

# The Trend In Gynaecological Admission Diagnosis And Surgeries, At Niger Delta University Teaching Hospital, Yenagoa, Nigeria

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## **Abstract**

### **Background**

The rate of admission of patients with gynaecological problems is dynamic, and changes over the years. This could be exploited to improve health services.

### **Objectives**

This study intends to evaluate the trend in gynaecological admissions and surgeries over the past 7 years.

### **Method and materials**

This was a retrospective cross-sectional study of 910 women who were admitted into the gynaecological ward at the Niger Delta University Teaching Hospital (NDUTH) for treatment.

Data retrieved for this study was: bio-data, admission diagnosis, the gynaecological surgeries carried out during the study period, and the mortalities.

### **Results**

The NDUTH gynaecological admission rate was 14.6%, and 10.6% were admitted through the outpatient clinics. Among the admissions, 30.4% were emergencies, and 69.6% electives. The bed occupancy rate was 8.7%.

Majority of the admitted cases (32.2%) were for abortion and its complications. The commonest pelvic infection (8.0%) was pelvic inflammatory disease (PID), the most common benign tumor was uterine fibroid (20.9%), and cervical cancer (2.2%) was the commonest malignancy.

Regarding the trend from 2017 to 2023, there was significant decrease in the rates of incomplete abortion ( $p = 0.004$ ), and septic abortion ( $p = 0.05$ ). On the contrary, there was significant increase in the rates of PID ( $p = 0.03$ ), ectopic pregnancy ( $p = 0.04$ ), and uterine fibroid ( $p = 0.03$ ). There was no significant change in the rates of all the malignancies.

Manual vacuum aspiration (MVA) was the commonest minor surgical procedure (36.0%), and myomectomy was the commonest major surgery. The gynecological mortality rate was 2.3%.

### **Conclusion**

While the trend in abortion and its complications are on the decline in NDUTH, the prevalence of PID, ectopic pregnancy and uterine fibroids are on the rise. Advocacy and preventive measures for PID should be intensified, if the dynamics has to be changed.

**Keywords:** gynecological, admission, diagnosis, trend.

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## **I. Introduction**

In a hospital setting, admission of patients is often requires, especially if the clinical condition is severe. The intent is to take full control of the patient treatment; inpatient treatment is more effective than outpatient.

The gynaecology clinics and gynaecology emergency services are the main sources of admission of patients into the wards. A study at Donka in Guinea reported that only 20.29% of patients seen in the obstetrics and gynaecology clinics were admitted, and a great majority of the admissions (91.41%) were obstetrics emergencies, and only 8.59% were gynaecological emergencies. [1]

Reports from previous studies indicate that most patients admitted through the gynaecology clinics are for elective surgeries, while the emergencies are usually admitted through the emergency wards. [2, 3]

Regarding elective (outpatient) admissions, a study in India reported that as much as 57.5% of the gynaecological admissions were through the outpatient clinics. [4] In Kano, Nigeria, the elective admission rate was 28.7%, [2]

With respect to admission through the gynaecology emergency ward (emergency admissions), a very high rate of 71.3% was reported from a center in Northern Nigeria. [2] In West Bengal, India, the rate was 65.4%, [4] Another study at Western Uttar Pradesh in India reported a gynaecological emergency rate of 13.65 per 1000. [3]

There is disparity in admission diagnosis globally, and the cases commonly seen vary from place to place, and from one country to another. A study at General Hospital Aliero in Kebbi State, Northern Nigeria reported that the most common cases admitted was spontaneous abortion (78.3%), followed by ovarian cyst (7.9%), hydatidiform mole (6.3%), ectopic pregnancy (5.3%) and uterine fibroid (2.1%). [5]

At the University Hospital of Modena, Italy, adenomyosis (86.1%) was the most common, followed by endometriosis (37.1%), and leiomyomas (13.7 %). [6] Findings from a study on gynaecological admissions among adolescents at Tamil Nad in India, indicates that dysfunctional uterine (DUB) was the most common (52%), followed by post-abortion bleeding (40%). [7]

Regarding gynaecological surgeries, manual vacuum aspiration (27.46%) and abdominal myomectomy (18%) were the most common surgical interventions in Port Harcourt. [8] Among adolescents in India, the most common surgeries were endometrial curettage for post-abortion complication (10%), followed by laparotomy for ovarian cyst (6%), and torsion of adnexal mass (6%). [7]

It is a good idea to evaluate the trend in our admission diagnosis, and the treatment pattern in our health facilities. This monitoring and evaluation measure is expected to improve patient's outcome, via adjustment in allocation of both health and financial resources as the need arises, hence the need for this study.

## **II. Objectives**

This study intends to review the pattern of gynaecological admissions and surgeries over the past 7 years. It would also determine the gynaecological mortality rates.

## **III. Methodology**

### **Study site**

The study was carried at the department of Obstetrics and Gynaecology, NDUTH, Yenagoa, Bayelsa State, Nigeria. The specific units involved were the gynaecology ward, gynaecology emergency ward, gynaecology theatre, and gynaecological outpatient clinics. The gynaecology ward has 18 beds, and the gynaecology emergency has 6 beds.

NDUTH being a Teaching Hospital, it serves as a referral center to the primary and secondary health institutions across Bayelsa State, and some parts of the neighboring states, such as River, Delta and Abia States.

### **Study design**

This was a retrospective cross-sectional study of 910 women who were admitted into the gynaecological ward at NDUTH, for medical and surgical treatment, from January 2017 to December 2023.

### **Inclusion criteria**

Included in this study were women who were diagnosed with gynaecological problems, and were admitted and treated both medically and surgically. Also included were women who received treatment elsewhere and were referred to NDUTH for further management.

**Exclusion criteria**

Excluded were all women admitted for obstetrics complications.

**Data collection**

During the study period, the total number of patients seen at the gynaecology outpatient clinics was 5,968, out of these 632 were admitted. The number that presented with gynaecological complications, and was admitted through the emergency ward was 278. It implies that out of a total of 6246 gynaecology patents seen during the study period, 910 were admitted.

The case notes of these patients were retrieved and relevant information extracted was: bio-data, admission diagnosis (medical or surgical), type of surgical intervention, and the number of maternal mortalities. Data was also collected on the bed occupancy rate.

**Data analysis**

The data collected was fed into (IBM) SPSS software version 25, and Epi Info statistical software version 7, and analyzed. Results were presented in tables as rates, proportions, and mean with standard deviation. Test of significance was by z-test to compare proportions, confidence interval was set at 95%, and p value was significant at  $\leq 0.05$ .

**Ethical Approval**

Permit to proceed with this study was granted by the ethical committee of NDUTH, with registration number NDUTH/REC/0101/2024

**IV. Results**

**Table 1: Gynaecological admissions, bed occupancy and mortality rates**

Variable	2023	2022	2021	2020	2019	2018	2017	Total
Total number seen in gynaecology outpatient clinics	1658	1061	894	340	582	827	606	5,968
Total number admitted through the clinics	121	90	78	45	66	110	122	632
Gynaecology clinics admission rates	7.3%	8.5%	8.7%	19.1%	11.3%	13.3%	20.1%	10.6%
Total number admitted through the gynaecology emergency ward	43	36	33	20	15	41	90	278
Gynaecology emergency admission rates	26.2%	28.6%	29.7%	30.8%	18.5%	27.1%	42.5%	30.4%
Total number admitted into the gynaecology ward	164	126	111	65	81	151	212	910
Gynaecology ward admission rates	18.0%	13.8%	12.2%	7.1%	8.9%	16.6%	23.3%	14.6%
Bed occupancy rates	10.9%	8.4%	7.4%	4.3%	5.4%	10.1%	14.1%	8.7%
Total number of mortalities attributed to gynaecological complications	3	2	3	2	1	2	1	14
Gynaecological mortality rates	1.8%	1.6%	2.7%	3.1%	1.2%	4.9%	0.5%	2.3%

During the study period, a total of 5968 women were seen at the gynaecology outpatient clinics, out of these, 632 were admitted, giving admission rate of 10.6%. A total of 278 women were admitted through the gynaecology emergency ward, giving an emergency admission rate of 30.4%.

Out of a total of 6246 gynaecology patents seen during the study period, 910 were admitted, giving an overall admission rate of 14.6%.The bed occupancy rate during the study period was 8.7%, and the mortality rate was 2.3%.

**Table 2: Admission for abortion into the gynaecology ward**

Admission diagnosis	2023	2022	2021	2020	2019	2018	2017	Total
Total number gynaecological of admissions	164 (18.0%)	126 (13.8%)	111 (12.2%)	65 (7.1%)	8 (8.9%)	151 (16.6%)	212(23.3%)	910 (100.0%)
<b>Type of abortions</b>								
Threatened abortion	7(4.3%)	5(4.0%)	6(5.4%)	3(4.6%)	4(4.9%)	8(5.3%)	12 (5.7%)	45(4.9%)

Inevitable abortion	5(3.0%)	1(0.8%)	4(3.6%)	1(1.5%)	2(2.5%)	4(2.6%)	5 (2.4%)	22(2.4%)
Incomplete abortion	22(13.4%)	21(16.7%)	16(14.4%)	8(1.2%)	5(6.2%)	25(16.6%)	55 (25.9%)	152(16.7%)
Septic abortion	4(2.4%)	6(4.8%)	5(4.5%)	3(4.6%)	3(3.7%)	8(5.3%)	14 (6.6%)	43(4.7%)
Missed abortion	6(3.7%)	5(2.4%)	5(4.5%)	2(3.1%)	3(3.7%)	2(1.3%)	8 (3.8%)	31(3.4%)
Total number of abortions	44(26.8%)	38(30.1%)	36(32.4%)	17(26.2)	17(21.9%)	47(31.2%)	94 (44.3%)	293(32.2%)

Out of the 910 admissions, 293 were admitted for abortions, giving a rate of 32.2%. Admission for complications of induced abortion (incomplete and septic) was the highest, with a rate of 21.4%. For spontaneous abortions, the most common 45(4.9%) was threatened abortion, and the least 22(2.4%) was inevitable abortion.

**Table 3: Tubal and genital tract pathologies admitted into the to the gynaecology ward**

Admission diagnosis	2023	2022	2021	2020	2019	2018	2017	Total
Total number of gynaecological admissions in NDUTH	164 (18.0%)	126 (13.8%)	111 (12.2%)	65 (7.1%)	8 (8.9%)	151 (16.6%)	212(23 .3%)	910 (100.0%)
<b>Tubal /peri-tubal pathology</b>								
Pelvic inflammatory disease	16(9.7%)	15(11.9%)	8(7.2%)	7(10.7%)	5(6.2%)	12(7.9%)	8 (3.8%)	71(7.9%)
Ectopic pregnancy	15 (9.1%)	5(4.0%)	5(4.5%)	4(6.2%)	3(3.7%)	10(6.6%)	8(3.5%)	50(5.5%)
Total	31(18.9%)	20(15.9%)	13(11.7%)	11(16.9%)	8(9.8%)	22(14.6%)	16 (7.5%)	121(13.3%)
<b>Genital tract trauma/ pathology</b>								
Cervical incompetence	7(4.3%)	5(4.0%)	3(2.7%)	3(4.6%)	2(2.5%)	6(4.0%)	8 (3.8%)	34(3.7%)
Bartholin's cyst/abscess	6(3.7%)	3(2.4%)	2(1.8%)	2(3.1%)	1(1.2%)	2(1.3%)	2 (0.9%)	18(2.0%)
Uterovaginal prolapse	3(1.8%)	1(0.8%)	0(0.0%)	0(0.0%)	0(0.0%)	3(2.0%)	4 (1.9%)	11(1.2%)
Vesico-vaginal fistulae	1(0.6%)	2(1.6%)	0(0.0%)	0(0.0%)	0(0.0%)	0.0%)	1 (0.5%)	4(0.4%)
Total	17(10.4%)	11(8.7%)	5(4.5%)	5(7.8%)	3(3.7%)	11(7.3%)	15 (7.1%)	67(7.4%)

The rate of PID was 8.0%, and that for ectopic pregnancy was 5.3%. Among the pathologies resulting from genital tract trauma, cervical incompetence (3.7%) was the most common, and vesico-vaginal fistula (0.4%) was least. The rate of PID has increased over the years (from 2017 to 2023) by 4.9%, while that for ectopic pregnancy increased by 2.3%.

The most common pelvic pathology resulting from genital tract trauma was incompetent cervix, (3.7%), followed by Bartholin's cyst/abscess (2.0%).

**Table 4: Benign and malignant tumors admitted into the to the gynaecology ward**

Admission diagnosis	2023	2022	2021	2020	2019	2018	2017	Total
Total number gynaecological admissions NDUTH	164 (18.0%)	126 (13.8%)	111 (12.2%)	65 (7.1%)	8 (8.9%)	151 (16.6%)	212(23 .3%)	910 (100.0%)
<b>Benign tumors</b>								
Uterine fibroids	35(21.3%)	28(22.2%)	24(21.6%)	16(24.6%)	38(47.0%)	25(16.6%)	27 (12.7%)	193(21.2%)
Ovarian cysts	8(4.9%)	4(3.2%)	3(2.7%)	1(1.5%)	2(2.5%)	10(6, 6%)	12	40(4.4%)

							(5.7%)	
Adenomyosis	1(0.6%)	5(4.0%)	6(5.4%)	3(4.6%)	1(1.2%)	5(3.3%)	3 (1.4%)	24(2.6%)
Cervical polyp	3(1.8%)	0(0.0%)	1(0.9%)	0(0.0%)	1(1.2%)	2(1.3%)	3 (1.4%)	10(1.1%)
Total	47(27.4%)	37(29.4%)	34(30.6%)	20(30.8%)	42(51.9%)	42(27.8%)	45 (21.2%)	267(29.3%)
<b>Malignant tumors</b>								
Cervical cancer	4(2.4%)	2(1.6%)	3(2.7%)	2(3.1%)	2(2.5%)	4(2.6%)	3 (1.4%)	20(2.2%)
Ovarian carcinoma	4(2.4%)	3(2.4%)	2(1.8%)	0(0.0%)	1(1.2%)	3(2.0%)	2 (0.9%)	15(1.6%)
Endometrial carcinoma	2(1.2%)	3(2.4%)	1(0.9%)	1(1.5%)	0(0.0%)	2(1.3%)	4 (1.9%)	11(1.2%)
Choriocarcinoma	1(0.6%)	0(0.0%)	0(0.0%)	1(1.5%)	0(0.0%)	2(1.3%)	1 (0.5%)	5(0.5%)
Vulva cancer	1(0.6%)	0(0.0%)	1(0.9%)	0(0.0%)	0(0.0%)	0(0.0%)	1 (0.5%)	3(0.3%)
Total	12(7.3%)	66(4.8%)	7(6.3%)	4(6.2%)	3(3.7%)	11(7.3%)	11 (5.2%)	54(5.9%)

The most common benign tumor (20.9%) was uterine fibroid, followed by ovarian cyst (4.4%). Regarding genital malignancy, cervical cancer was most common (2.2%), followed by ovarian cancer (1.6%), and the least was vulva cancer (0.3%).

**Table 5: Miscellaneous admissions into the to the gynaecology ward**

Admission diagnosis	2023	2022	2021	2020	2019	2018	2017	Total
Total number gynaecological of admissions NDUTH	164 (18.0%)	126 (13.8%)	111 (12.2%)	65 (7.1%)	8 (8.9%)	151 (16.6%)	212(23.3%)	910 (100.0%)
Infertility evaluation	5(3.0%)	7(5.6%)	4(3.6%)	3(4.6%)	2(2.5%)	5(3.3%)	4 (1.9%)	31(3.8%)
Asherman's syndrome	6(3.7%)		4(3.6%)	2(3.1%)	2(2.5%)	3(2.0%)	5 (2.4%)	25(2.7%)
Evaluation for Postmenopausal bleeding	5(3.0%)	1(0.8%)	2(1.8%)	1(1.5%)	0(0.0%)	4(2.6%)	8 (3.8%)	22(2.4%)
Dysfunctional uterine bleeding (DUB)	3(1.8%)	2(1.6%)	5(4.5%)	2(3.1%)	3(3.7%)	4(2.6%)	3 (1.4%)	22(2.4%)
Pelvic Abscess	2(1.2%)	2(1.6%)	1(0.9%)	1(1.5%)	0(0.0%)	2(1.3%)	4 (1.9%)	12(1.3%)
Molar Pregnancy	1(0.6%)	1(0.8%)	1(0.9%)	0(0.0%)	1(1.2%)	2(1.3%)	2 (0.9%)	8(3.8%)
Total	24(14.6%)	14(11.1%)	16(14.4%)	8(12.3%)	8(9.9%)	18(11.9%)	22(10.4%)	108(11.9%)

The most common disease condition admitted in this category (3.8%) was infertility for evaluation (especially secondary infertility). Pelvic abscess (1.3%) was least common.

**Table 6: Analysis of the trend in admitted cases between 2017 and 2023**

Admission diagnosis	Year 2017	Year 2023	Difference	Z	Confidence interval	P value
Threatened abortion	5.7%	4.3%	1.40%	0.38	[-3.54, 6.34]	0.70
Incomplete abortion	25.9%	13.4%	12.5%	2.85	[4.09, 20.91]	0.004*
Septic abortion	7.3%	2.4%	4.90%	1.89	[0.15, 9.65]	0.05*
Ectopic pregnancy	3.5%	9.1%	5.60	2.06	[0.01, 11.19]	0.04*
Pelvic inflammatory disease	3.8%	9.7%	5.90	2.11	[0.15, 11.65]	0.03*
Cervical incompetence	3.8%	4.3%	0.50%	-0.02	[-4.07, 5.07]	0.98
Vesico-vaginal fistulae	0.5%	0.6%	0.10%	-0.58	[-1.96, 2.16]	0.56
Uterovaginal prolapse	1.9%	1.8%	0.10%	-0.58	[-1.96, 2.16]	0.56
Bartholin's cyst	0.9%	3.7%	2.80%	1.51	[-0.90, 6.50]	0.13
Uterine fibroids	12.7%	21.3%	8.60%	2.09	[0.35, 16.85]	0.03*
Ovarian cysts	5.7%	4.9%	0.80%	0.11	[-4.29, 5.89]	0.91

Adenomyosis	1.4%	1.2%	0.20%	-0.29	[-2.64, 3.04]	0.77
Cervical cancer	1.4%	2.4%	1.00%	0.33	[-2.37, 4.37]	0.74
Endometrial carcinoma	1.9%	1.2%	0.70%	0.12	[-2.32, 3.720]	0.90
Ovarian carcinoma	0.9%	2.4%	1.50%	0.75	[-1.71, 4.71]	0.45
Choriocarcinoma	0.5%	0.6%	1.00%	0.33	[-2.37, 4.37]	0.74
Vulva cancer	0.5%	0.6%	1.00%	0.33	[-2.37, 4.37]	0.74
Asherman's syndrome	2.4%	3.7%	1.30%	0.43	[-2.79, 5.39]	0.66
Molar Pregnancy	0.9%	0.6%	0.30%	-0.26	[-1.98, 2.58]	0.26
Postmenopausal bleeding	3.8%	3.0%	0.80%	0.14	[-3.41, 5.01]	0.89
Dysfunctional uterine bleeding	1.4%	1.8%	0.40%	-0.11	[-2.72, 3.52]	0.91
Infertility evaluation	1.9%	3.0%	1.10%	0.35	[-2.63, 4.83]	0.72

There was statistically significant reduction in the admission rates in women with incomplete abortion  $z = 2.85[4.09, 20.91]$ ,  $p = 0.004$ , septic abortion  $z = 1.89[0.15, 9.65]$ ,  $p = 0.05$ .

On the contrary, the rates of the following condition have increased over the period: PID ( $p = 0.03$ ), ectopic pregnancy ( $p = 0.04$ ), and uterine fibroid ( $p = 0.03$ ). There was no significant change in the rates of all the malignancies.

**Table 7: Minor and Major gynaecological surgeries during the study period**

Surgeries	2023	2022	2021	2020	2019	2018	2017	Total
Total number of gynaecological surgeries in NDUTH	138(18.0%)	108(14.1%)	97(12.6%)	61(8.0%)	88(11.5%)	104(13.6%)	167(21.8%)	767(100.0%)
<b>Minor gynaecological surgeries</b>								
Manual vacuum aspiration (MVA)	38(27.5%)	35(34.0%)	34(36.5%)	22(37.3%)	28(32.2%)	30(29.7%)	79(49.4%)	266 (36.0%)
Cervical cerclage	8(5.9%)	5(4.9%)	3(3.2%)	3(5.1%)	2(2.3%)	65.9%)	8(13.3%)	35(4.7%)
Adhesiolysis and insertion of foley's catheter	7(5.2%)	3(2.9%)	4(4.3%)	2(3.4%)	2(2.3%)	3(3.0%)	5(3.1%)	26(3.5%)
Examination under anaesthesia and biopsies	5(3.7%)	3(2.9%)	2(2.2%)	1(1.7%)	1(1.2%)	3(3.0%)	9(5.6%)	24(3.3%)
Suction evacuation of GTD	1(0.7%)	1(1.0%)	2(2.2%)	0(0.0%)	1(1.2%)	2(2.0%)	2(1.3%)	8(1.1%)
Manual removal of placenta in theatre before fetal viability	2(1.5%)	1(1.0%)	2(2.2%)	0(0.0%)	0(0.0%)	2(2.0%)	2(1.3%)	8(1.1%)
Total number of minor surgeries	61(44.2%)	48(44.4%)	45(46.4%)	28(45.9%)	34(38.6%)	46(44.2%)	105 (62.9%)	367 (47.8%)
<b>Major gynaecological surgeries</b>								
Exploratory laparotomy and salpingectomy	14(10.1%)	9(8.3%)	11(11.3%)	8(13.1%)	7(8.0%)	12(11.5%)	12(7.2%)	73(9.9%)
Myomectomy	35(25.4%)	21(19.4%)	23(23.7%)	14(23.7%)	32(36.5%)	23(22.1%)	25(15.0%)	173 (23.4%)
Total abdominal hysterectomy	8(5.9%)	6(5.6%)	5(5.2%)	2(3.3%)	7(8.0%)	6(5.8%)	5(3.0%)	39(5.3%)
vaginal hysterectomy	3(2.2%)	3(2.8%)	1(1.0%)	1(1.6%)	1(1.1%)	3(3.0%)	4(2.4%)	16(2.2%)
staging laparotomy and ovarian cystectomy	3(2.2%)	5(4.6%)	2(2.1%)	2(3.3%)	2(2.3%)	3(3.0%)	3(1.8%)	20(2.7%)
Vulva ( excision) biopsy and histology	1(0.7%)	(0.0%)	1(1.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(0.6%)	3(0.4%)
Laparoscopy and dye test	6(4.3%)	7(6.5%)	4(4.1%)	3(4.9%)	2(2.3%)	5(5.0%)	4(2.4%)	31(4.2%)
Laparoscopic ovarian drill	5(3.6%)	4(3.7%)	2(2.1%)	1(1.6%)	2(2.3%)	3(3.0%)	2(1.1%)	19(2.6%)

Hysteroscopy (diagnostic and operative)	2(1.4 %)	3(4.6%)	2(2.1%)	1(1.6 %)	1(1.1%)	3(3.0%)	2(1.1%)	14(1.8%)
Exploratory laparotomy for drainage of pelvic abscess	2(1.4 %)	2(1.9%)	1(0.0%)	1(1.6 %)	0(0.0%)	2(1.9%)	4(2.4%)	12(1.6%)
Total number of major surgeries	77(55.8%)	60(55.6%)	52(53.6%)	33(54.1%)	54(61.4%)	58(55.8%)	62(37.1%)	400(52.2 %)

Among the minor surgical procedures, MVA predominates with a high rate of 36.0%, followed by cervical cerclage (4.7%). By far, the most common major surgical procedure was myomectomy (23.4%), and the least (1.6%) was exploratory laparotomy for drainage of pelvic abscess.

At the time of this research, there is no gynaecology oncologist in NDUTH, and the management of most of the cases was limited to making a diagnosis and referral to other institutions with functioning oncology units.

## V. Discussion

It's a natural phenomenon for variations in medical disease conditions to exist in different localities globally. [9] Evidence however suggests that this is largely influenced by genetic disparity, environmental, and socio-cultural factors. [10, 11] It is therefore natural for gynaecological admission diagnosis to vary from one centre to another.

Results from this study indicate that the most common gynaecological reasons for admissions in NDUTH are: abortion (and its complications), PID, uterine fibroids, and cervical cancer. This is at variance with findings from other centers: In Italy, adenomyosis, and endometriosis predominates. [6] Results from a study in USA indicates that the most common admission diagnosis were uterine leiomyomas (27.5%), menstrual disorders (12.3%), and endometriosis (9.5%). [12] In Northern Nigeria, a study reported spontaneous abortion, ovarian cyst and hydatidiform mole as the most common. [5]

The prevalence of gynaecological admissions of 14.6% obtained in this study was similar to results from a study in USA, where the prevalence was 10.0% in women aged 45 – 54 years, and 7.0 % in women of 15 – 44 years. [12]

Abortion and its complications ranked among the highest reason for gynaecological admission, not only in many parts of Nigeria, but globally. [13, 5] A study in Nigeria reported a very high prevalence (among interviewed females) of 100%. [14] It was also reported that a very high proportion of men (87.5%) compel their lovers (especially single women) to abort on discovering they are pregnant. [14] The high rate of abortion complications in Nigeria is highly attributed to restricted abortion laws; driving the practice quacks. [15] Liberalization of abortion laws is hereby advocated.

Though the rate of abortion (and its complications) of 32.2% we got in this study was relatively high; it is far lower than the 78.3% obtained in Northern Nigeria. [5] The disparity may be due to the fact that in Northern Nigeria, young girls engage in sexual activities early, and they also marry early when compared to their counterparts in Southern Nigeria. [15] According to the Nigerian National Demographic Health Survey, 19% of girls have their sexual debut at 15 years, and 57% at 18 years, and the proportion is highest (61% – 78%) in Northern Nigeria. [15] They also marry, and have children early (as teens). [15]

Another gynaecological condition that commonly necessitates admission in West Africa is PID, an ascending infection of the female genital tract. This has been validated in this study as PID was the commonest pelvic infection admitted in NDUTH, and the rate of 8.0% we obtained is similar to the 5.7% obtained in previous study in Port Harcourt, Nigeria. [16] The high rate of PID is largely attributed to the high rate of sexually transmitted infections in Nigeria. [15, 16]

The high rate of PID has reflected on the relatively high rate of PID complications in this study. The danger of PID relies on its potential to cause peritonitis, tubal adhesions, and blockage. PID remains the commonest cause of tubal factor infertility, and ectopic pregnancy in West Africa, (including Nigeria). [16, 17] Previous study on ectopic pregnancy in Nigeria reported a rate of 6.3% among gynaecological admissions, [17] which is similar to the 5.5% obtained in this study.

Infertility is very common in West Africa, and it is one of the commonest disease conditions seen in gynaecology outpatient clinics across Nigeria. [18, 19] However, most patients are treated as outpatient; a study reported a high rate of infertility (23.9%) among women seen in gynaecology outpatient clinics in Northern Nigeria. [18] This satisfactorily explains why our inpatient rate (3.8%) was quite low.

Most infertility cases admitted in Nigeria are for laparoscopic, and hysteroscopic evaluation for tubal patency, ovarian drill, and lysis of intrauterine adhesions. [19] An important factor that explains the low rate of infertility among admitted patients in Nigeria is lack of laparoscopic and hysteroscopic equipment in most of

our hospitals. Even the few centers that have, frequent equipment breakdown is an issue, most probably because of unstable power supply or lack of proper maintenance.

Uterine fibroid (or leiomyoma) is about the most common benign gynaecological tumor in the female genital tract, and it is much more common in blacks because of racial predisposition. [20, 21] This may explain why a high rate was obtained in this study, and in other centers in Nigeria; 62.6% in Ogoni, [22] and 47.5% in Abuja, [20] On the contrary, much lower rate of 7.3% was reported in Australia, [21] and in western countries. [6, 12, 20]

Though the above rates are very high, the scenario is different for admitted patients, because admission for myomectomy can only take place when indicated, especially when the fibroid is symptomatic. [23] However, the admission rate obtained in this study is relatively high when compared to some other centers in Nigeria; 6.4% in Abuja, [20] and 2.1% in Kebi. [5] Though the reason for this disparity is not very clear, it is very possible that the women in NDUTH were more health conscious, and they presented for treatment early. However, this hypothesis requires validation with further studies.

With respect to admission for gynaecological malignancies, results from this study indicate that cervical cancer was the commonest. This trend tends to cut across most centers in Nigeria, as similar results have reported cervical cancer as the most common female genital tract malignancy. These include studies from: Abuja in North Central Nigeria (39.6%), [24] Abakaliki in Eastern Nigeria (68), [13] Lagos in Western Nigeria (61.7%), [25] and Port Harcourt (52%) in Southern Nigeria [26].

However, in very few centers in Nigeria, and many centers outside Nigeria, the most common genital malignancies were endometrial and ovarian cancers. At Owerri in Eastern Nigeria, ovarian cancer (33.5%) was the most common, [27] and in the UK, it was endometrial cancer. [28] A Study in USA reported endometrial cancer as the most common, with a high incidence of 40,000 new cases every year, [29] and in Rawalpindi in Pakistan, endometrial cancer was highest, with a rate of 62.86%. [30]

It is not acceptable that in this study, the trend in all the genital tract malignancies remain significantly unchanged over the past 7 years. This is an indictment, especially on our cancer preventive programs; it implies that preventive measures we have taken are grossly ineffective. Cervical cancer has a long latency period, which has been exploited in many countries to save the lives of their women. [31, 32] As a result, cervical cancer has been reported to be very rare in the US and UK, [33] and the trend in the prevalence has reduced by 43% over a period of 10 years in the US. [33]

Regarding the trend in abortion and its complications, there was a significant decline in this study. This may be due to increased awareness of the complications and consequences of induced abortion in Nigeria. A study at Ibadan reported that as much as 83.3% of women had good knowledge of abortion complications, with a knowledge score of  $4.01 \pm 1.58$  (range 0 -5). [34]

With respect to the trend in pelvic infections, results from this study indicates a significant increase in the rate of PID from 2017 - 2023. This was similar to results obtained from a study on the global trend in PID, which reported an increase by 36.7% from 1990 – 2019. The same study reported that Sub-Saharan Africa and Australasia had the highest prevalence globally. [35] In contrast to our results, a study on PID in USA reported a decrease in the trend from 2006 – 2016, but with an evidence that PID is now on the rise. [36]

Mortality from gynaecological admissions is mainly from emergencies, and the rates are relatively low, compared to obstetric emergencies. [19] The gynaecological mortality rate of 2.3% (obtained in this study) was comparable the 1.3% reported at Abakaliki, [13] and the 3.58% in Port Harcourt (both in Nigeria). [8] Gynaecological malignancies seem to be the commonest cause of gynaecological deaths in Nigeria, with reported high rates of 56.5% in Port Harcourt, and 81.4% at Abakaliki, in Eastern Nigeria. [13]

## **VI. Conclusion**

While the trend in abortion and its complications are on the decline in NDUTH, the prevalence of PID, ectopic pregnancy and uterine fibroids are on the rise. Advocacy and preventive measures (for PI) should be intensified, if the dynamics has to be changed.

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