



East African Journal of Health and Science

eajhs.eanso.org

Volume 7 Issue 2, 2024

Print ISSN: 2707-3912 | Online ISSN: 2707-3920

Title DOI: <https://doi.org/10.37284/2707-3920>



EAST AFRICAN
NATURE &
SCIENCE
ORGANIZATION

Original Article

Prevalence and Management of Uterine Fibroids among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu

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Article DOI: <https://doi.org/10.37284/eajhs.7.2.2507>

Date Published: **ABSTRACT**

10 December 2024

Keywords:

Prevalence,
Management,
Uterine Fibroids,
Women of
Reproductive Age.

Uterine fibroids are benign tumours of smooth muscles of the uterus. Globally, uterine fibroids are a burden among women of reproductive age, mainly affecting women of African descent. Few researches have been done on uterine fibroids in Kenya, specifically, none at Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH). This study aimed to investigate the prevalence and management of uterine fibroids among women of reproductive age admitted to a gynaecological ward at Jaramogi Oginga Odinga Teaching and Referral Hospital. The study used a descriptive cross-sectional design with a sample of 67 files of women of reproductive age with a diagnosis of uterine fibroids. A purposive sampling technique was used. Files of patients diagnosed with fibroids were chosen from all the files of the women admitted within the period of study. Data was collected by retrospective review of medical records obtained from files in the JOOTRH records department. Data analysis was done using descriptive statistics. The findings revealed a prevalence of 4% of uterine fibroids in the gynaecological ward. The prevalence was highest between 35-39 years at 31% and lowest between 20-24 years at 9%. Moreover, prevalence among nulliparous women was highest at 27%. The most common symptoms were vaginal bleeding and lower abdominal pain at 33%. The most common treatment modalities used were Total Abdominal Hysterectomy (TAH) at 42%, Myomectomy at 27%, conservative management at 22%, Transvaginal hysterectomy at 4%, TAH + Bilateral salpingectomy at 3%, and Subtotal hysterectomy at 2%. Our study revealed that the majority of the cases were among nulliparous women and of age between 35-39 years, with TAH being the most common treatment modality at JOOTRH.

APA CITATION

Mumo, J., Adipo, C., Ogot, V., Njoki, N., Marube, A., Lumumba, G. & Kiplagat, J. (2024). Prevalence and Management of Uterine Fibroids among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu. *East African Journal of Health and Science*, 7(2), 141-149. <https://doi.org/10.37284/eajhs.7.2.2507>.

CHICAGO CITATION

Mumo, John, Christine Adipo, Valentine Ogot, Naomi Njoki, Alphonse Marube, Grace Lumumba and John Kiplagat. 2024. "Prevalence and Management of Uterine Fibroids among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu". *East African Journal of Health and Science* 7 (2), 141-149. <https://doi.org/10.37284/eajhs.7.2.2507>

HARVARD CITATION

Mumo, J., Adipo, C., Ogot, V., Njoki, N., Marube, A., Lumumba, G. & Kiplagat, J. (2024). "Prevalence and Management of Uterine Fibroids among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu", *East African Journal of Health and Science*, 7(2), pp. 141-149. doi: 10.37284/eajhs.7.2.2507.

IEEE CITATION

J., Mumo, C., Adipo, V., Ogot, N., Njoki, A., Marube, G., Lumumba & J., Kiplagat "Prevalence and Management of Uterine Fibroids among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu", *EAJHS*, vol. 7, no. 2, pp. 141-149, Dec. 2024.

MLA CITATION

Mumo, John, Christine Adipo, Valentine Ogot, Naomi Njoki, Alphonse Marube, Grace Lumumba & John Kiplagat. "Prevalence and Management of Uterine Fibroids among Women of Reproductive Age at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu". *East African Journal of Health and Science*, Vol. 7, no. 2, Dec. 2024, pp. 141-149, doi:10.37284/eajhs.7.2.2507.

INTRODUCTION

Uterine fibroid is a common benign tumour of the smooth muscles of the uterus with little involvement of the connective tissue. These benign neoplasms mainly affect women of African origin (Agnihotri, 2016). The tumour depends on hormones and is mainly responsive to progesterone and estrogen hormones. Estrogen is associated with increased growth of the fibroids. Uterine fibroids have more estrogen receptors than the myometrium but less than the endometrium. It occurs mainly in women of reproductive age. Common symptoms of uterine fibroids are abnormal menstruation, painful menses, spotting, abdominal pain, abdominal distension, pelvic pain, and back pain (Kumar et al., 2017).

The significant risk factors associated with the development of uterine fibroids include obesity, family history of uterine fibroids, null parity, early menarche, late conception of a first child, and late onset of menopause (Kenny & Myers, 2017). Complications associated with fibroids include infertility, pressure symptoms, heavy menstrual bleeding, irregular menstruation, and pregnancy-related complications such as fetal malpresentation, placenta abruption, and recurrent abortion. Diagnosis for fibroids involves abdominal or transvaginal ultrasound, hysteroscopy, hysterosalpingogram, and rarely, x-ray and abdominal CT scan (Kenny & Myers, 2017). There

are various treatment modalities for fibroids in Kenya, which include hysterectomy, myomectomy, and uterine artery embolization, commonly done in private hospitals (Nusair et al., 2018).

Although several clients seen and admitted to the gynaecology ward at JOOTRH have uterine fibroids, there is limited literature on the burden of this common disease. Our research determined the prevalence and management of uterine fibroids among women of reproductive age admitted to the gynaecological ward at JOOTRH. Uterine fibroid is a primary gynaecological concern. However, there are few studies on uterine fibroids in healthcare facilities in Kenya, especially at JOOTRH. The observations on the effects of uterine fibroids in patients admitted to the gynaecological ward in JOOTRH prompted us to extensively explore the prevalence, risk factors, and management modalities of uterine fibroids in JOOTRH. The study's outcome will guide the government and hospitals in allocating resources for managing fibroids. It could also help clinicians develop public health awareness strategies amongst women.

MATERIALS AND METHODS

The study area was Jaramogi Oginga Odinga Teaching and Referral Hospital, a 500-bed hospital on the lakeside of Kisumu in Western Kenya. It has a catchment population of approximately 970,000

(Kisumu County, 2009). The hospital serves most of western Kenya and part of Rift Valley. The obstetrics and gynaecological department comprises ten consultant gynaecologists, four medical officers, five medical officer interns, five clinical officer interns, and 44 nurses. In the obstetric and gynaecological theatre, 75 elective and 45 emergency gynaecological surgeries are done for fibroid-related cases and other conditions.

A descriptive cross-sectional study design was adopted. The study population was women of reproductive age admitted to the Gynecological ward with a diagnosis of uterine fibroids. Sixty-seven fibroid cases were reported at JOOTRH between Jan 2021- Jan 2022. These cases were all sampled using files from the records department. Inclusion criteria were that all the women between 14 and 49 years were diagnosed with uterine fibroids in the gynaecological ward. In contrast, the exclusion criteria were women admitted to the gynaecological ward with a diagnosis other than uterine fibroids. A purposive sampling technique was used to sample the 67 files of patients diagnosed with uterine fibroids in the gynaecological ward.

Data collection began after getting clearance from the Maseno University Scientific Ethics and Review Committee (MUSERC) and the JOOTRH Scientific Ethics and Review Committee (JOOTRHSERC). The personal credentials, such as area of residence and name, were not included in the data collection forms. The information obtained from the research was kept confidential per the clinical practice recommendations. Encrypted passwords were created to offer data security while accessing data in the Excel sheets. The discussion was only between the participants, and no unconcerned parties were involved. The secondary data collection method was used to review files from the record department. The data collected was tabulated in an Excel sheet and then analyzed and interpreted. A retrospective medical record review was used. The files were

accessed from the record department in JOOTRH. A total of 67 files of women of reproductive age who had a diagnosis of uterine fibroids were selected, files were reviewed, and the information extracted was tabulated in Excel. All the data collection occurred in the records department, and no file was taken from there. Collected data was analyzed using descriptive statistics. It included frequency, counting, percent, mean, and standard deviation computed using Microsoft Excel 2019. After data analysis, the data was presented using tables for straightforward interpretation.

RESULTS

The results of this study include the total prevalence, the most affected age, and parity. They also include the typical age of menarche, clinical presentation, method of diagnosis, and treatment modalities of the participants.

Prevalence

The study showed that the total prevalence of fibroids among women of reproductive age admitted in JOOTRH from 2021 Jan -2022 Jan is 4%. This is because the total number of patients admitted to the gynaecological ward during the study period was 1,713, and the total number of fibroid cases in the reproductive age was 67. Using the formula:

$$Prevalence = \frac{\text{Number of uterine fibroid cases}}{\text{Total number of patients}} \times 100$$

$$Prevalence = \frac{67}{1,713} * 100$$

$$Prevalence = 4\%$$

Age

The study showed that the highest prevalence age for fibroid occurrence is 35-39, 31%. This is compared to the other age groups, 20-24 (10%), 25-29 (10%), 30-34 (13%), 40-44 (21%), and 45-49 (15%).

Table 1 Table Showing Age and Number of Fibroid Cases

Age bracket (years)	Number of cases	Percentage (%)
20-24	6	10
25-29	7	10
30-34	9	13
35-39	21	31
40-44	14	21
45-49	10	15

Parity

The study showed that the majority of the cases, 13% (n=18), were of para 0+0, followed closely by para 1+0, 16% of cases (n=10). However, para 3+0

and 4+0 (15%, n=9 and 10%, n=6 respectively) seemingly had the most cases. The fewest cases were presented in para 5+1 and para 3+2 (2%, n=1 and 2%, n=1, respectively).

Table 2 The distribution of parity among patients diagnosed with fibroids at JOOTRH

CATEGORY N=10	No. of cases Percentage (%)
Para 0+0	18 (13)
Para 1+0	10(16)
Para 3+0	9 (15)
Para 4+0	6 (10)
Para 5+1	1 (2)
Para 3+2	1 (2)

Menarche

The study showed that 10% of the cases had their menarche at 11 years of age, 25% at 12 years, 44%

at 13 years, 11.9% at 14 years, 5.9% at 15 years, and finally 1.4% at 16 years of age.

Table 3 The distribution of age of Menarche in patients with fibroids

CATEGORY N=10	No. of cases Percentage (%)
11 years old	(10)
12 years old	(25)
13 years old	(44)
14 years old	(11.9)
15 years old	(5.9)
16 years old	(1.4)

Signs and symptoms

The study showed that the majority of patients, 22 (33%), presented with symptoms of vaginal bleeding and lower abdominal pain. 17 (25%) patients presented with per vaginal bleeding as the

main symptom. 7 (10%) patients reported lower abdominal pains. 5 (7%) had irregular menses, lower abdominal pain, and abdominal Mass. 6(9%) patients had both per vaginal bleeding and an abdominal Mass. 4 (6%) patients presented with failure to conceive and irregular menses.

Table 4 The distribution of common signs and symptoms of patients with fibroids

CATEGORY N=10	No. of cases Percentage (%)
Lower abdominal pain	7(10)
Per vaginal bleeding	17(25)
Per vaginal bleeding, lower abdominal pain	22(33)
Per vaginal bleeding, abdominal mass	6 (9)
Per vaginal bleeding, lower abdominal pain, anaemia.	6 (9)
Irregular menses, lower abdominal pain, abdominal mass	5 (7)
Failure to conceive, Irregular menses	4(6)

Diagnosis and Uterine Fibroid Sizes**Diagnosis**

The diagnosis of uterine fibroids was made through history and physical examination, followed by

ultrasound. Ultrasound was the imaging diagnostic modality commonly used. The table below shows the percentage of files with or without ultrasound reports.

Table 5: Diagnosis of Uterine Fibroids

Files	Percentage
Files with Ultrasound Report	85%
Files without Ultrasound Report	15%

Uterine Fibroid Sizes

Based on the data below, the most standard fibroid sizes were 0-5cm 43 % (n=29), while the least

occurrence was 16-20cm 3% (n=2). The others were 6-10cm 28% (n=19) and 11-15cm 10% (n=7).

The table below shows the common uterine fibroid sizes at JOOTRH

Size(cm)	No. of cases Percentage (%)
0-5	29 (43)
6-10	19(28)
11-15	17 (10)
16-20	2 (3)

Treatment Modalities

The table below shows the various treatment modalities of fibroids at JOOTRH. The most

standard treatment modality is TAH (42%), while the least modality is subtotal hysterectomy (1%).

Table 5 Table Showing the Treatment Modalities

Treatment modality	No. of cases Percentage (%)
TAH	28 (42)
Myomectomy	18(27)
Follow up	14 (22)
TVH	3 (4)
TAH+ Bilateral salpingectomy	2 (2)
Subtotal hysterectomy	2 (1)

DISCUSSION

Prevalence

Our study found that the total number of patients in the gynaecological ward during the study period (from January 2021 to January 2022) was 1,713. Of 1,713 patients in the ward during that period, 67 uterine fibroid cases were reported. This corresponds to 4% of uterine fibroid cases in the ward for one year. This high prevalence corresponds to recent studies that suggest that black women are highly likely to develop uterine fibroids in their lifetime compared to white women (Bulun, 2013; Khan et al., 2014; Florence and Fatehi, 2022).

Age

Our study shows a significant number of diagnosed cases in the reproductive age and more cases with an increase in age, significantly above 35 years, with a peak of 35-39 years old. This is consistent with previous studies, which show that fibroids have become the most common cause of gynecologic conditions among women ages 15-54, and cases in US hospitals increase steadily by age until reaching a peak of 45-49 years and then decline among 50-54 years older women (Marsh et al., 2018).

Parity

The results show that the majority of the cases, 13% (n=18), were of para 0+0, followed closely by para 1+0, 16% of cases (n=10). Para 3+0, n=9 (15%) and para 4+0, n=6 (10%). It is also evident that the fewest cases were presented in para 5+1 and para 3+2 (2%, n=1, and 2%, n=1, respectively). We discovered that in most cases of uterine fibroids, 13% were null parous, with the fewest cases, 2%, being seen in women of higher parity, such as para 5+2 and Para 3+2. However, many cases were also seen in para 3+0 and 4+0. A study by Wu et al. (2020) in China showed that higher parity was protective against uterine fibroids. This study supports our findings that parity partially plays a protective role, as stated, by interrupting continuous endogenous estrogen and progesterone exposure,

hence higher cases in null parous women. Uterine involution after pregnancy to a previous small size results in tissue remodelling, hence getting rid of smaller fibroids. The fewest cases are seen with para 5+0. However, this does not apply if the fibroid size was critical by the time of pregnancy, which may be supported by still high cases in para 3+0 and 4+0. Our findings are in tandem with the existing research on uterine fibroids.

Menarche

There is a positive relationship between the age of menarche and the occurrence of uterine fibroids. Based on our research, there is an increase in the number of cases of fibroids among women who got their menarche at 13 years and below. The peak age was 13 years, and the lowest was 11. About 10% of the cases had their menarche at 11 years of age, 25% at 12 years, 44% at 13 years, 11.9% at 14 years, 5.9% at 15 years and finally 1.4% at 16 years of age. Also, subjects between ages 11 and 12 had the most enormous fibroids and were associated with multiple fibroids. Our findings showed that an age at menarche of more than 13 years is associated with a decreased risk of fibroids, while less than 13 years is associated with an increased risk of fibroids. These findings are in tandem with existing research that early menarche is associated with an increased risk of uterine fibroids (Siegel et al., 2024; Dragomir et al., 2010; D'Aloisio et al., 2010).

Signs and Symptoms

Majority of the patients, 22 (33%), presented with both vaginal bleeding and lower abdominal pain. Out of the 67 cases, 17 (25%) patients presented with per vaginal bleeding; 7 (10%) with lower abdominal pain; 6 (9%) had both per vaginal bleeding and an abdominal mass; 5 (7%) had irregular menses, lower abdominal pain and abdominal mass; 6 (9%) had per vaginal bleeding, lower abdominal pain with features of anaemia; and 4 (6%) presented with failure to conceive and irregular menses. Features of anaemia included dizziness, headache, fatigue, lightheadedness, and

malaise. According to existing literature, most uterine fibroid cases are asymptomatic, and the diagnosis is mostly challenging (Oindi & Mwaniki, 2019). However, our results show that most patients presented to the hospital already with the symptoms mentioned above, indicating that most patients would present to the hospital for treatment once the symptoms set in. The results are in tandem with existing literature, which points out that for symptomatic uterine fibroid patients, the most common symptom is abnormal uterine bleeding, with other associated symptoms being pelvic pain, pelvic pressure, and subfertility (Oindi & Mwaniki, 2019).

Diagnosis and Uterine Fibroid Sizes

Our study found that uterine fibroid diagnosis is mainly through history, physical examination, and ultrasound. Most of these women presented with a history of lower abdominal pain and vaginal bleeding on history and physical examination. Others presented with abdominal swelling, heavy menses, irregular menstruation, and subfertility. Most patients had abdominal ultrasound done with few cases of transvaginal ultrasound. From the results, 85% of the patients had an abdominal ultrasound report in the files, while 15% did not have the ultrasound report in the files. On ultrasound, the uterine fibroid appeared concentric, solid, and hypoechoic. The report indicated the sizes, number, and location of the fibroids. The size was measured in two dimensions (length and width) or three (length, width, and height), and from what we gathered, the fibroid sizes varied from 0 to 20 cm. The majority of the fibroids, 43%, ranged between 0-5 cm, while the smallest percentage was between 16-20cm, covering only 3%. From this, we can see that most patients will present to the facility when the sizes are still small, while few present with bigger sizes. Determining the fibroid's size is essential in deciding on the management modality. On the number, some patients had a single fibroid, while others had multiple fibroids. Some were too small in multiples, making it difficult to get the

measurements. The first indication that a person has uterine fibroid is from history and examination manually. Several methods include TVU, transabdominal ultrasonography, sonohysterography, hysteroscopy, and MRI (Ahmad et al., 2023). Ultrasound is the method of choice in confirming uterine fibroids; it uses sound waves to look into the uterus, map it, and measure the fibroid.

Treatment modalities

Our research shows that 42% (n=28) of women were managed fibroids via TAH. The percentage of women who underwent myomectomy was 27% (n=18). Both TAH and bilateral salpingectomy were done in 2%(n=2) of women. TVH was done on 4% (n=3) of women, while only 1%(n=1) had a subtotal hysterectomy. However, 22% (n=15) never underwent surgery and were put on follow-up medications and hematinic. Therefore, our research shows that various treatment modalities were recommended to manage fibroids depending on the severity of the symptoms and size of the fibroids. A relatively noticeable percentage of women, 22% (n=15), were on follow-up without any surgery, which shows that not all fibroids require surgical removal for patients to improve. Our findings are consistent with the existing literature on the treatment of uterine fibroids, which points out that treatment for fibroids is often surgical, as it has proven to be the most effective method (Florence and Fatehi, 2022).

CONCLUSION

In conclusion, according to the research done, the prevalence of uterine fibroids among females of reproductive age admitted to the gynaecological ward was found to be four percent. This high prevalence of uterine fibroids is consistent with the existing research, which indicates that black women have a higher incidence of uterine fibroids. Most of the cases occurred in patients between the ages of 35 and 39, most of whom had low parity. The association between the occurrence of uterine

fibroids and parity came out clearly in our research, indicating that high parity is protective against the development of fibroids. Low parity is a high-risk factor, with most cases occurring in nulliparous women. The research also revealed that the main presentation was vaginal bleeding and lower abdominal pain. Diagnosis was made through history, physical examination, and ultrasound. TAH was the primary management modality of uterine fibroids among women of reproductive age who were admitted to the gynaecological ward in JOOTRH.

Recommendations

We recommend that JOOTRH and the county ministry of health conduct public awareness campaigns regarding fibroids to ensure that more patients can access healthcare services offered at the facility, hence improving their quality of life.

We recommend that further studies be conducted to validate our findings. These studies should have a larger sample size to get an accurate picture of the prevalence of fibroids in the region. This will help acquire resources from the MOH for the management of fibroids.

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