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Prevalence, Distribution, and Care of Infertility at Federal Teaching Hospital, Katsina, North-Western Nigeria

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Abstract **Original Research Article**

Background: Infertility is a global public health problem with a growing burden in sub-Saharan Africa. The distribution of infertility varies across regions, with tubal factor infertility reported from previous studies as the leading cause in Nigeria. With the advent of newer reproductive technologies, significant progress has been made in the management of infertility over the past few decades. Despite these advances, there remains a paucity of data on infertility care in developing countries.

Objective: To determine the distribution and management of infertility at the Federal Teaching Hospital, Katsina.

Methods: This was a retrospective descriptive cross-sectional study of infertility cases managed at the Federal Teaching Hospital (FTH), Katsina, between 1 January 2020 and 31 December 2024. Data on socio-demographic characteristics, types and causes of infertility, duration, care received, and treatment outcomes were extracted from the hospital's Electronic Health Records, entered into a personal computer and analysed using the Statistical Package for Social Sciences (SPSS) version 26 for Windows. Results were depicted using descriptive statistics.

Results: The prevalence of infertility in this study was 8.9%, with primary infertility accounting for 4.7% of this prevalence and secondary infertility 4.2%. The mean age of the patients was 31.7 ± 6.4 years. The majority of the patients (74.6%) were not gainfully employed, and most (57.1%) were nulliparous. A larger proportion of the cases (59.3%) had prolonged infertility of ≥ 5 years. Anovulation was the leading cause of infertility, accounting for 35.0% of cases. Most patients (65.5%) received treatment within the facility, and 29.3% of the treated patients achieved pregnancy.

Conclusion: There was relatively low prevalence of infertility in our setting. There appears to be a shift toward primary infertility and anovulatory causes. Approximately one-third of the patients who received treatment achieved pregnancy

Keywords: Infertility, Prevalence, Care, FTH katsina.

INTRODUCTION

Infertility as a disease of male and female reproductive system, is defined as the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse.[1] It is a worldwide public health problem estimated to affect 48 million couples and 186 million individuals.[2] The prevalence of infertility is high in Sub-Saharan Africa and varies from country to country. The prevalence of 14.3% and 24% have been reported in studies done in Gambia and Cameroon respectively.[3,4] In Nigeria, an institutional based prevalence of between 16% - 39% have been reported. [5,6,7]

Infertility is a major cause of marital disharmony and intimate partner violence because of the special value placed on child birth in Africa. A study in Port-Harcourt southern part of Nigeria reported the prevalence of intimate partner violence among infertile couples to be 32%.[8] It is an important cause of psychological, emotional and financial distress due to stigmatisation and high cost of its treatment.[9,10]

Aetiology of infertility can be male, female or both partners in origin, with the female including ovulatory disorders, tubal/peritoneal disease and uterine pathology. Unlike in European countries where ovulatory disorder is a major cause of infertility, the leading cause of infertility in sub-Saharan Africa is tubal disease.[11,12,13] The high prevalence of tubal infertility in Sub-Saharan Africa has been linked with puerperal pelvic infections, post-abortal sepsis and pelvic inflammatory disease resulting from chlamydia trachomatis and Neisseria gonorrhoea infection.[14,15,16] Male factor is also an important cause of infertility globally and this component is often ignored due to low male consultation as a result of the societal belief and stigmatisation associated with infertility.[17,18] Beyond all these aetiologies, age has been demonstrated to be an important risk factor for infertility in both genders and this has been supported by many studies.[4,19]

Global survey showed secondary infertility as the most common form of infertility.[20] This finding was not different from reported data in some west African countries, and have been linked with high incidence of post-abortal and puerperal sepsis.[3,21,22,23]

Management of couples with infertility is very challenging and capital intensive, more so in the developing countries where timely interventions and access to newer diagnostic and treatment modalities such as laparoscopy, fertiloscopy , artificial reproductive technique (ART) and some other advance technologies are either not available or not affordable, culminating into poorer outcomes of infertility management in sub-Saharan Africa.[23,24,25]

Despite several studies showing infertility as a public health problem especially in the sub-Saharan Africa, there is still paucity of data on the burden and associated care of infertility in Nigeria, hence the justification for this study.

AIM AND OBJECTIVES

Aim

- To determine the distribution and management of infertility at the Federal Teaching Hospital Katsina

Specific Objectives

- To determine the prevalence of infertility among women attending gynaecological unit for care at the Federal Teaching Hospital Katsina
- To determine the distribution of infertility
- To assess the care received and outcome of fertility care at the Federal Teaching Hospital Katsina

MATERIALS AND METHODS

Study design and study area

This was a retrospective descriptive cross-sectional study of cases of infertility managed at Federal Teaching Hospital Katsina (FTHK) between January 1st, 2020 and December 31st, 2024.

Federal Teaching Hospital Katsina serves as a referral centre for other hospitals within the state,

neighbouring states such as Kano, Zamfara and a neighbouring country Niger Republic.

Study subject

All patients that visited the gynaecological clinic with diagnosis of infertility were recruited for the study.

Infertility was defined as the inability of a couple to conceive after one or more years of regular unprotected sexual intercourse.

Inclusion

All records of women managed for infertility in the study Centre during the five-year study period (1st January 2020 to 31st December 2024) were included.

Exclusion criteria

Records with incomplete data were excluded from the final analysis.

Data collection

Records of patients managed for infertility during the proposed period of review was retrieved from the Electronic Health Record (EHR), through the medical record of the hospital and the information including socio-demographic characteristics, aetiologies, types, duration, investigations, and the treatment outcomes were extracted.

Data Analysis

Data was collated and analysed using the Statistical Package for Social Sciences (SPSS) version 26 for Windows. Analysis was carried out for descriptive statistics and illustrated as frequency and percentages for categorical variables. Mean and standard deviation was used for continuous variables and graph was also plotted.

Ethical Consideration

Approval for the study was obtained from the Ethics and Research Committee of Federal Teaching Hospital Katsina.

Confidentiality and data protection: Patients identities were fully anonymised, and no personally identifiable information was collected or reported.

RESULTS

There were 1,348 patients with infertility out of 15,173 patients, giving an institutional-based infertility prevalence rate of 8.9%. Among these, 716 patients (4.7%) had primary infertility, while 632 patients (4.2%) had secondary infertility. The mean age of the patients was 31.7 ± 6.4 years, and most of the patients (42.9%) were between 30 and 39 years while no patient was below 20 years of age. Majority of the patients were unemployed (74.6%) and nulliparous (57.1%) while 2.6% were grand multiparous. The largest proportion of the patients (36.6%) had at least a secondary level of education, and most (54.5%) were married in a monogamous family setting **(Table 1)**

Table 1: Socio-demographic Characteristics of the patients

Variables	Frequency	Percentage (%)
Age group		
20-29	549	40.7
30-39	578	42.9
40-49	213	15.8
≥50	8	0.6
Total	1348	100.0
Employment Status		
Gainfully Employed	342	25.4
Not gainfully employed	1006	74.6
Total	1348	100.0
Parity		
0	770	57.1
1-4	543	40.3
≥5	35	2.6
Total	1348	100.0
Education Status		
Primary	229	17.0
Secondary	493	36.6
Tertiary	409	30.3
No Formal	217	16.1
Total	1348	100.0
Family Setting		
Monogamous	735	54.5
Polygamous	613	45.5
Total	1348	100.0

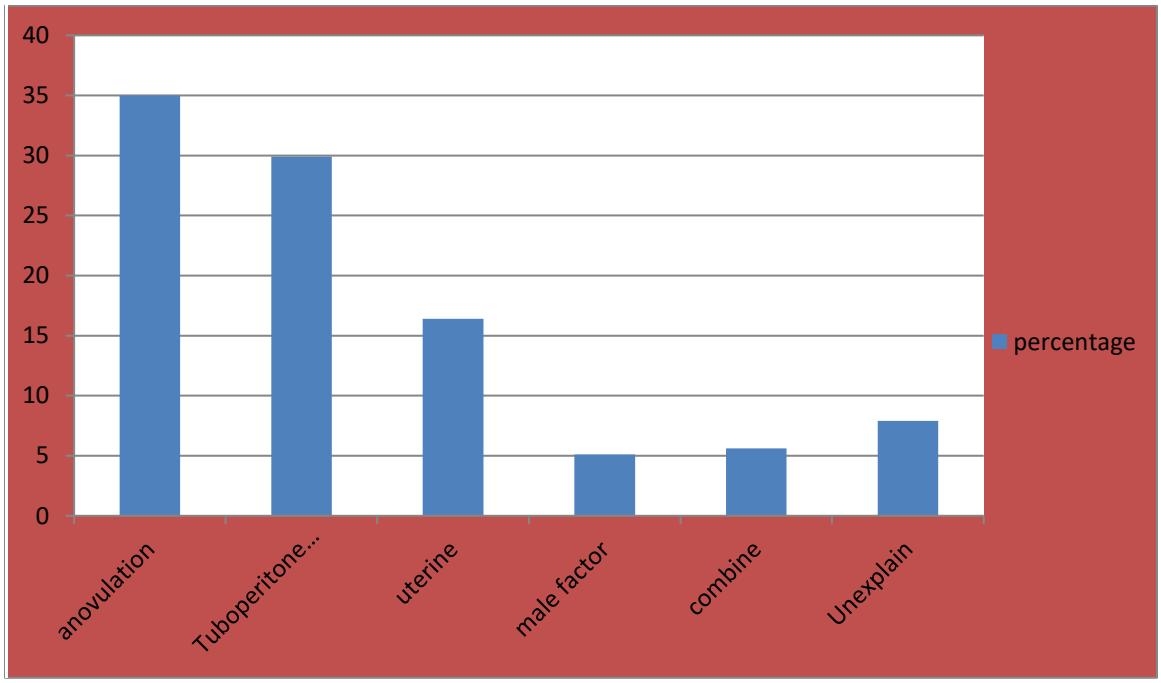
Most patients (53.1%) have primary infertility while 46.9% have secondary infertility. Larger proportion of the patients (59.3%) have prolonged duration of their infertility of at least 5 years or more. The mean duration of infertility at presentation was 6.6±4.8 years. **(Table 2)**

Anovulation was the leading cause of infertility in this study in 472 patients (35.0%), followed by tubo-peritoneal causes 403(29.9%). Male factor was found in 69 (5.1%) while no cause was found in107(7.9%) of patients. **(Figure 1)**

Table 2. Types and duration of infertility

Variables	Frequency	percentages (%)
Types of infertility		
Primary	716	53.1
Secondary	632	46.9
Total	1348	100
Duration of infertility		
1-4 years	549	40.7
≥5 years	799	59.3
Total	1348	100
Mean duration ± SD = 6.6±4.8 years		

Fig 1. The aetiological representation of the infertility



Polycystic ovarian syndrome (PCOS) was the leading cause of anovulation in 68.9% of the patients, followed by hyperprolactinemia (24.6%). Most patients with tubal disease have bilateral tubal blockage (68.8%). Uterine fibroid (50.2%), was the leading uterine factor, followed by Ashermann's syndrome (30.8%). **(Table 3)**

Most of the patients (65.5%) received treatment within the facility with 10.7% of the patients referred. One hundred and fifty-nine (29.3%) of the treated patients achieved pregnancy with however 26.6% lost to follow up.**(Table 4)**

Table 3. The aetiological distribution of the infertility

Variables	Frequency	Percentage (%)
Anovulation		
PCOS	325	68.9
hyperprolactinemia	116	24.6
Derange FSH/LH/P	23	4.9
TSH	8	1.6
Total	**472**	**100.0**
Tubal factor		
Bilateral tubal blockage	261	68.8
Unilateral tubal blockage	112	27.8
Tubo-peritoneal disease	30	7.4
Total	**403**	**100.0**
Uterine factor		
Leiomyoma uteri	111	50.2
Asherman syndrome	68	30.8
Adenomyosis	24	10.9
Congenital	18	8.1
Total	**221**	**100.0%**

Table 4

Variables	Frequency	Percentages (%)
Care received		
Treated	883	65.5
Referred	144	10.7
Untreated	321	23.8
Total	1348	100
Outcomes		
Pregnancy	159	29.3
No Pregnancy	624	70.7
Total	883	100
Follow-up care		
Yes	989	73.4
No	359	26.6
Total	1348	100

DISCUSSION

Globally, the prevalence of infertility shows limited variation across regions, with comparable rates between high-income countries and low- and middle-income countries.[26,27] The 8.9% prevalence observed in this study was higher than that reported from Sokoto (7.3%) and Uganda but lower than other reported prevalence rates.[3-7,28,29] The relatively low prevalence observed may be due to delayed presentation occasioned by sociocultural barriers to accessing care among patients with infertility.[30,31]

Considering the importance of age in fertility care, a younger age at presentation is generally associated with a better prognosis. Most patients in this study were in their 30s, with a mean age of 31. 7 years, which is comparable to findings from other studies.[24,32] A high proportion (74. 6%) of the patients were not gainfully employed, an important consideration in fertility care, as fertility treatment is capital-intensive.

A larger proportion of patients in this study presented with primary infertility, a finding consistent with other studies.[30-33] This result contrasts with several reports indicating that secondary infertility is the predominant type of infertility in sub-Saharan Africa.[5,15,34,35] The higher proportion of primary infertility observed in this study may be related to the higher incidence of anovulatory infertility among our patients compared with tubal factor infertility, which is more commonly reported in sub-Saharan Africa.

Most patients (59. 3%) had prolonged infertility, with a mean duration of 6. 6 ± 4. 8 years. This finding is clinically important, as prolonged infertility has been shown to be associated with poorer treatment outcomes.[36,37]

The leading cause of infertility in this study was anovulation, followed by tubal factor infertility. This differs from the findings of Yusuf and Abdullahi[5], who reported tubal factor infertility as the most common cause in Kano, a location within the same region of the country.[5] Male factor infertility accounted for 5. 1% of cases, with an additional 5. 6% attributed to combined male and female factors. The proportion of male factor infertility observed in this study is relatively low compared with findings from other studies. [28,33,34] This may be explained by the fact that many patients did not present with their partners, as well as prevailing sociocultural beliefs surrounding male infertility.[17,18]

Polycystic ovarian syndrome was the leading cause of anovulation, followed by hyperprolactinaemia. Our finding is consistent with reports indicating that PCOS is a leading cause of anovulatory infertility.[38,39] Most patients with tubal factor infertility had bilateral tubal blockage. This finding differs from reports by Mayrhofer et al. and a previous study conducted in the same centre, which found unilateral tubal blockage to be more common among patients with tubal infertility.[15,40] The earlier study in this centre was, however, limited to a case–control design examining the effect of chlamydial infection on tubal factor infertility.[15]

Uterine fibroid was the most commonly identified uterine cause of infertility, followed by Asherman syndrome. This pattern is similar to findings reported both within and outside the country.[41,42]

The majority of patients (65%) received treatment within the facility, while 23% received no treatment. The remaining 10% were referred to other facilities for further management, as the centre does not offer certain services such as assisted reproductive technology. The pregnancy rate following treatment in this study was 29. 3%, which is higher than the rates of 16. 7% and 15% reported by Menuba et al. and Mohammed-Durosinlorun et al., respectively. [23,24] The pregnancy rate observed is comparable to the finding reported by Ekwere et al.[43] Approximately 26. 6% of patients were lost to follow-up during care, although this was lower than the 34. 7% reported by Adegbola and Akindele. [44] Loss to follow-up remains significant, and factors such as financial constraints have been suggested as contributory factors.[44]

CONCLUSION

This study showed lower prevalence of infertility in our setting. There appears to be a shift toward primary infertility and anovulatory causes. Approximately one-third of the patients who received treatment achieved pregnancy.

LIMITATIONS:

This was a retrospective study with a risk of information bias.

CONFLICT OF INTEREST

We declare no conflict of interest

FUNDING: This study received no external funding

REFERENCES

1. World Health Organisation. International Classification of Disease, 11th Revision (ICD-11) Geneva: WHO 2018;
2. The Lancet Global Health. Infertility-why the silence? Lancet Glob Health. 2022; 10(6): e773.
3. Anyanwu MO, Idoko P. Prevalence of infertility at the Gambia Teaching Hospital. Womens health Gynaecol. 2017; 3(2): 064
4. Tiagha AR, Ngemenya M, Enoh JE, Nguedia JCA. A retrospective study of the prevalence of female infertility in the southwest region,

Cameroon. *Open J Obstet Gynaecol*. 2020; 10:1728-1740.
5. Yusuf M, Abdullahi HM. Epidemiology of Infertility in Kano, North-West Nigeria. Ibom Med J. 2019; 12(1): 67-71. https://doi.org/10.61386/imj.v12i1.215
6. Odunvbon WO, Oziga DV, Oyeleye LO, Ojeogwu CL. Pattern of infertility among infertile couples in secondary health fertility in Delta State, South-South Nigeria. Trop J Obstet gynaecol. 2018; 35: 244-8.
7. Jagun OE, Andu BA, Olawale O. Subclinical hypothyroidism among infertile women at a tertiary hospital in South-West Nigeria. Afr Health Sci. 2022; 22(2):444-450.
8. Fiebai OP, Green K, Nkporbu AK, Omoruyi SA. Domestic violence Amongst Infertile Women Attending Gynaecological Clinic at the University of Port Harcourt Teaching Hospital. IJRRGY. 2022; 5(3): 16-22.
9. Simionescu G, Doroftei B, Maftei R, Obreja BE, Anton E, Grab D, Ilea C, Anton C. The complex relationship between infertility and psychological distress (Review). Exp Ther Med. 2021; 21(4):306
10. Esan DT, Nnamani KQ, Ogunkorede A, Muhammad F, Oluwagbemi OO, Ramos CG. Infertility affects the quality of life of south-western Nigeria women and their partners. Int J Africa Nurs Sci. 2022; 17:100506
11. Abebe MS, Afework M, Abeynew Y. Primary and secondary infertility in Africa: systematic review with meta-analysis. *Fertil Res and Pract*. 2020; 6:20
12. Egbe TO, Mbaki CN, Tendongfor N, Temfack E, Belley-Priso E. infertility and associated factors in three hospitals in Douala, Cameroon: a cross-sectional study. *Afr Health Sci*. 2020; 20(4): 1985-1995
13. Oriji PC, Kiridi EK, Ubom AE, Okoye CN, Oriji VK, Awotundun B. pattern of infertility among infertile couples in a tertiary health institution in Bayelsa State, South-South Nigeria. *Int J Sci Rep*. 2022; 8(6): 136-41.
14. Egbe TO, Nana-Njamen T, Elong F Tchounzou R, simo AG, Nzeuga P, Nana CN, Manka'a E, Nguefack CT, Halle-Ekane GE. Risk factors of tubal infertility in a tertiary hospital in a low resource setting: a case-control study. *Fertil Res and Pract*. 2020; 6:3
15. Oyetunji OL, Tukur J, Lawal AM, Abdurrahman A. Chlamydia Trachomatis Antibody Titre Association with Tubal Pathology among Infertile Women in a Tertiary Care Facility in Nigeria. *Trop J Obstet Gynaecol*. 2021; 38(2): 154-160.
16. Umeora OUJ, Mbazor JO, Okpere EE. Tubal factor infertility in Benin City, Nigeria-socio-demographics of patients and aetiopathogenic factor. *Trop Doct*. 2007; 37(2):92-94.
17. Grace B, Shawe J, Johnson S, Stephenson J. You did not turn up… I did not realise I was invited… understanding male attitudes towards engagement in infertility and reproductive health discussions. Reprod Open Hum. 2019;2019(3):hoz014. doi:10.1093/hropen/hoz014
18. Dierickx S, Oruko KO, Clarke E, Ceesay S, Pacey A, Balen J. men and the infertility in The Gambia. Limited biomedical knowledge and awareness discourage male involvement and exacerbate gender-based impact of infertility. *PLoS ONE*. 2021; 16(11): e0260084.
19. Delbaere I, Verbiest S, Tyden T. Knowledge about the impact of age on infertility: a brief review. Ups J Med Sci. 2020; 125(2):167-174.
20. Mascarenhas MN, FlaxmanSR, Boerma T, Vanderpoel S, Stevens GA. National, regional and global trend in Infertility prevalence since 1990: a systematic analysis of 277 health surveys. PLoS Med. 2012; 9(12): e1001356.
21. Panti AA, Sununu YT. The profile of infertility in a teaching Hospital in North West Nigeria. Sahel Med J. 2014; 17:7-11
22. Dattijo LM, Andreadis N, Black K, Aminu MB. The Prevalence and Clinical Pattern of Infertility in Bauchi, Northern Nigeria. Trop J Obstet Gynaecol. 2016; 33(1): 76-85
23. Menuba IE, Ugwu OU, Obi SN, Lawani LO, Onwuka CI. Clinical management and

therapeutic outcome of infertile couples in southeast Nigeria. Therapeut clin Risk Manag. 2014; 10:763-768

24. Mohammed-Durosinlorun A, Adze J, Bature S, Abubakar A, Mohammed C, Taingson M, Airede M. Use and pattern of previous care received by infertile Nigerian women. Fertil Res and Pract. 2019; 5:14
25. Dia JML, Bohoussou E, Nguessan E, Oyelade M, Guie P, Anongba S. Management of Women Infertility in Tropical Africa: The experience of the gynaecology department of university and hospital centre of Treichville (Abidjan-Cote d'Ivoire). O*pen J Obstet Gynaecol.* 2017; 7: 235-244.
26. World Health Organization. **1 in 6 people globally affected by infertility** [Internet]. Geneva: World Health Organization; 2023 [cited 2025 Jan 10]. Available from: https://www.who.int/news/item/04-04-2023-1-in-6-people-globally-affected-by-infertility
27. Cox CM, Thoma ME, Tchangalova N, Mburu G, Bornstein MJ, Johnson CL, Kiarie J. Infertility prevalence and the methods of estimation from 1990 to 2021: a systematic review and meta-analysis. Hum Reprod Open. 2022; Volume 2022, Issue 4, hoac051, https://doi.org/10.1093/hropen/hoac051
28. Umar AG, Panti AA, Mbakwe M, Ahmed Y, Garba JA, Nnadi DC. The Pattern of Seminal Fluid Analysis among Male Partners Attending an Infertility Clinic in a Nigerian Tertiary Health Institution. *Open j Obstet Gynecol*. 2020; 10:957-967.
29. Zaake D, Amongin D, Benova L, Kiwanuka SN, Nalwadda CK, Nakafeero M, et al Prevalence, regional distribution, and determinants of infertility in Uganda between 2006 and 2016: analysis of three demographic and health surveys. *J Glob Health*. 2024; 8: e2024008.doi:10.29392/001c.94212
30. Umeora OU, Ejikeme BN. Sunday-Adeoyo I, Umeora MC. Sociocultural impediments to male factor infertility evaluation in rural South-east Nigeria. *J Obstet Gynaecol*. 2008; 28:323-326.
31. Okpara KE, Nwadike NC. "Experts' account of socio-cultural and environmental factors affecting utilization of assisted reproductive technology (ART) in Enugu State" International Journal of Research and Innovation in Social Science (IJRISS). 2024; 8 (05): 1144-1154. doi:10.47772/IJRISS.2024.805079.
32. Olarinmoye A, Ajao O, Eniade OD, Ekwonwa CE, Olasunkanmi YA, Ogenma U. Infertility and Its Associated Factors Among women attending Selected Health Facilities in Boripe Local Government Osun State. J Adv Med Med Res 2021; 33(3): 145-152.
33. Elhussein OG, Ahmed MA, Suliman SO, Yahya LI, Adam I. Epidemiology of infertility and characteristics of infertile couples requesting assisted reproduction in a low-resource setting in Africa. *Sudan Fertil Res Pract*. 2019 Jul 18; 5:7.
34. Oguejiofor CB, Obi NC, Okafor OC, Eleje GU, Okafor CG, Nkesi JC et al A 5-Year Retrospective Cross-Sectional of the Pattern of Infertility in Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria. *Gynecol Obstet Open Acc*. 2023; 7:166.
35. AlShamlan NA, AlOmar RS, Alfryyan AA, Almuhanna AE, Alsaadoun AR, AlMuhaidib HR. et al Primary versus secondary infertility: epidemiology and characteristics from a referral hospital in Saudi Arabia. *SAGE Open Med*. 2025; 2:13.
36. Zhang L, Cai H, Li W, Tian L, Shi J. Duration of infertility and assisted reproductive outcomes in non-male factor infertility: can use of ICSI turn the tide? *BMC Womens Health*. 2022;22(1):480. Published 2022 Nov 28. doi:10.1186/s12905-022-02062-9
37. Huang C, Shi Q, Xing J, et al. The relationship between duration of infertility and clinical outcomes of intrauterine insemination for younger women: a retrospective clinical study. *BMC Pregnancy Childbirth*. 2024;24(1):199. Published 2024 Mar 14. doi:10.1186/s12884-024-06398-y

38. Carson SA, Kallen AN. Diagnosis and Management of Infertility: A Review. *JAMA*. 2021; 326(1):65-76. doi:10.1001/jama.2021.4788
39. Ben-Shlomo I, Younis JS. Basic research in PCOS: are we reaching new frontiers?. *Reprod Biomed Online*. 2014;28(6):669-683. doi:10.1016/j.rbmo.2014.02.011
40. Mayrhofer D, Holzer I, Aschauer J, Selzer C, Parry JP, Ott J. Incidence and Causes of Tubal Occlusion in Infertility: A Retrospective Cohort Study. *J Clin Med*. 2024; 13(13):3961. https://doi.org/10.3390/jcm13133961
41. Fasubaa OB, Sowemimo OO, Ayegbusi OE, Abdur-Rahim ZF, Idowu BS, Ayobami O. Contributions of uterine fibroids to infertility at Ile-Ife, South-Western Nigeria. Trop J Obstet Gynaecol 2018; 35:266-70
42. Khalid NHM, Ahmed IAM, Ahmed SAF. Evaluation of causes of female infertility using ultrasonography in Najran, Saudi Arabia. *Afr J Reprod Health*. 2022;26(5):90-95. doi:10.29063/ajrh2022/v26i5.10
43. Ekwere PD, Archibong EI, Bassey EE, Ekabua JE, Ekanem EI, Feyi-waboso P. Infertility among Nigerian couples as seen in Calabar. Port Harcourt Med J. 2007; 2:35–40
44. Adegbola O, Akindele MO. The pattern and challenges of infertility management in Lagos, Nigeria. *Afr Health Sci*. 2013;13(4):1126-1129. doi:10.4314/ahs.v13i4.37