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Prevalence, Patterns and Predictors of Ovarian Cysts Among Gynaecology Clinic Attendees in Yenagoa, South-South Nigeria: A Retrospective Review

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Abstract

Background: Ovarian cysts are frequently encountered in gynaecological practice and encompass a broad spectrum of conditions, ranging from physiologic cysts associated with the menstrual cycle, through endometriomas, to neoplasms. Their clinical significance varies according to age, menopausal status, symptoms, cyst dimensions, imaging characteristics and underlying pathology. Although many cysts resolve without intervention, others may be associated with pelvic pain, menstrual disturbances, subfertility, ovarian cyst accidents, or diagnostic concern about ovarian malignancy. The frequency and clinical characteristics of ovarian cysts in hospital populations depend partly on the availability of radiological investigations, referral patterns and the criteria used to establish the diagnosis.

Aim: To determine the prevalence, pattern of occurence, and predictors of ovarian cysts among women attending a gynaecology clinic in Yenagoa, South-South Nigeria.

Methods: A retrospective observational study conducted using gynaecology clinic records from a selected private hospital in Yenagoa, Bayelsa State. The review period was October 2024 to March 2026. The study population comprised women attending the gynaecology clinic, with first visit within the study period.

Information was extracted from patient's records containing sociodemographic characteristics, presenting symptoms, reproductive history, physical examination findings, laboratory and radiological investigation results, with diagnosis. Records were reviewed to identify women with ovarian cysts diagnosed clinically and through documented radiological investigations; or findings at previous laparotomy. Data analysis was with International Business Machines(IBM) SPSS version 25. The exposure variables were the predictors of ovarian cysts, while the outcome was ovarian cysts. A p-value of <0.05 was used for statistical significance and the confidence interval(CI) was 95%.

Results: The prevalence of ovarian cyst was 15.9%(54), comprising physiologic cysts 51.9%(28), endometriomas 12.9%(7), tubo-ovarian abscess 20.4%(20) and neoplasms 14.8%(8). No sociodemographic or reproductive health characteristics was found to be significanttly associated with ovarian cysts and the different types. Age was a negative predictor of ovarian cysts while endometriosis was the only significant positive predictor of ovarian cysts (B=1.770, P-value=0.022, OR=5.873, 95%CI=1.292-26.695). There was no statistically significant association between ovarian cysts and subfertility(X^2=0.04, P-value=0.886, OR=0.946, 95%CI=0.529–1.692).

Conclusion: In Yenagoa South-South Nigeria, ovarian cyst is an important condition in gynaecological practice, the physiologic type predominates, and endometriosis positively predicts ovarian cysts.

INTRODUCTION

The ovaries are paired reproductive organs that have both gametogenic and endocrine functions which include oocyte development and the production of hormones, respectively, that regulate reproductive function. Their normal activity involves cyclical follicular growth, ovulation and formation of the corpus luteum. Fluid-filled structures/sacs that are usually benign may arise during these processes. Most regress spontaneously without treatment, but some enlarge or persist sufficiently to be classified clinically as ovarian cysts. Other cystic lesions originate from pathological processes, including endometriosis and ovarian neoplasms.[1] Generally enlargement of the ovaries can be due to neoplastic and non-neoplastic lesions, the non-neoplastic enlargement of the ovaries is due to physiologic and functional cysts.[2]

An ovarian cyst may be defined clinically as a fluid-containing or partly fluid-containing lesion arising within or on an ovary and identified clinically, by imaging, surgery or histopathological examination.[1, 2] The exact definition used in a study is important because normal follicles and small physiological structures may be described differently across radiology reports and clinical records. For this study, a cyst is considered a documented ovarian lesion identified by a clinician or radiologist, with a clear diagnosis recorded in the medical record. Polycystic ovaries (PCO) was not, by itself, considered as ovarian cysts, because polycystic ovary syndrome (PCOS) now known as polyendocrine metabolic ovarian syndrome (PMOS) is a distinct endocrine, metabolic and reproductive syndrome and is not synonymous with having a discrete ovarian cyst.[3–8]

Ovarian cysts are clinically diverse, comprising physiologic/functional cysts which are usually simple cysts, and include follicular and corpus luteum cysts, which are associated with ovarian physiology and frequently resolve spontaneously. Other lesions in the ovary include neoplasms which could be benign or malignant. Benign neoplasms of the ovary include mature cystic teratomas, serous and mucinous cystadenomas, and endometriomas (sometimes considered as functional ovarian lesions). Some lesions may be inflammatory or associated with pregnancy, while a smaller proportion may be malignant or have indeterminate features requiring specialist assessment. The distinction between a simple cyst and a complex adnexal mass is therefore important when interpreting clinical records and describing patterns of ovarian disease.[1, 2]

Many ovarian cysts are asymptomatic and are identified incidentally during pelvic imaging performed for unrelated reasons. Symptomatic presentations may include lower abdominal or pelvic pain, abdominal swelling, menstrual changes, dysmenorrhea, pressure symptoms, dyspareunia or presentation of subfertility. Acute complications, such as torsion, rupture, infection or bleeding, may lead to an emergency presentation known as ovarian cyst accident. These different routes of presentation may determine if a cyst will be recorded in a hospital-based data.

The management of a suspected ovarian cyst depends on several factors. Age and menopausal status influence the interpretation of ovarian lesions; symptoms, cyst size and morphology inform the need for surveillance or intervention; and clinical or imaging features for suspected malignancy may necessitate oncology specialist referral. The risk of malignancy index (RMI), which has been classified into RMI 1, RMI 2, RMI 3 and RMI 4; is a scoring system used in triaging women with suspicious adnexal masses, making use of the ultrasound parameters; menopausal status; and absolute values of cancer antigen 125 (CA125).[9] The American College of Obstetricians and Gynecologists emphasizes that the evaluation of an adnexal mass should distinguish lesions likely to be benign from those that may require additional investigation or gynaecological oncology input.[10, 11]

The burden of ovarian cysts in a gynaecology clinic is not determined by biological occurrence only. Access to ultrasonography, the threshold for ordering investigations, referral systems, patients' health-seeking behaviour, record completeness and local treatment practices may all influence the number of diagnosed cases. Thus, a retrospective clinic review can provide useful information about the burden of diagnosed ovarian cysts in healthcare settings. Therefore these estimates should be interpreted in the context of the facility and diagnostic practices represented, as done in this study, from the records reviewed.

Ovarian cysts are encountered in women across different stages of reproductive life. Their distribution varies according to the underlying lesion: functional cysts are linked to ovarian activity, whereas some benign neoplasms and malignant lesions have different age distributions. In premenopausal women, many cystic lesions are benign and may resolve without surgery. Nevertheless, persistent, enlarging, symptomatic or complex lesions require clinical assessment to determine the appropriate management options.

The widespread use of pelvic ultrasonography has increased the detection of lesions that might have previously remained unrecognized. This creates a distinction between the true biological occurrence of ovarian cysts and their detection in clinical practice. A retrospective review of clinic records measures the latter more directly, particularly where perhaps universal imaging has not been performed, especially in low-resource settings.

Clinical guidance from the Royal College of Obstetricians and Gynaecologists (RCOG) and the American College of Obstetricians and Gynecologists (ACOG) highlights the importance of assessing the appearance of a lesion and the patient's clinical context rather than assuming that all ovarian cysts require surgery.[12–14]

In Nigeria, ovarian lesions are investigated in general gynaecology clinics, specialist outpatient departments, emergency units and surgical services. The spectrum of cases encountered in each setting may differ because of variations in referral patterns, access to imaging, the availability of specialist care and the tendency for certain lesions to be managed surgically.

A ten-year clinicopathological study from the University of Uyo Teaching Hospital, South-South Nigeria, examined surgically removed ovarian lesions diagnosed by histopathology between 2010 and 2019. It described the frequency and pathological characteristics of ovarian tumours and reported mature cystic teratoma (dermoid cyst) as the most common tumour overall in that specimen-based population.[15] Its findings contribute important evidence about ovarian pathology in South-South Nigeria.

However the study design was based on surgically removed specimens rather than the total number of women attending gynaecology clinics, with diagnoses of ovarian cysts.

Similarly, a study of 236 cystic ovarian lesions at Jos University Teaching Hospital, North-Central Nigeria, described the histological spectrum, age distribution, laterality and clinical presentations of lesions identified over a twenty-year period. Corpus luteum cysts were the most frequent histological category reported in that series, and abdominal pain was a common presenting feature.[16] However, the study was restricted to histologically diagnosed lesions and therefore did not include the full range of cysts managed conservatively without tissue sampling.

These studies demonstrate the value of Nigerian data on ovarian cysts and related ovarian lesions. They also illustrate a methodological gap: the proportion of all women attending gynaecology clinics who receive an ovarian cyst diagnosis cannot be estimated reliably from histopathology specimens alone. An outpatient-based review that includes women with and without a recorded cyst diagnosis would provide a different, complementary measure.

Women attending gynaecological clinic services may differ in age, reproductive history, occupation, socioeconomic status, referral pathways and access to diagnostic investigations. These characteristics may influence both the occurrence of ovarian cysts and the likelihood that a cyst is detected.

A regional study could help determine whether the pattern of diagnosed ovarian cysts in the study facility is dominated by functional lesions, benign neoplasms, endometriomas or other categories. It could also describe whether presentations are mainly incidental or symptom-driven and whether the records document conservative management, repeat imaging or surgery. Such information would be useful for clinical audit and service planning, particularly where clinicians must decide which patients require observation, further investigation, surgery or referral.

Ovarian cysts are an important category of gynaecological diagnoses, but the frequency and characteristics of cases recorded in South-South Nigerian clinics are not fully described by studies restricted to surgically removed or histologically confirmed lesions. Such studies provide valuable information about pathology among selected patients, yet they exclude many women whose cysts are diagnosed by ultrasound and managed conservatively.[17, 18]

In addition, the clinical pattern of ovarian cysts may vary by age, menstrual and reproductive history, presenting complaint, menopausal status, cyst morphology and access to diagnostic services.[19] Without a structured review of clinic records, it is difficult to determine which cyst types are most commonly documented, how women present, what management they receive and which characteristics are associated with a recorded diagnosis.

The absence of a clearly defined denominator is a particular problem for prevalence estimation. Counting cyst cases alone can describe the number of identified cases but cannot establish the proportion of clinic attendees affected. Similarly, reviewing only women with cysts may describe the distribution of characteristics among cases but cannot establish which characteristics are associated with the diagnosis compared with women without a recorded cyst.

This study will address these issues by reviewing the records of both affected and unaffected gynaecology clinic attendees in the selected facility. It will distinguish prevalence among clinic attendees from the distribution of cyst types among diagnosed cases and will evaluate potential predictors using an analytical comparison group.

This research is justified because it provides a defined clinic-based prevalence estimate for ovarian cysts. It also describes the clinical and diagnostic spectrum. Furthermore, it assesses potential predictors. Comparing women with a recorded ovarian cyst diagnosis with women without one helps identify characteristics associated with diagnosis in the clinic population. This approach is more informative for predictor analysis than describing cases alone, although any retrospective associations do not necessarily prove causation. It also supports clinical audit and service planning.

Sp**ecific Objectives**:

1. To determine the prevalence of ovarian cysts in gynaecology clinic attendees in Yenagoa, Bayelsa state, South-South Nigeria.
2. To identify the pattern of ovarian cyst occurence in gynaecology clinic attendees in Yenagoa, Bayelsa state, South-South Nigeria.
3. To identify the predictors of ovarian cysts in gynaecology clinic attendees in Yenagoa, Bayelsa state, South-South Nigeria.
4. To determine the association of subfertility with ovarian cysts, in gynaecology clinic attendees in Yenagoa, Bayelsa state, South-South Nigeria.

MATERIALS AND METHODS

This was a retrospective single-centre observational study conducted covering a period of 18 months, reviewing clinic clerkings/records from first attendees at the gynaecology clinic during the period from October 2024 to March 2026, also reviewing all follow-up notes. The assessments were of the diagnosis of ovarian cysts; types; predictors; possible factors associated with ovarian cysts; in women attending the selected gynaecology clinic. Observations were made among non-pregnant women, attending the gynaecology clinic of a private-owned hospital in Yenagoa, Bayelsa state, South-South Nigeria, noting their clinical history, physical examination and investigations done.

South-South Nigeria comprises Akwa Ibom, Bayelsa, Cross River, Delta, Edo and Rivers States. The region includes urban and rural populations and a range of public, private and specialist healthcare facilities. Bayelsa State, is in the core of the Niger Delta Region in the South-South Geopolitical zone of Nigeria, with the state capital as Yenagoa. It is with a total population of 2,394,725 inhabitants (2019), from the National Bureau of Statistics Demographic Statistics Bulletin 2020.[20]

Inclusion criteria were records of women aged 15 to 55 years, with complete clinical records for the study. Women who attended the clinic for the first time during the review period. Exclusion was done, of women already pregnant at that first gynaecology clinic visit; women with a known malignancy (breast, vulval, cervical, ovarian, endometrial) at first presentation; and/or incomplete clinical records even after two follow-up visits. Ovarian cysts documented in the clinical records were all diagnosed/confirmed radiologically.

The sampling strategy used was to include all eligible records available during the study period. Thus a consecutive sampling technique was used and a total of 340 eligible and complete records were retrieved. All eligible clinical records and notes that were retrieved during this period were reviewed and the required information recorded on the proforma developed on google forms. The proformas were piloted on 34 previous gynaecology clinical records outside the study period.

Data entered into the Google forms was exported into excel and subsequently transferred to IBM SPSS software version 25 for statistical analysis. Data cleaning, coding, and validation was performed before final data analysis. Descriptive statistics was done with categorical variables summarized using frequencies and percentages, and continuous variables summarized using means and standard deviations when their distributions were reasonably symmetric. Student's t-test was used for numerical variables. Level of Significance was a p-value < 0.05 which was considered statistically significant.

Multivariate Analysis was done to determine possible predictors of ovarian cysts; like age, menopausal status, diagnosis of polycystic ovary syndrome(PCOS), history of use of ovulation induction agents, diagnosis of endometriosis and pelvic inflammatory disease(PID). The variables were analyzed numerically encoded or as categorical/binary variables. Effect Size was assessed using odds Ratios (OR) with 95% Confidence Interval.

Ethical approval

for the study and to retrieve patients' information was obtained from the Research Ethics Committee of the Federal Medical, Centre Yenagoa, FMCY/REC/ECC/2026/OCTOBER/00227, protocol number 223, the nearest body certified to issue ethical approval. Anonymity was ensured in retrieving this data from patients' records. Data was anonymized using unique study IDs. No names or personal identifiers appear in the publication. Study findings may improve clinical care and inform gynaecological and public health interventions in management of ovarian cysts.

RESULTS

There were 340 eligible women's gynaecology clinic records used in this study (hospital-based study), information extracted from their documented clinical history, physical examination, pelvic/transvaginal ultrasound or computerized axial tomographic (CT-scan) scan and other relevant investigation findings.

The prevalence of ovarian cysts in this study was 15.9% (54 women), of these women who had ovarian cysts, the physiologic/functional cysts were 28 (51.9%), endometrioma was seven (12.9%), tubo-ovarian abscess was 11 (20.4%) and ovarian neoplasms eight (14.8%). The physiologic cysts were essentially follicular and corpus luteum cysts, while neoplasms were predominantly dermoid cysts with two of the women having histopathological diagnosis of epithelial cell ovarian cancer. This made the prevalence of malignancy in ovarian cysts to be 3.7%, and the overall prevalence of ovarian cancer among the gynaecology clinic attendees 0.6%.

The only sociodemographic parameters that showed statistically significant difference between women who had ovarian cysts and women who did not have ovarian cysts were marital status and occupation. Ovarian cysts were significantly more prevalent in the single than the married women (X^2 = 4.30, P-value = 0.038, OR = 1.92, 95% CI = 1.03–3.59). Parity also showed statistically significant difference, ovarian cyst was more associated with lower parity, and none of the grand-multiparous women had ovarian cysts (t = 0.15, P-value < 0.001, OR = 7.21, 95% CI = 0.078–0.099) – **Table 1**.

Table I

Sociodemographic characteristics and parity between women with and without ovarian cysts

Characteristic	Ovarian cysts Yes (n = 54)	Ovarian cysts No (n = 286)	t/χ^2	P-value
Age(years)	34.8 ± 8.2	37.7 ± 9.6	1.25	0.198
≤ 20	2(3.7%)	6(2.1%)	7.40*	0.099*
21–30	13(24.1%)	64(22.4%)		
31–40	29(53.7%)	114(39.8%)		
41–50	7(13.0%)	80(28.0%)		
> 50	3(5.6%)	22(7.7%)		
Marital status:	19(35.2%)	63(22.0%)	4.30	0.038
Unmarried	35(64.8%)	223(78.0%)		
Married				
Educational status:	0(0.0%)	7(2.4%)	0.77*	0.750*
Primary	12(22.2%)	67(23.4%)		
Secondary	42(77.8%)	212(74.2%)		
Tertiary				
Occupation:	19(35.2%)	118(41.3%)	13.61*	0.005*
Professional	8(14.8%)	14(4.9%)	0.15	<0.001
Skilled	16(29.6%)	121(42.3%)	4.64*	0.091
Business/entrepreneur	0(0.0%)	7(2.4%)		
Unskilled	11(20.4%)	26(9.1%)		
Unemployed	0.52 ± 0.12^a	1.19 ± 0.10^a		
Parity	45(83.3%)	200(69.9%)		
0–1	9(16.7%)	73(25.5%)		
2–4	0(0.0%)	13(4.6%)		
≥ 5				

*Fisher's exact test, [a]Standard error mean, t-test is for numerical variables while chi-squared test (χ^2) is for categorical variables. P - value < 0.05 is statistically significant.

The different types of ovarian cysts recorded did not show any statistically significant patterns with sociodemographic characteristics and parity among the women with ovarian cysts – Table 2.

Table 2
Sociodemographic and parity patterns in women with the different types of ovarian cysts

Variable	Ovarian cysts types (n = 54)					
	Physiologic (n = 28)	**Endome-trioma (n = 7)**	**Tubo-ovarian abscess (n = 11)**	**Neoplasms (n = 8)**	χ^2	**P–value**
Age	0(0.0%)	1(14.3%)	1(9.1%)	0(0.0%)	14.13*	0.242*
≤ 20	9(32.1%)	0(0.0%)	3(27.3%)	1(12.5%)	0.94*	0.852*
21–30	15(53.6%)	5(71.4%)	6(54.5%)	3(37.5%)		
31–40	3(10.7%)	1(14.3%)	0(0.0%)	3(37.5%)		
41–50	1 (3.6%)	0(0.0%)	1(9.1%)	1(12.5%)		
> 50	9(32.1%)	2(28.6%)	5(45.5%)	3(37.5%)		
Marital status	19(67.9%)	5(71.4%)	6(54.5%)	5(62.5%)		
Single						
Married						
Education						
Secondary	6(21.4%)	1(14.3%)	4(36.4%)	1(12.5%)	1.78*	0.651*
Tertiary	22(78.6%)	6(85.7%)	7(63.6%)	7(87.5%)		
Occupation	9(32.1%)	3(42.8%)	4(36.4%)	3(37.5%)	3.16*	0.977*
Professional	5(17.9%)	0(0.0%)	1(9.0%)	2(25.0%)	3.29*	0.395*
Skilled	8(28.6%)	2(28.6%)	4(36.4%)	2(25.0%)		
Business	6(21.4%)	2(28.6%)	2(18.2%)	1(12.5%)		
Unemployed	25(89.3%)	6(85.7%)	9(81.8%)	5(62.5%)		
Parity	3(10.7%)	1(14.3%)	2(18.2%)	3(37.5%)		
0–1						
2–4						

*Fisher's exact test. chi-squared test (χ^2) is for categorical variables. P - value < 0.05 is statistically significant.

The only statistically significant positive predictor of ovarian cysts, from multiple linear regression analysis, was endometriosis (t = 2.75, P-value = 0.007, B = 0.353, 95% CI = 0.100–0.607) – Table 3

Table 3

Possible predictors of ovarian cysts using linear regression analysis

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.643	.472		3.481	.001	.711	2.574
	Age	.030	.041	.061	.725	.470	− .051	.110
	Endometriosis	.353	.128	.204	2.753	.007	.100	.607
	PID	− .139	.179	− .057	− .774	.440	− .492	.215
	PCOS	− .113	.069	− .126	-1.637	.104	− .249	.023
	Ovulation induction	− .063	.033	− .149	-1.937	.054	− .128	.001
	Menopausal status	− .007	.160	− .003	− .042	.967	− .323	.309

a. Dependent Variable: Ovarian cyst

B = unstandardized log-odds regression coefficient for the independent variables

The multiple logistic regression analysis also identified only endometriosis to be the only statistically significant positive predictor of ovarian cysts, using both the likelihood ratio tests (χ^2 = 4.92, P-value = 0.027, LR = 42.82) – Table 4; and parameter estimates (B = 1.770, P-value = 0.022, 95% CI = 1.292–26.695) – Table 5. However age was found to be a significant negative predictor of ovarian cysts, using the parameter estimates (B = -14.419, -14.202, -14.980; P-value < 0.001, 95%CI = 2.398E-8–8.460E-6) – Table 5.

There was no statistically significant association between ovarian cysts and subfertility (X^2 = 0.04, P-value = 0.886, OR = 0.946, 95% CI = 0.529–1.692) – Table 6.

Table 4

Possible predictors of ovarian cysts using multiple logistic regression analysis with likelihood ratio tests

Likelihood Ratio Tests				
Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	37.897	.000	0	.
Age	40.345	2.448	3	.485
Endometriosis	42.815	4.918	1	.027
PID	39.211	1.314	1	.252
PCOS	40.559	2.662	1	.103
Ovulation induction	42.826	4.929	3	.177
Menopausal status	38.201	.304	1	.581

Table 5
Possible predictors of ovarian cysts using multiple logistic regression analysis with parameter estimates

Parameter Estimates								
Ovarian cyst[a]	B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
Intercept	− .737	1.210	.372	1	.542			
Age 21–30 years	-14.419	1.398	106.452	1	.000	5.468E-7	3.534E-8	8.460E-6
Age 31–40 years	-14.202	1.270	125.146	1	.000	6.796E-7	5.645E-8	8.182E-6
Age 41–50 years	-14.980	1.309	130.951	1	.000	3.120E-7	2.398E-8	4.059E-6
Age > 50 years	0[b]	.	.	0	.	.	.	.
Endometriosis	1.770	.773	5.252	1	.022	5.873	1.292	26.695
No Endometriosis	0[b]	.	.	0	.	.	.	.
PID	-15.196	2295.525	.000	1	.995	2.515E-7	.000	.[c]
No PID	0[b]	.	.	0	.	.	.	.
PCOS	-1.086	.721	2.273	1	.132	.337	.082	1.385
No PCOS	0[b]	.	.	0	.	.	.	.
No Ovulation induction	-1.253	.738	2.884	1	.089	.286	.067	1.213
Ovulation induction	− .456	.757	.363	1	.547	.634	.144	2.795
Pre/perimenopause	14.457	.000	.	1	.	1898398.834	1898398.834	1898398.834
Postmenopausal	0[b]	.	.	0	.	.	.	.

a. The reference category is: No.

b. This parameter is set to zero because it is redundant.

Table 6
Association of subfertility with ovarian cysts

Subfertility	Ovarian cyst Yes (n = 54)	Ovarian cyst No (n = 286)	χ^2	P-value	OR	CI
Subfertility	27(50.0%)	147(51.4%)	0.04	0.886	0.946	0.529–1.692
Yes	27(50.0%)	139(48.6%)				
No						
Category of subfertility (n = 174)	1(3.7%)	6(4.1%)	4.33*	0.479*	0.538	0.541–0.561
Male factor	6(22.2%)	46(31.3%)	1.61	0.204	0.449	0.127–1.588
Anovulatory	5(18.5%)	13(8.8%)	0.04	0.380	0.946	-1.616-1.674
Tubo-peritoneal	4(14.8%)	32(21.8%)	0.78	0.719	0.495	0.710–0.728
Cervico-uterine	3(11.1%)	9(6.1%)				
Combined	8(29.6%)	41(27.9%)				
Unexplained	3(11.1%)	32(21.8%)				
Type of subfertility (n = 174)	24(88.9%)	115(78.2%)				
Primary	4.8 ± 0.8^a	4.7 ± 0.3^a				
Secondary	17(63.0%)	102(69.4%)				
Duration of Subfertility (n = 174)	6(22.2%)	29(19.7%)				
≤ 5 years	4(14.8%)	16(10.9%)				
6–10 years						
11–15 years						

*Fisher's exact test, chi-squared test (χ^2) is for categorical variables. [a]Standard error mean, P - value < 0.05 is statistically significant, OR - Odds Ratio, CI – 95% Confidence Interval.

DISCUSSION

This single-centre, retrospective study reviewed 340 gynaecology clinic records and found an ovarian cyst prevalence of 15.9%. Physiological cysts constituted the largest proportion of identified lesions (51.9%), followed by tubo-ovarian abscesses (20.4%), ovarian neoplasms (14.8%) and endometriomas (12.9%). Age was identified as a negative predictor of ovarian cysts, while endometriosis was the only positive predictor. This may be due to the fact that physiologic ovarian cysts (which is the most predominant type of ovarian cyst) occur usually during the reproductive years due to their functional nature. So the older women in the gynaecology clinic may be less prone to this type of ovarian cysts. Among the women who had a diagnosis of ovarian neoplasms, two of them had histopathological diagnosis of epithelial cell ovarian cancer giving the prevalence of ovarian cancer as 3.7% of diagnosed ovarian cysts/masses, and 0.6% among gynaecology clinic attendees. No statistically significant association was demonstrated between ovarian cysts and subfertility. These findings provide useful insight into the clinical spectrum of ovarian cystic lesions among women attending a gynaecology clinic in Yenagoa, South-South Nigeria.

The observed prevalence of 15.9% indicates that ovarian cystic lesions represent a substantial component of the gynaecological conditions encountered in this setting. However, this estimate describes the proportion identified among clinic attendees rather than the prevalence in the general female population. Women attending specialist gynaecology services may have symptoms, reproductive concerns or other conditions that increase the likelihood of investigation and diagnosis. Consequently, the estimate may not directly extrapolate to the community, since the predominant physiologic cysts may be largely asymptomatic, thus women not presenting in the hospital. Differences in referral patterns, diagnostic criteria, availability of pelvic ultrasonography and

CT scan, with documentation practices may also explain variations between studies. Endometriosis generally was found to be the only positive predictor of ovarian cysts in the study. The endometriosis considered in the study was all forms of endometriosis ranging from umbilical, deep pelvic endometriosis, to ovarian endometriosis. A prospective cohort study investigating ovarian endometriosis in a general gynaecology clinic similarly demonstrates the importance of considering the clinical population and diagnostic approach when interpreting disease estimates [21].

The predominance of physiological cysts, accounting for 51.9% of identified ovarian cysts, is consistent with the established understanding that functional ovarian cysts are common during the reproductive years. These lesions arise in association with normal ovarian activity, particularly follicular development and corpus luteum formation, and many resolve spontaneously without intervention [22]. Their predominance has important implications for clinical practice. Not every ovarian cyst requires surgery, and management should be guided by symptoms, ultrasound characteristics, cyst size, persistence, menopausal status and the possibility of complications or malignancy.[9] Where clinical and imaging findings support a benign functional lesion, appropriate observation and follow-up may prevent unnecessary procedures and preserve ovarian tissue. Nevertheless, persistent, enlarging or suspicious lesions require further assessment rather than automatic classification as physiological.[1, 2, 9]

Tubo-ovarian abscesses accounted for 20.4% of ovarian cysts, representing a clinically important proportion of the study's case mix. Unlike uncomplicated functional cysts, tubo-ovarian abscesses are associated with pelvic infection and may result in severe morbidity if diagnosis and treatment are delayed. Their presence in this review emphasizes the need to distinguish inflammatory adnexal masses from benign functional lesions and neoplastic conditions. Clinical assessment should consider pelvic pain, fever, tenderness, inflammatory features and relevant infection risk, alongside imaging findings. The relatively high proportion observed may reflect the referral profile of the centre or the diagnostic categories used in the records; it should not be interpreted as evidence that tubo-ovarian abscesses are similarly common in the wider population. These cases of tubo-ovarian abscesses recorded in the study were managed according to best practices.

Ovarian neoplasms constituted 14.8% of identified lesions. This finding reinforces the importance of evaluating adnexal masses according to their clinical, laboratory and imaging characteristics rather than assuming that all cystic lesions are physiological.[9] The category of ovarian neoplasms may encompass lesions with different histologic characteristics and prognoses; two of these ovarian neoplasms in the study were found to be malignant histopathologically. A Nigerian clinicopathological study of cystic ovarian lesions at Jos University Teaching Hospital reported that most lesions were benign, illustrating the value of distinguishing the overall burden of cystic lesions from their histological classification and malignant potential.[16] In clinical practice, appropriate risk assessment and referral for suspicious masses remain important to avoid both unnecessary surgery for benign lesions and delayed specialist management of potentially malignant disease.

Endometriomas represented 12.9% of the lesions and endometriosis was the only positive predictor of ovarian cysts in the present analysis. This relationship is biologically plausible because ovarian endometriomas are cystic manifestations of endometriosis, involving ectopic endometrial-like tissue within the ovary. The association may therefore reflect the direct pathological relationship between the two conditions rather than an independent causal effect of endometriosis on all types of ovarian cysts. A prospective study of women attending a general gynaecology clinic has also documented ovarian endometriosis as an identifiable component of the clinical spectrum of endometriosis.[21] The finding supports careful evaluation for endometriosis in women presenting with persistent pelvic pain, dysmenorrhoea, dyspareunia or imaging findings suggestive of an endometrioma.

Age was a negative predictor of ovarian cysts in this study. This suggests that, within the population and statistical model examined, increasing age was associated with lower odds of having an ovarian cyst. One possible explanation is that physiologic cysts which are the predominant type of ovarian cysts, are linked to ovarian follicular activity and may be more frequently encountered during reproductive life. Nevertheless, ovarian lesions can occur across a broad age range, and age-related patterns vary according to lesion type. A Nigerian histopathological study of 236 cystic ovarian lesions documented diverse diagnoses across ages, including functional cysts, endometriosis, tubo-ovarian abscesses and neoplasms [16]. The inverse association observed in the present study should therefore not be interpreted as evidence that older women are protected from clinically significant ovarian masses. The result may also be influenced by the distribution of ages among clinic attendees and the relative

frequency of physiologic lesions. The age distribution in the study follows a normal distribution in favour of the core reproductive age of 21 to 40 years.

No statistically significant association was demonstrated between ovarian cysts and subfertility. This finding suggests that the presence of an ovarian cyst, considered as a broad diagnostic category, was not independently associated with subfertility in this study. However, it does not establish that ovarian pathology has no reproductive consequences. Functional cysts, endometriomas, tubo-ovarian abscesses and ovarian neoplasms differ considerably in their pathophysiology and potential effects on reproductive function. Endometriosis and previous pelvic infection may be relevant to fertility through mechanisms that are not captured by the mere presence or absence of a cyst. Combining different lesion types into a single exposure category may therefore obscure associations specific to individual diagnoses. In addition, a retrospective review of 340 records may have limited statistical power to detect modest associations, particularly if subfertility was incompletely documented. The result should consequently be interpreted as a lack of demonstrated association in this study rather than proof of no relationship.

The findings have several practical implications. First, clinicians should classify adnexal lesions carefully and distinguish physiological cysts from inflammatory, endometriotic and neoplastic conditions. Second, management should be individualized according to symptoms, imaging, age, reproductive plans and the likelihood of complications. Third, women with endometriosis or suspected tubo-ovarian infection may require assessment of their broader reproductive health, regardless of whether an association with subfertility was detected in this dataset.

The study's strengths include the use of routinely collected clinical records and the assessment of both lesion patterns and potential predictors in a defined clinic population. Nevertheless, important limitations include its retrospective design which depends on the completeness and accuracy of existing documentation, while the single-centre setting limits generalizability. The prevalence estimate may be affected by referral and investigation patterns, and the classification of lesions may differ according to whether diagnoses were based on clinical assessment, imaging, surgery or histopathology. The cross-sectional design also limits conclusions about temporal relationships and causality. Future multi-centre studies using standardized diagnostic definitions, explicit lesion-specific analyses and multivariable modelling would help validate these findings.

CONCLUSION

Ovarian cysts were identified in 15.9% of the 340 gynaecology clinic records reviewed. Physiological cysts were the predominant ovarian cyst type, followed by tubo-ovarian abscesses, ovarian neoplasms and endometriomas. Age was a negative predictor, whereas endometriosis was the only positive predictor of ovarian cysts. No statistically significant association between ovarian cysts and subfertility was demonstrated. These findings highlight the heterogeneous nature of ovarian cystic lesions and the importance of accurate diagnosis and individualized management.

Further Research

Larger prospective and multi-centre studies are recommended to clarify lesion-specific predictors and reproductive outcomes among women with ovarian cysts.

Future multi-centre prospective studies with larger sample size in South-South Nigeria should incorporate management outcomes in ovarian cysts. A retrospective review can identify associations and generate hypotheses, while a subsequent larger prospective study could investigate mechanisms, treatment outcomes and the temporal relationships between ovarian cysts and reproductive manifestations.

Abbreviations

ACOG
American College of Obstetricians and Gynaecologists
ART
Assisted Reproductive Technology
CI

Confidence interval
CT scan
Computerized axial tomographic scan
IBM
International Business Machines
OR
Odds Ratio
PCOS
Polycystic Ovary Syndrome
PID
Pelvic inflammatory disease
PMOS
Polyendocrine metabolic ovarian syndrome
P
value–Probability value
RCOG
Royal College of Obstetrics and Gynaecology
RMI
Risk of Malignancy Index
SPSS
Statistical Package for the Social Sciences
t
student's t–test
WHO
World Health Organization
X^2
chi–square test

Declarations

Ethical approval

• for the study was obtained from the Research Ethics Committee of the Federal Medical Centre, Yenagoa. FMCY/REC/ECC/2026/OCTOBER/00227 protocol number 223, in accordance with the Declaration of Helsinki.

Consent to participate

• declaration not applicable because of the retrospective nature of the study, since ethical approval was obtained to access anonymized patients' records

Consent to publish

• declaration not applicable

Author Contribution

o N. O. – conceptualization, literature review, methodology, data collection, analysis and write up of the manuscripto A. S.M. – review of the manuscripto A.B. – literature review and write up of the proposal, and data collectiono The paper was reviewed and approved by all the authors

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