometriosis

Variables	No.	%
Dysmenorrhea	50	83.3
Chronic pelvic pain	47	78.3
Dyspareunia	31	51.7
Infertility	28	46.7
Dysuria	16	26.7
Abnormal uterine bleeding	24	40.0
Pelvic mass	15	25.0
Fatigue	27	45.0

Table 4: The treatment modalities used among study participants

Variables	No.	%
Medical treatment	24	40.0
Surgical treatment	10	16.7
Combined medical and surgical management	26	43.3

Table 5: The treatment outcomes

Variables	No.	%
Complete	19	31.7
Partial	29	48.3
None	12	20.0

DISCUSSION

Endometriosis is a chronic oestrogen-dependent inflammatory gynaecological disorder characterized by the presence of endometrial-like tissue outside the uterine cavity, affecting approximately 6–10% of women of reproductive age globally and up to 35–50% of women presenting with infertility or chronic pelvic pain (9,10). It remains a major cause of pelvic pain, reduced quality of life, and impaired fertility, with substantial psychosocial and economic consequences. The heterogeneity of its clinical presentation and the delay in diagnosis, often ranging from 4 to 11 years, make understanding its demographic profile, reproductive characteristics, and treatment outcomes particularly important in different populations (11). This study was conducted to characterize women diagnosed with endometriosis in southern Iraq and to assess their clinical presentation and response to available treatment modalities, thereby contributing local data to a condition that remains underreported in Middle Eastern populations.

The mean age of participants in the present study was 33.2 ± 5.2 years, which is consistent with the reproductive-age predominance of endometriosis. Similar mean ages have been reported in other studies, including 32.8 years in a Turkish cohort and 34.5 years in an Italian multicentre study (12,13). This age pattern reflects the hormonal dependence of the disease, which is most active during

peak reproductive years. Most women in this study were urban residents (60%), similar to findings reported by Chapron et al., who observed a predominance of urban residence among women diagnosed with endometriosis, likely reflecting better healthcare access, greater awareness, and improved diagnostic opportunities in urban settings (14). Higher educational attainment was also notable, with 40% having college education or above, which may reflect increased health-seeking behaviour and earlier recognition of symptoms.

The reproductive profile in this cohort supports the recognized association between endometriosis and subfertility. Among married women, 58.3% had a history of infertility, and 29.2% were nulliparous. This is comparable to international reports showing infertility rates between 30% and 50% in women with endometriosis (15). A meta-analysis by Hamdan et al. demonstrated that endometriosis significantly reduces spontaneous conception rates through mechanisms including distorted pelvic anatomy, chronic inflammation, altered endometrial receptivity, and impaired oocyte quality (16). The mean infertility duration of 3.4 years in the present study indicates a substantial reproductive burden, particularly in settings where fertility is culturally and socially significant.

Overweight and obesity were common, affecting 38.3% and 23.3% of participants, respectively. While earlier literature suggested that endometriosis is more common in lean women, more recent evidence indicates a complex relationship between adiposity, inflammation, and hormonal dysregulation (17). Missmer et al. reported an inverse association between low BMI and endometriosis risk, whereas newer studies suggest obesity may exacerbate symptom severity and inflammatory activity rather than disease incidence itself (18). The relatively high BMI observed in this cohort may reflect regional population characteristics and sedentary lifestyle patterns.

Dysmenorrhoea was the most frequent symptom (83.3%), followed by chronic pelvic pain (78.3%) and dyspareunia (51.7%). These findings are highly consistent with global literature, where dysmenorrhoea is reported in 60–90% of affected women, chronic pelvic pain in 50–80%, and dyspareunia in 30–70% (19,20). Vercellini et al. found dysmenorrhoea in 82% and dyspareunia in 48% of women with laparoscopically confirmed disease, closely matching the current findings (21). Infertility affected 46.7% of participants, further highlighting the reproductive impact of the disease. Fatigue was reported in 45%, which is increasingly recognized as an underappreciated symptom related to chronic inflammation, pain burden, and reduced quality of life (22).

Regarding management, combined medical and surgical treatment was the most commonly used approach (43.3%), followed by medical treatment alone (40%). This reflects contemporary best practice, where multimodal management is recommended for symptom control and recurrence prevention (23). Complete improvement was achieved in 31.7% of women, while 48.3% reported partial improvement, indicating that nearly 80% experienced some degree of symptomatic benefit. However, 20% reported no improvement, emphasizing the chronic and treatment-resistant nature of endometriosis in a substantial subgroup. Similar response patterns have been described by Becker et al., who noted that despite treatment advances, long-term symptom recurrence and incomplete symptom resolution remain common, particularly in advanced disease (24).

Overall, the findings of this study are broadly consistent with international literature and reinforce that endometriosis in Iraqi women presents predominantly with pelvic pain, dysmenorrhoea, and infertility, significantly affecting reproductive health and quality of life. The high burden of symptoms and only moderate rates of complete symptom resolution underscore the need for earlier diagnosis, individualized multidisciplinary management, and improved access to advanced medical and laparoscopic care.

CONCLUSION AND RECOMMENDATIONS

This study demonstrates that endometriosis predominantly affects women in their reproductive years and is commonly associated with significant clinical symptoms, particularly dysmenorrhoea, chronic pelvic pain, dyspareunia, and infertility, all of which substantially impair quality of life and reproductive health. A considerable proportion of affected women were overweight or obese, and infertility was highly prevalent, emphasizing the multifactorial burden of the disease. Combined medical and surgical management was the most frequently used treatment approach and resulted in symptomatic improvement in the majority of patients, although complete resolution was achieved in only a minority, reflecting the chronic and recurrent nature of endometriosis. Early recognition of symptoms, prompt diagnosis, and individualized multidisciplinary management are essential to improve clinical outcomes. Greater awareness among healthcare providers and women of reproductive age is recommended to reduce diagnostic delay. In addition, expanding access to advanced diagnostic tools and minimally invasive surgical treatment, alongside larger prospective studies, is needed to optimize management strategies and improve long-term reproductive and quality-of-life outcomes.

Conflicts of Interests: None

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Ethical Approvals: Ethical approval for the study was obtained from the relevant institutional review board, and informed consent was acquired from all participants prior to their inclusion in the study.

REFERENCES

1. Chen Y, Waseem S, Luo L. Advances in the diagnosis and management of endometriosis: a comprehensive review. Pathol Res Pract. 2025;266:155813.
2. Wang Z, Ouyang Y, Xue Z, Wang J, Gu W, Gu C. Global, regional, and national burden and trends of endometriosis, 1990–2021: an analysis of the Global Burden of Disease Study 2021 and forecast to 2050. BMC Womens Health. 2025;25(1):519.
3. Wang MH, Chen JH, Qi XY, Li ZX, Huang Y. Global prevalence of adenomyosis and endometriosis: a systematic review and meta-analysis. Reprod Biol Endocrinol. 2025;23(1):148.
4. Zhang J, Pang M, Li L, Guo C. Global, regional, and national burden of endometriosis among women of reproductive age, 1990–2021: insights from the Global Burden of Disease Study 2021. PLoS One. 2025;20(11):e0337074.
5. Smolarz B, Szyłło K, Romanowicz H. Endometriosis: epidemiology, classification, pathogenesis, treatment and genetics (review of literature). Int J Mol Sci. 2021;22(19):10554.
6. Ashish A, Kusum K, Rai S, Singh R. Endometriosis: a brief review of crucial risk factors and current treatment regimens. Int J Adv Med. 2020;7(12):1896–1902.
7. Harder C, Velho RV, Brandes I, Sehouli J, Mechsner S. Assessing the true prevalence of endometriosis: a narrative review of literature data. Int J Gynaecol Obstet. 2024;167(3):883–900.
8. Giudice LC, Horne AW, Missmer SA. Time for global health policy and research leaders to prioritize endometriosis. Nat Commun. 2023;14(1):8028.
9. Zondervan KT, Becker CM, Missmer SA. Endometriosis. N Engl J Med. 2020;382(13):1244–1256.
10. Giudice LC. Clinical practice. Endometriosis. N Engl J Med. 2010;362(25):2389–2398.
11. Nnoaham KE, Hummelshoj L, Webster P, d'Hooghe T, de Cicco Nardone F, de Cicco Nardone C, et al. Impact of endometriosis on quality of life and work productivity: a multicenter study across ten countries. Fertil Steril. 2011;96(2):366–373.e8.
12. Parlakgumus AH, Kilicdag EB, Simsek E, Haydardedeoglu B, Bagis T. Clinical characteristics of women with endometriosis. J Obstet Gynaecol Res. 2014;40(6):1657–1663.
13. Vercellini P, Somigliana E, Vigano P, Abbiati A, Barbara G, Crosignani PG. Endometriosis: current therapies and new pharmacological developments. Drugs. 2009;69(6):649–675.
14. Chapron C, Marcellin L, Borghese B, Santulli P. Rethinking mechanisms, diagnosis and management of endometriosis. Hum Reprod Update. 2019;25(4):478–496.
15. Prescott J, Farland LV, Tobias DK, Gaskins AJ, Spiegelman D, Chavarro JE, et al. A prospective cohort study of endometriosis and infertility. Am J Obstet Gynecol. 2016;214(6):784.e1–784.e9.
16. Hamdan M, Omar SZ, Dunselman G, Cheong Y. Influence of endometriosis on assisted reproductive technology outcomes: a systematic review and meta-analysis. Obstet Gynecol Surv. 2015;70(9):551–560.
17. Shah DK, Correia KF, Vitonis AF, Missmer SA. Body size and endometriosis: results from 20 years of follow-up within the Nurses' Health Study II prospective cohort. Hum Reprod. 2013;28(7):1783–1792.
18. Missmer SA, Hankinson SE, Spiegelman D, Barbieri RL, Marshall LM, Hunter DJ. Incidence of laparoscopically confirmed endometriosis by demographic, anthropometric, and lifestyle factors. Obstet Gynecol. 2004;104(5 Pt 1):1192–1197.
19. Sinaii N, Plumb K, Cotton L, Lambert A, Kennedy S, Zondervan K, et al. Differences in characteristics among 1,000 women with endometriosis based on extent of disease. Fertil Steril. 2008;90(5):1576–1581.
20. Fauconnier A, Chapron C. Endometriosis and pelvic pain: epidemiological evidence of the relationship and implications. Hum Reprod Update. 2005;11(6):595–606.
21. Vercellini P, Somigliana E, Vigano P, Abbiati A, Barbara G, Fedele L. The effect of endometriosis on quality of life and symptom profile. Hum Reprod. 2007;22(1):266–271.
22. Ramin-Wright A, Schwartz ASK, Geraedts K, Rauchfuss M, Wölfler MM, Haeberlin F, et al. Fatigue—a symptom in endometriosis. Hum Reprod. 2018;33(8):1459–1465.
23. Becker CM, Bokor A, Heikinheimo O, Horne A, Jansen F, Kiesel L, et al. ESHRE guideline: endometriosis. Hum Reprod Open. 2022;2022(2):hoac009.
24. Becker CM, Bokor A, Heikinheimo O, Horne A, Kiesel L, Kvaskoff M, et al. Long-term outcomes and recurrence in endometriosis management. Hum Reprod Update. 2022;28(5):741–760.