Original research article:

Review of Gynaecological Diagnoses and Surgeries performed at a tertiary health facility in Niger-Delta of Nigeria from 2012-2017: Implications for healthcare planning and budgeting.

Abstract:

Background: Gynaecological disorders are a particularly common cause of morbidity and mortality among women of reproductive age and a common cause of hospital presentation/admission and surgery.
Objective: This study sought to review gynaecological diagnoses and surgeries performed in a tertiary health facility from 2012 to 2017 and its implication for healthcare planning and budgeting.
Methodology: This was a retrospective review of all gynaecological diagnoses and surgeries seen in the Rivers State University Teaching Hospital (RSUTH) from 2012 to 2017. Data were retrieved using a proforma comprising of year, gynaecological diagnosis and gynaecological surgeries. Data obtained was entered into Microsoft Excel for descriptive analysis.
Results: The proportion of clinic attendees declined from an average of 23% in the first three years (2012-2014) to about 10% in the last three years (2015-2017). The most common gynaecological diagnosis were uterine fibroid (33.3%), infertility 28.1% (primary 5.7%, secondary 22.4%), PID (5.9%), ovarian tumour (4.2%), secondary amenorrhea (3.4%) and pelvic malignancies (3.4%). The commonest major surgeries were myomectomy 441(33.7%), salpingectomy 345(26.4%), hysterectomy 168(12.8%) and cervical cerclage 122(9.3%). The commonest minor surgeries were manual vacuum aspiration 314(41.0%), examination under anaesthesia and biopsy 110(14.3%) and adhesiolysis for synechiae 97(12.6%). The duo of uterine fibroid and infertility made up 50% - 70% of all gynaecological diagnoses.
Conclusion: This study showed that **t**here has been a steady decline in gynaecological consultations over the years. However, the duo of uterine fibroid and infertility made up half to a-quarter of all gynaecological diagnoses over the 6 years. Infertility and uterine fibroids have a long cause and effect association. Healthcare policies and budgeting should be increased towards tackling these conditions, especially the setting up of a fertility center to provide assisted reproductive technologies and laparoscopy to improve practice and patient outcome.

Key Words: Gynaecological disorders, Gynaecological surgeries, Healthcare budgeting, Tertiary health,

Introduction:

The female reproductive system is vulnerable to dysfunction or disease from infancy to old age. Gynaecological disorders are a particularly common cause of morbidity and mortality among

women of reproductive age groups, and a common cause of hospital presentation and admission in both developing and developed countries of the world [1,2]. They can be acute or chronic depending on the time of presentation and urgency of the need for medical intervention.

Infertility is a worldwide problem, affecting 8.0% - 15.0% of couples in their reproductive age 3,4]. However, there is a worldwide variation in its incidence, being highest in the so-called infertility belt of Africa, which includes Nigeria [5]. This has been attributed to high rate of sexually transmitted infections (STIs), complications of unsafe abortions and pelvic inflammatory disease (PID) [6]. Institutional-based studies in some parts of Nigeria have reported the incidence of infertility as 15.4% [4], 15.7% [7], 23.9% [8], 32.0% [9] and 48.1% [10].

Uterine Fibroids (Leiomyoma) are the most common benign tumour affecting women [11]. The incidence increases with increasing age among women of childbearing age and is reported in more than 80% of women at the age of 50 years [12]. It is 3-9 times more common in blacks than Caucasians. Infertility and nulliparity are also associated with increased incidence of uterine fibroids [13]. It represents 6.4% of all gynaecological admissions in Abuja [14], 6.5% in Ile-Ife [15], 9.8% in Enugu [16], 10.7% in Nnewi [17] and 13.5% in Ilorin [18]. Fasubaa et al [19] found that about a quarter of women with infertility had symptomatic uterine fibroids and this represented about 35%-40% of the overall number of women presenting as uterine fibroid in their study. Treatment modalities of uterine fibroids include conservative, medical, surgical techniques that either preserve the uterus (myomectomy) or removes it (hysterectomy) [20].

Common gynaecological emergencies documented in the literature include ectopic pregnancy, which has been reported to be as high as 16.1% of all gynaecological admissions in Port-Harcourt [21], to 6.5% in Nnewi [22] and 4.5% in Abakaliki [23]. Abortions and Menstrual disorders have been reported to account for 23.1% and 3.5% of all gynaecological admissions, respectively [24]. Less common are sexual assault, gynaecological malignancies, coital laceration and pelvic sepsis [2,25,26].

Gynaecological surgeries or procedures are performed on the female reproductive tract in nongravid women, or in gravid women before fetal viability, and are performed for emergency or elective purposes. They are performed for various indications, as reported from various studies. Garba et al [27] reported surgical options used in the management of uterine fibroids in their study to be myomectomy (75.4%) and hysterectomy (24.6%). These contributed 21.4% of all gynaecological operations. Common gynaecological surgeries reported in Nigerian literatures, as percentage of total procedures, include myomectomy (41.9%), salpingectomy (26.0%), manual vacuum aspiration (MVA) (21.5%), hysterectomy (10.6%) and laparoscopy (2.8%) [28-32].

This study therefore, sought to review gynaecological diagnoses and the rate of surgeries performed at the RSUTH, from 2012 to 2017, and the implications for healthcare planning and

budgeting. Such audit is important for planning purposes, to direct resource allocation and can serve to improve clinical response and outcomes.

Methodology:

This was a retrospective review of all gynaecological cases and surgeries seen in the Rivers State University Teaching Hospital (RSUTH) from 2012 to 2017. Data on gynaecology clinic attendance, gynaecological diagnosis and gynaecological surgeries, were retrieved from the departmental annual reports and hospital records, using a proforma according to the year of study. Case notes of the patients were however, not retrieved to check and analyze for the outcome of treatments and procedures. Patients with complete relevant information in the registers were included and those with incomplete data were excluded. Data obtained was entered into Microsoft Excel for descriptive analysis.

This study was conducted in the RSUTH, a tertiary hospital owned and funded by the Government of Rivers State, and patients are expected to pay directly for services (except few that participate in the National Health Insurance Scheme). During the period 2012-2014 there was a Free Medical Care (FMC) programme where user fees for consultations and surgeries, but excluding blood for transfusion, was paid for by the government to the hospital by way of reimbursement. Afterwards the programme was scrapped and patients have to bear the full cost of all treatment.

The hospital provides gynaecological consultations and surgeries, emergency obstetric services to women referred from other centers, as well as providing antenatal care and delivery services for low and high-risk pregnant women booked with the hospital. The hospital is well equipped and has availability of qualified team comprising of Obstetricians, Pediatricians and Anaesthetist. There is availability of laboratory and blood bank services in the hospital.

Results:

There was a total of 8,684 patients who attended the Gynaecology Clinic during the 6 years under review (Table 1), with the yearly-total declining over the years from about 2000 to about 800. Figure 1 shows a line graph of the proportion distribution of clinic attendance during the study period. The proportion of clinic attendees declined from an average of 23% in the first three years (2012-2014) to about 10% in the last three years (2015-2017).

The most common gynaecological diagnosis throughout the study period were uterine fibroid (33.3%), infertility 28.1% (primary 5.7%, secondary 22.4%), PID (5.9%), ovarian tumour (4.2%), secondary amenorrhoea (3.4%) and pelvic malignancies (3.4%). Table 2A and 2B shows the distribution of the various diagnoses over the 6-year period. The ten least common diagnoses were Gynaetresia (0.15%), clitoral/vulvar cyst (0.22%), urethral prolapse (0.26%), genital warts (0.30%), premature menopause (0.30%), molar pregnancy (0.33%), genital fistulae (0.37%), cervical polyps (0.4%), post-menopausal syndrome (0.55%) and endometriosis (0.57%). Some

gynaecological emergencies also presented through the clinic and were made up of Bartholin's cyst/abscess (0.53%), unruptured ectopic pregnancy (0.52%) and abortions (2.37%) - made up of incomplete = 1.12%, missed = 0.67% and threatened = 0.58%. Consistently over the years, the duo of uterine fibroid and infertility made up 50% - 70% of all gynaecological diagnoses, with an increasing trend in the proportion from 54% to 71% (Figure 2).

Table 3 shows the distribution of all major gynaecological surgeries performed during the study period. There were a total of 1309 major surgeries over the 6-year period, giving a yearly average of 218 major surgeries. The commonest major surgeries were myomectomy 441(33.7%), salpingectomy 345(26.4%), hysterectomy 168(12.8%) and cervical cerclage 122(9.3%). There was a steady decline in number of exploratory laparotomy (from 26 to 2) and vaginal hysterectomy and pelvic floor repair (from 14 to 7). Manchester repair and bilateral tubal ligation (BTL) appears to have been outdated. Figure 3 shows the trend in the distribution of the commonest major surgeries over the six years, with no real change over the years.

Table 4 shows the distribution of all minor gynaecological surgeries performed during the study period. There were a total of 768 minor surgeries over the 6-year period, giving a yearly average of 128 minor surgeries. The commonest minor surgeries were MVA for abortions 314(41.0%), examination under anaesthesia (EUA) and biopsy (cervix / endometrium) 110(14.3%) and separation of intrauterine adhesions (adhesiolysis) 97(12.6%). Figure 4 shows the trend in the distribution of the commonest major surgeries over the six years, with a steady reduction in MVA over the years.

Table 1: Distribution of gynaecology clinic attendees during the period:

Time period	Number of attendees	Percentage
2012	1999	23.0
2013	2445	28.2
2014	1539	17.7
2015	1048	12.1
2016	803	9.2
2017	850	9.8
Total	**8684**	**100.0**

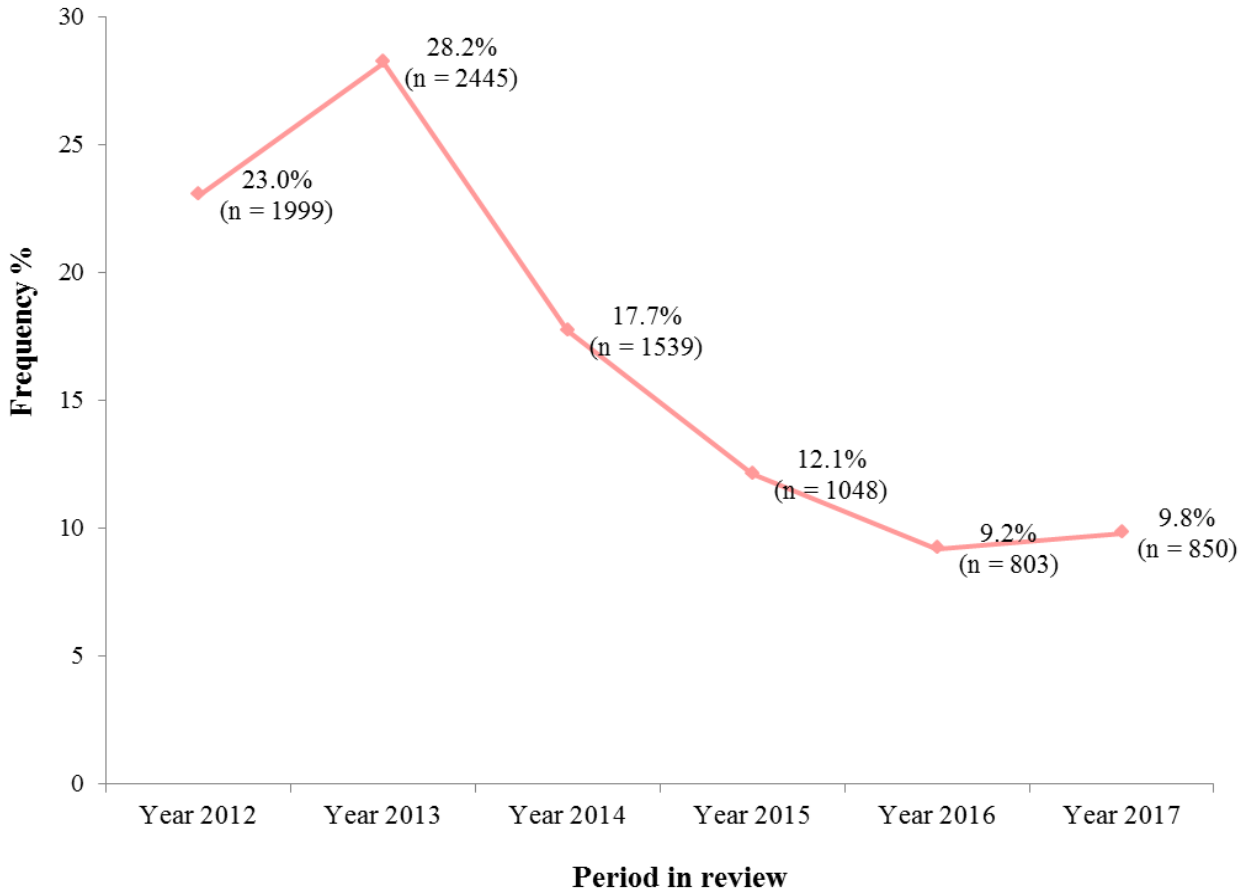

Figure 1: Line chart showing proportion distribution of gynaecology clinic attendance during the period

Table 2A: Gynaecological diagnosis at presentation during the period:

Gynaecological Diagnoses	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)
Uterine Fibroid	565 (28.4)	808 (33.0)	526 (34.0)	363 (34.2)	240 (28.6)	354 (41.6)
Secondary Infertility	469 (23.6)	488 (20.0)	355 (23.0)	287 (27.0)	159 (19.0)	186 (21.9)
Primary Infertility	53 (2.7)	86 (3.5)	77 (5.0)	77 (7.3)	52 (6.2)	82 (9.6)
PID	104 (5.2)	131 (5.4)	89 (5.8)	71 (6.7)	47 (5.6)	54 (6.4)
Ovarian Tumor	97 (4.9)	108 (4.4)	68 (4.4)	15 (1.4)	47 (5.6)	39 (4.6)
Secondary Amenorrhea	131 (6.6)	58 (2.4)	47 (3.0)	45 (4.2)	21 (2.5)	16 (1.9)
Pelvic Malignancies	71 (3.6)	103 (4.2)	0 (0.0)	6 (0.6)	48 (5.7)	51 (6.0)

Uterovaginal Prolapse	67 (3.4)	107 (4.4)	54 (3.5)	59 (4.8)	23 (2.7)	0 (0.0)
Dysmenorrhea	49 (2.5)	70 (2.9)	4 (0.3)	3 (0.3)	35 (4.2)	14 (1.6)
Incomplete Abortion	37 (1.9)	38 (1.6)	6 (0.4)	7 (0.7)	18 (2.1)	0 (0.0)
Uterine Synechia	30 (1.5)	30 (1.2)	15 (1.0)	14 (1.3)	10 (1.2)	2 (0.2)
DUB	28 (1.4)	23 (0.9)	13 (0.8)	9 (0.8)	7 (0.8)	14 (1.6)
Missed Abortion	26 (1.3)	19 (0.8)	8 (0.5)	3 (0.3)	5 (0.6)	4 (0.5)
Hormonal Imbalance	24 (1.2)	90 (3.7)	97 (6.3)	11 (1.0)	4 (0.5)	1 (0.1)
Sexual Assault	23 (1.2)	18 (0.7)	3 (0.2)	4 (0.4)	2 (0.2)	0 (0.0)
PCOS	16 (0.8)	42 (1.7)	26 (1.7)	6 (0.6)	4 (0.5)	0 (0.0)
Primary Amenorrhea	16 (0.8)	15 (0.6)	11 (0.7)	8 (0.8)	6 (0.7)	0 (0.0)
Premature Ovarian Failure	15 (0.8)	14 (0.6)	12 (0.8)	9 (0.8)	4 (0.5)	0 (0.0)

Table 2B: Gynaecological diagnosis at presentation during the period (continued):

Gynaecological Diagnoses	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)
Unruptured Ectopic Pregnancy	15 (0.8)	9 (0.4)	6 (0.4)	4 (0.4)	3 (0.4)	6 (0.7)
Bartholin's Cyst/Abscess	14 (0.7)	17 (0.7)	8 (0.5)	6 (0.6)	4 (0.5)	2 (0.2)
Cervical Incompetence	14 (0.7)	20 (0.8)	8 (0.5)	5 (0.5)	12 (1.4)	5 (0.6)
Threatened Abortion	13 (0.7)	15 (0.6)	6 (0.4)	4 (0.4)	12 (1.4)	0 (0.0)
Endometriosis	11 (0.6)	20 (0.8)	6 (0.4)	10 (0.9)	6 (0.7)	0 (0.0)
Post-Menopausal Syndrome	11 (0.6)	11 (0.4)	12 (0.8)	3 (0.3)	8 (1.0)	2 (0.2)
Cervical Polyps	13 (0.7)	17 (0.7)	0 (0.0)	5 (0.5)	4 (0.5)	0 (0.0)
Gynae Fistulae	7 (0.4)	6 (0.2)	8 (0.5)	5 (0.5)	1 (0.1)	4 (0.5)
Molar Pregnancies	6 (0.3)	5 (0.2)	4 (0.3)	2 (0.2)	3 (0.4)	5 (0.6)

Premature Menopause	10 (0.5)	9 (0.4)	6 (0.4)	1 (0.1)	3 (0.4)	0 (0.0)
Genital Warts	7 (0.4)	6 (0.2)	4 (0.3)	3 (0.3)	5 (0.6)	0 (0.0)
Urethral Prolapse	6 (0.3)	4 (0.2)	5 (0.3)	6 (0.6)	2 (0.2)	0 (0.0)
Clitoral/Vulva Cyst	5 (0.3)	7 (0.3)	5 (0.3)	2 (0.2)	2 (0.2)	0 (0.0)
Gynaetresia	4 (0.2)	4 (0.2)	7 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)
Others	32 (1.6)	47 (1.9)	50 (32.3)	8 (0.8)	41 (4.9)	9 (1.1)
Total	**1989 (100.0)**	**2445 (100.0)**	**1546 (100.0)**	**1061 (100.0)**	**838 (100.0)**	**850 (100.0)**

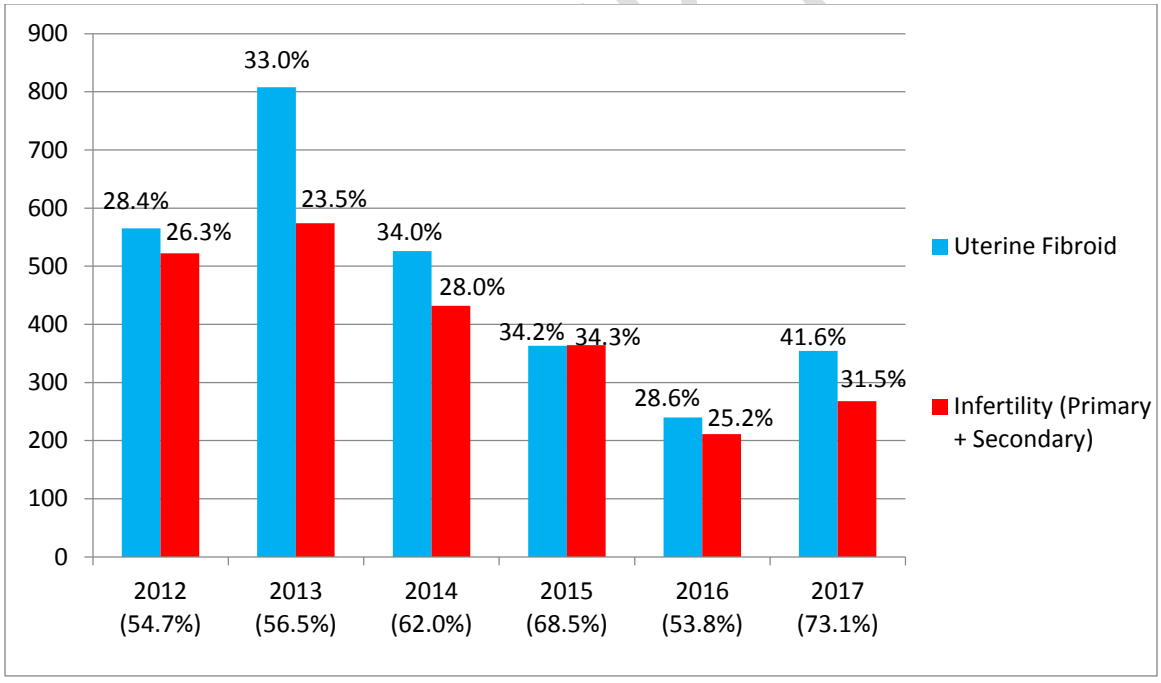

Figure 2: Trends/Distribution of the commonest gynaecological diagnosis at presentation

Table 3: All Major Gynaecological Surgeries 2012-2017:

Major Gynae Surgeries	2012	2013	2014	2015	2016	2017	**Total (%)**
Abdominal Myomectomy	83	99	60	55	64	80	441 (33.7%)
Salpingectomy	53	45	53	58	86	50	345 (26.4%)
Abdominal Hysterectomy	23	35	21	35	25	29	168 (12.8%)
Cervical Cerclage	20	22	24	14	19	23	122 (9.3%)
Exploratory Laparotomy	26	21	10	5	2	2	66 (5.0%)
Ovarian Cystectomy	6	12	11	9	10	16	64 (4.9%)
Vag Hyst + Pelvic Repair	10	14	11	14	8	7	64 (4.9%)
Urethral Prolapse Repair	4	4	4	6	1	0	19 (1.5%)
EUA Missing IUCD	4	3	0	4	0	1	12 (0.9%)
Bilateral Tubal Ligation	0	0	0	5	0	0	5 (0.4%)
Manchester Repair	1	2	0	0	0	0	3 (0.2%)
Sub-Total	**230**	**257**	**194**	**205**	**215**	**208**	**1309 (100%)**

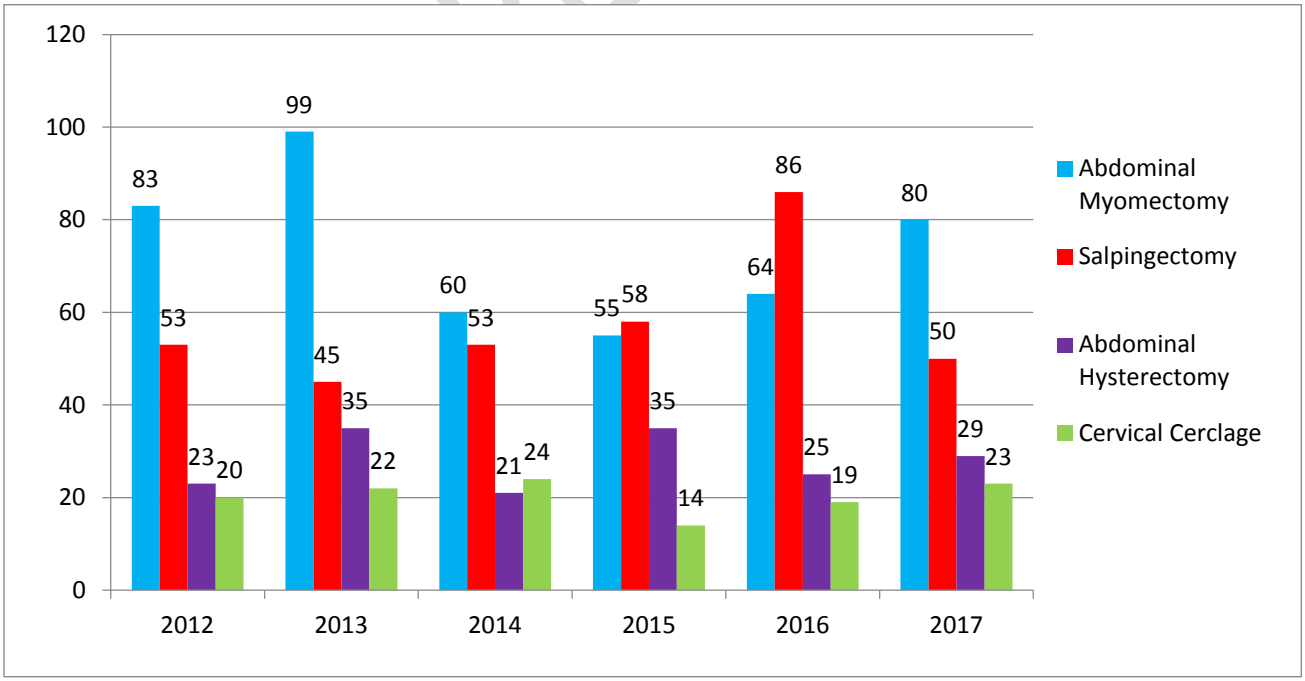

Figure 3: Trends/Distribution of commonest major gynaecological surgeries during the period

Table 4: All Minor Gynaecological Surgeries 2012-2017:

Minor Gynae Surgeries	2012	2013	2014	2015	2016	2017	**Total (%)**
Manual Vacuum Aspiration	88	58	56	50	51	12	315 (41.0%)
EUA + Biopsy (Cx & Endo)	17	21	15	12	27	18	110 (14.3%)
Adhesiolysis + IUCD insertion	20	19	15	16	19	8	97 (12.6%)
Uterine Evacuation (theater)	16	16	9	10	14	7	72 (9.4%)
Wound Re-suturing	8	5	6	5	9	10	43 (5.6%)
Marsupialization	8	10	7	8	7	1	41 (5.3%)
Polypectomy	6	7	4	5	1	2	25 (3.3%)
Cervical Dilatation	3	4	4	9	4	1	25 (3.3%)
D & C for DUB	7	6	0	0	0	5	18 (2.3%)
Excision of Vulvar Warts	2	6	3	3	0	0	14 (1.8%)
Hymenectomy (haematocolpus)	1	4	0	0	0	0	5 (0.7%)
Excision of vulvar cysts	1	1	0	0	0	1	3 (0.4%)
Sub-Total	**177**	**157**	**119**	**118**	**132**	**65**	**768 (100%)**

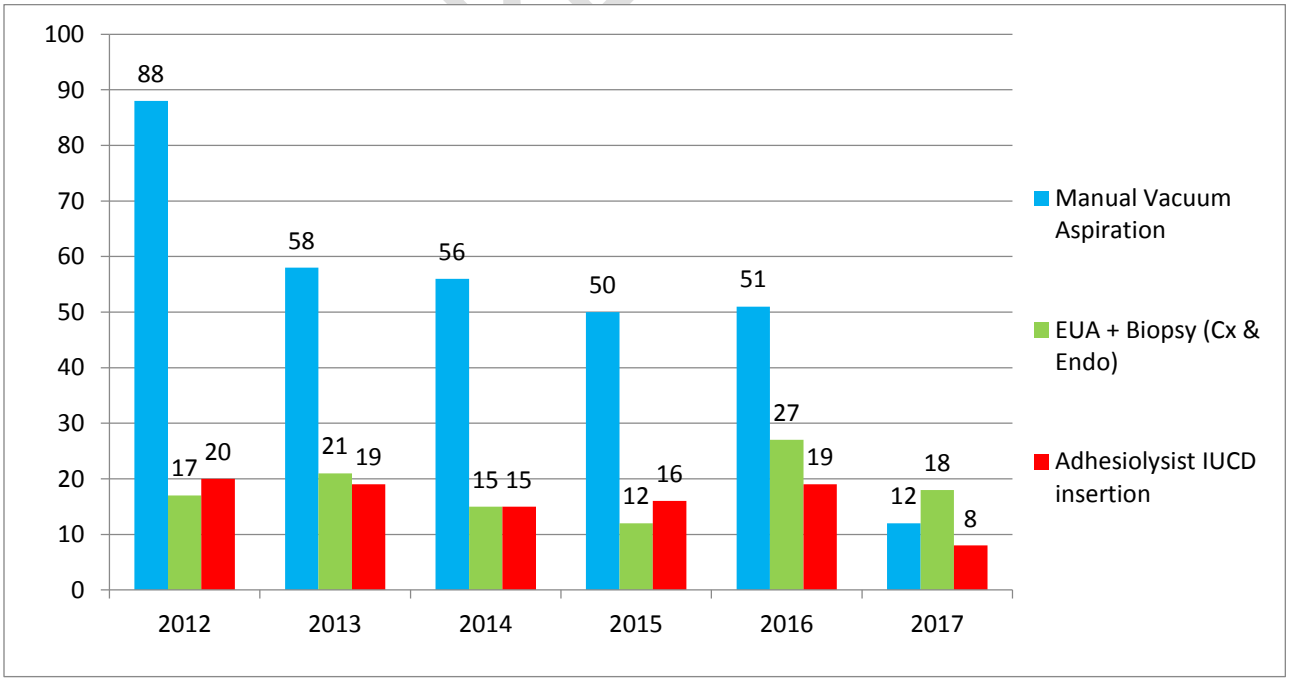

Figure 4: Trends/Distribution of commonest minor gynaecological surgeries during the period

Discussion:

The study has shown a decline in clinic consultations from about 2000 patients to 800 patients over the 6-year period. There was a total of 8684 consultations, with an average of 23% in the first three years (2012-2014), which declined to average of 10% in the last three years (2015-2017). The increased attendance in the first three years may be accounted for by the Free Medical Care (FMC) programme in place at the time, where consultations and surgeries were made user-fee free by the government.

The commonest gynaecological diagnosis was uterine fibroid (33.7%) and this is higher than most figures reported in the Nigerian literatures of 6.4% to 13.5% [14,15,16,17,18]. This was followed by infertility (28.1%) which is higher than previous reports of 15.4% [4], 15.7% [7] and 23.9% [8], but lower than those in other studies of 32.0% [9] and 48.1% [10]. The prevalence of infertility has been notably highly variable in sub-Saharan Africa [33].

Despite the observed decline in consultations over the years, consistently the duo of uterine fibroid and infertility accounted for 50-70% of all gynaecological diagnoses with an increasing trend in later years. Infertility and uterine fibroids have a long-time cause and effect association and may be responsible for the increased prevalence of both conditions. This may be explained by the findings of Fasubaa et al [19] that about a quarter of women with infertility had symptomatic uterine fibroids and this represented about 35%-40% of the overall number of women presenting as uterine fibroid in their study. Infertility and nulliparity have long been associated with increased incidence of uterine fibroids [13].

Given the higher prevalence of uterine fibroid in the study population, it is not surprising that myomectomy and hysterectomy, the two main surgical treatment modalities for uterine fibroid, were two of the commonest major gynaecological surgeries, accounting for 33.7% and 12.8% of all major surgeries respectively. The ratio of myomectomy to hysterectomy of about 3:1 has also been reported in the study by Garba et al [27]. Values of 41% for myomectomy [28] and 10.6% for hysterectomy [31] have also been reported. Salpingectomy was the second commonest major surgery performed at 26.4% and this is similar to the findings of 26% by Yakasai et al [29].

This study showed that MVAs were by far the commonest minor gynaecological operations done at our center, accounting for 41.0%. This is similar to findings by other studies accounting for 58.8% [34], 21.5% [35], The indication for MVA is mainly incomplete abortions [30] and the higher value reported in this study may not be unconnected to the high prevalence of uterine fibroid in our study population. Women in southern Nigeria are known for late marriages occasioned by longer years of educational pursuit. They often start to have children from their thirties, with associated higher age-prevalence of uterine fibroid and subfertility.

There was an observed marked decline in the trend over the years in exploratory laparotomy (from 26 to 2) and vaginal hysterectomy and pelvic floor repair (from 14 to 7). While the reduction in exploratory laparotomy might be from a reduction in sepsis from widespread availability of antibiotics and better diagnostic modalities; the reduction in vaginal hysterectomy and repair may well be attributable to the removal of FMC programme and imposition of user fees. Most of these patients are elderly with little or no income, and less cared for by their offspring. Also, BTL appears to be outdated and this may be the result of availability and uptake of long-acting hormonal contraceptives in our environment [34].

Conclusion: The study showed that the duo of uterine fibroid and infertility made up half to a-quarter of all gynaecological diagnoses over the 6 years. Infertility and uterine fibroids have a long cause and effect association. Healthcare policies and budgeting should be increased towards tackling these conditions, especially the setting up of a fertility center to provide assisted reproductive technologies. This, as well as the introduction of diagnostic and therapeutic laparoscopic facilities in our center will greatly enhance practice and improve patient satisfaction and outcome. While there has been a steady decline in the number of gynaecological consultations over the years, the trend and pattern of diagnoses and surgeries remain largely unchanged.

Source of Support: Nil

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