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Epidemiology of Gynecological Malignancies in Uniosun Teaching Hospital Osogbo Nigeria: A Five-Year Retrospective Review

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Abstract

Background

Gynecological malignancies constitute a major public health burden in low- and middle-income countries, where late presentation and limited access to screening and treatment persist despite global advances in prevention and care. Regional data on disease burden and outcomes are essential for targeted intervention.

Objective

To determine the prevalence, histopathological pattern, management, and outcome of gynecological malignancies at UNIOSUN Teaching Hospital, Osogbo, Nigeria, over a 5-year period.

Methods

This retrospective descriptive study reviewed the gynecological malignancies recorded in UTH, Osogbo between 1st August 2020 and 30th September 2025. Data on sociodemographic characteristics, parity, tumor type, treatment modality, and treatment outcome were extracted from medical records. Statistical analysis was performed using IBM SPSS Statistics version 20.

Results

Of 3,000 patients managed for gynecological conditions during the study period, 131 had gynecological malignancies, giving a prevalence of 4.4%. The mean age was [insert if available] years. Cervical cancer was the most common malignancy, accounting for 58 cases (44.3%), followed by ovarian cancer, 37 cases (28.2%), choriocarcinoma, 24 cases (18.3%), endometrial cancer, 11 cases (8.4%), and vaginal cancer, 1 case (0.8%). Chemoradiation alone was the primary treatment modality in 58 patients (44.2%), while 40 patients (30.5%) had surgery combined with chemotherapy. At the end of the review period, 104 patients (79.4%) were alive, while 27 patients (20.6%) had died. Ovarian cancer accounted for the majority of deaths, followed by cervical and endometrial cancers.

Conclusion

Cervical cancer remains the leading gynecological malignancy in this setting, with ovarian cancer contributing disproportionately to mortality. Strengthening cervical cancer screening, HPV vaccination programs, public awareness, and early referral pathways is critical to reducing the burden and improving outcomes of gynecological cancers in resource-limited settings.

INTRODUCTION

Gynecological malignancies represent a diverse group of cancers affecting the female reproductive tract, including the cervix, ovaries, uterus, vulva, vagina, and fallopian tubes.[1] These cancers remain a significant public health challenge globally, with disproportionate burden in low- and middle-income countries (LMICs) where resources for prevention, early detection, and treatment are often limited.[1,2] Despite advances in screening, vaccination, and therapeutic modalities in high-income countries, many LMICs continue to experience high incidence and mortality rates from these preventable and treatable cancers.[2,3]

The epidemiology of gynecological malignancies varies considerably across geographical regions, reflecting differences in socioeconomic development, healthcare infrastructure, cultural practices, and the prevalence of risk factors.[1] In developed nations, organized screening programs and human papillomavirus (HPV) vaccination have led to a significant decline in cervical cancer incidence, with endometrial cancer now emerging as the most common gynecological malignancy.[4] Conversely, in sub-Saharan Africa and other resource-limited settings, cervical cancer remains the predominant gynecological malignancy, accounting for up to 77.7% of new cases, largely due to the absence of widespread screening and limited access to HPV vaccination.[5,6]

Global burden estimates from GLOBOCAN 2022 reported approximately 1.47 million new cases of gynecological malignancies worldwide, with 680,372 associated deaths.[3] The highest incidence rates were observed in Eastern Africa, exceeding 50 per 100,000 population, while Northern Africa had a lower incidence rate of 17.1 per 100,000. Mortality rates mirrored these patterns, with East Africa recording the highest at 35.3 per 100,000, compared to 8.1 per 100,000 in Australia and New Zealand.[3,8] These stark disparities underscore the critical role of healthcare infrastructure and preventive services in shaping cancer outcomes.

Several risk factors have been identified for gynecological malignancies, with variations across cancer types. For cervical cancer, key risk factors include HPV infection, early sexual debut, multiple sexual partners, high parity, smoking, and immunosuppression.[8,9] Ovarian cancer risk is associated with nulliparity, late age at menopause, and genetic mutations such as BRCA1 and BRCA2, while oral contraceptive use and multiparity are protective. Endometrial cancer is strongly linked to unopposed estrogen exposure, obesity, diabetes mellitus, and late menopause.[10] Choriocarcinoma risk is related to prior gestational trophoblastic disease and maternal age extremes.[11]

The pattern of gynecological malignancies is dynamic and influenced by ongoing epidemiological transitions, urbanization, and changes in reproductive behaviors.[8] Understanding the local pattern is essential for health planning, resource allocation, and the development of targeted prevention and control strategies. Facility-specific data provide critical insights into the burden of disease within a catchment area, guiding clinical services and public health interventions.

In Osun State, Southwestern Nigeria, there is a paucity of published data on the pattern of gynecological malignancies. Osun State University (UNIOSUN) Teaching Hospital, Osogbo, serves as a major referral center for the state and surrounding regions. Characterizing the pattern of gynecological cancers in this facility will contribute to the body of knowledge on cancer epidemiology in Nigeria and inform state-level cancer control policies.

This study therefore aimed to determine the prevalence and pattern of gynecological malignancies recorded at UNIOSUN Teaching Hospital, Osogbo, over a five-year period, and to assess the associations between age, parity, and the different types of gynecological malignancies.

MATERIALS AND METHOD

The study was conducted at the Osun State University Teaching Hospital (UTH), Osogbo, Osun State in November, 2025. It is a referral centre that receives patients from within Osogbo and neighboring towns and states. This retrospective descriptive study reviewed the gynecological malignancies recorded in UTH, Osogbo between 1st August 2020 and 30th September 2025. Records of patients managed for gynecological malignancies were retrieved from the Medical Health Record Department of the hospital.

A proforma was prepared for data collection. Data obtained include socio-demographic parameters such as age, marital status, highest level of education, religion, occupation and tribe. Information on parity and the type of gynecological malignancy were also recorded. All patients who had gynaecological malignancy at UNIOSUN Teaching Hospital, Osogbo, during the study period were included in the study whereas those whose data of interest were incomplete during data collection and those without histological diagnosis were excluded from the study.

The data was analyzed using IBM SPSS Statistics version 20 (IBM Corp; Armonk, NY, USA). The results were presented in frequency tables and simple percentages. The chi-square was used to test the association between the demographic parameters age and parity, and pattern of gynecological malignancies. Ethical approval was obtained from the Ethical Committee of UTH, Osogbo (UTH/REC/2025/11/1410).

RESULT

A total of 131 women had gynecological malignancy out of 3000 gynecological cases in the hospital within the 5-year period. Thus, gynecological malignancies accounted for 4.3% of all patients admitted for gynecological conditions during this period.

Sociodemographic data of the patients

Table 1 presents the sociodemographic data of the patients. The mean age of the respondents was 50.69 ± 12.68 years. The majority, 56 (42.7%), were aged 55 years and above. Most patients were

married (92, 70.2%), of Yoruba ethnicity (126, 96.2%), and Christian (87, 66.4%). In terms of education, 43 (32.8%) had tertiary education. Traders constituted the largest occupational group (78, 59.5%). The mean parity was 3.16 ± 1.79, with 59 patients (45.0%) having parity 0–2.

Table 1
Demographic Data

Variable	Frequency	Percentage (%)
Age Group		
15–24	3	2.3
25–34	13	9.9
35–44	20	15.3
45–54	39	29.8
55 and above	56	42.7
Mean ± SD	*50.69 ± 12.68*	
Marital Status		
Married	92	70.2
Single	6	4.6
Divorced/Separated	2	1.5
Widow	31	23.7
Religion		
Muslim	44	33.6
Christian	87	66.4
Tribe		
Yoruba	126	96.2
Igbo	4	3.1
Hausa	1	.8
Level of Education		
No Formal Education	30	22.9
Primary	20	15.3
Secondary	38	29.0
Tertiary	43	32.8
Parity		
0–2	59	45.0

Variable	Frequency	Percentage (%)
Age Group		
3–4	23	17.6
5 And Above	49	37.4
Mean ± SD	*3.16 ± 1.79*	
Occupation		
Trader	78	59.5
Civil Servant	18	13.7
Others	35	26.7

Types of gynecological malignancies

The commonest gynecological malignancy identified in this study is cervical cancer in 58(44.3%) patients. This is followed by ovarian cancer 37(28.2%), choriocarcinoma 24(18.3%), endometrial cancer 11(8.4%) and one case of vagina cancer (0.8%). No case of vulva and fallopian tube tumor was recorded. (Fig. 1)

Association between Age and Type of Gynecological Malignancy

Overall, 95 patients (72.5%) with gynecological malignancies were aged 45 years and above. Cervical cancer was predominantly recorded among women aged 45 years and above (54, 93.1%), with no cases in women under 35 years. Ovarian cancer occurred across all age groups but was most common in women aged 55 years and above (20, 54.1%). All patients with endometrial cancer (11, 100%) and the single case of vaginal cancer were aged 55 years and above. In contrast, choriocarcinoma predominantly affected women under 45 years (23, 95.8%).

Association between Parity and Type of Gynecological Malignancy

Table 3 shows the association between parity and type of gynecological malignancy. Gynecological malignancies were more common in women with parity 3 and above (72, 55.0%) compared to those with parity 0–2 (59, 45.0%). Mean parity differed significantly across cancer types (one-way ANOVA: $F(4,126) = 19.76$, $p < 0.001$), with a large effect size ($\eta^2 = 0.39$). Choriocarcinoma had the lowest mean parity (1.17 ± 0.38), followed by ovarian cancer (1.35 ± 0.72), endometrial cancer (2.27 ± 1.00), cervical cancer (2.52 ± 0.68), and vaginal cancer (3.00 ± 0). Post-hoc analysis (Tukey HSD) revealed significant differences between ovarian cancer and cervical cancer ($p < 0.001$) and between choriocarcinoma and cervical cancer ($p < 0.001$).

Table 2
Association between Age and Gynecological Maligancy

Variable	Cervical (%)	Ovarian (%)	Endometrial (%)	Choriocarcinoma (%)	Vagina (%)	χ^2	p-Value
Age Group						94.429	0.001*
15–24	0 (0.0)	1 (2.7)	0 (0.0)	2 (8.3)	0 (0.0)		
25–34	0 (0.0)	4 (10.8)	0 (0.0)	9 (37.5)	0 (0.0)		
35–44	4 (6.9)	4 (10.8)	0 (0.0)	12 (50)	0 (0.0)		
45–54	30 (51.7)	8 (21.6)	0 (0.0)	1 (4.2)	0 (0.0)		
55 and above	24 (41.4)	20 (54.1)	11 (100)	0 (0.0)	1 (100)		
Mean ± SD	*53.53 ± 6.68*	*51.81 ± 13.30*	*67.82 ± 7.52*	*34.04 ± 6.61*	*56 ± 0*		
Parity						67.530	0.001*
0–2	6 (10.3)	29 (78.4)	4 (36.4)	20 (83.3)	0 (0.0)		
3–4	16 (27.6)	3 (8.1)	0 (0.0)	4 (16.7)	0 (0.0)		
5 and above	36 (62.1)	5 (13.5)	7 (63.6)	0 (0.0)	1 (100)		
Mean ± SD	*2.52 ± 0.68*	*1.35 ± 0.72*	*2.27 ± 1*	*1.17 ± 0.38*	*3 ± 0*		

SD = Standard deviation χ^2= chi-square, *= significant

Treatment Offered for gynecological malignancy

Table 3 shows the various treatments offered to the patients that were evaluated over the period under review. Generally, majority (44.2%) were referred for chemoradiation alone, 30.5% received surgery/chemotherapy, 18.5% received chemotherapy alone and 6.8% had surgery alone. Based on individual cancers, all the patients with cervical cancer were referred for chemoradiation, all of the choriocarcinoma patients received chemotherapy alone, 54.5% of the endometrial cancer patients received surgery alone, 94.6% of ovarian cancer cases received a combination of surgery and chemotherapy.

Table 3
Treatment Offered for gynecological malignancy

Type of Gynecological Malignancy	Reffered for Chemoradiation (%)	Chemotherapy Alone (%)	Surgery (%)	Surgery /Chemotherapy (%)
Cervical	58(100)	0(0.0)	0(0.0)	0(0.0)
Ovarian	0(0.0)	0(0.0)	2(5.4)	35((94.6)
Endometrial	0(0.0)	0(0.0)	6(54.5)	5(45.5)
Choriocarcinoma	0(0.0)	24	0(0.0)	0(0.0)
Vagina	0(0.0)	0(0.0)	1(100)	0(0.0)
Total	**58(44.2)**	**24(18.5)**	**9(6.8)**	**40(30.5)**

Overall outcome of gynecological malignancy

Out of the 131 cases of gynecological malignancy, 104(79.4%) were alive and 27(20.6%) were dead as at 2023. Ovarian malignancy contributed to the majority of the mortality followed by cervical cancer with endometrial cancer having the least contribution to the overall mortality. (Fig. 2)

DISCUSSION

Gynecological malignancy constituted 4.3% of gynecological cases during the period of this study. This is comparable to 5.4% reported in Jos but lower than 11.7% and 17.4% reported in Kano and Enugu respectively.[12,13,14] Cervical cancer is the commonest gynecological cancer in this study and this is consistent with what was reported in previous studies done in Nigeria and Nepal.[15,16] The proportion of cervical cancer (44.3%) in this study is however lower when compared with 74.9%, 73.2% and 66.3% reported in Jos and Enugu respectively.[9,13] These findings indicate that the incidence of cervical cancer is still high in sub-Saharan Africa. To tackle this menace of cervical cancer, the Government and other relevant stakeholders in developing countries need to identify cervical cancer as a major public health problem and allocate appropriate resources to its prevention and management.

The mean age of presentation of cervical cancer in this study was 53.53 ± 6.68 years. This is comparable to 57.5 ± 12.63 years documented in south Eastern Nigeria.[15] It is however higher than the mean age of 46.25 ± 4.99 years reported in a study conducted in Northern Nigeria probably due to cultural practices of early marriage and polygamy.[12]

Ovarian cancer constituted 28.2% of gynecological malignancy and is the second commonest gynecological malignancy in this study. This finding is similar to 21.1% and 28.1% reported in Enugu and Abuja respectively.[9,16] This is however higher than 19.2% and 15.3% reported from Abakaliki and Jos

respectively.[13,18] The mean age of presentation was 51.81 ± 13.30 years which was similar to 57 ± 4.5 years reported in Kano but is however higher than 45.4 ± 17.1 and 45.7 ± 4.3 years reported in Enugu and Lagos respectively probably due to better health care seeking behaviour.[12,14,19]

Choriocarcinoma was the 3rd leading cause of gynecological malignancy in this study and it contributed to 18.3% of gynecological malignancies in this study which is higher than 2.7% and 6.6% reported in previous literatures.[6,17] This is probably due to poor knowledge of gestational trophoblastic disease and late presentation of the patients This study showed that choriocarcinoma is relatively a disease of younger and perimenopausal women which may be attributed to pregnancy and active reproductive life.

Endometrial cancer accounted for 8.4% of the gynecological malignancies in this study and this is comparable to 10.2% and 10.1% reported in Abuja and Abakaliki respectively.[17,18] This is however lower than 30.5% reported in Zaria.[20] The mean age for endometrial cancer in this study was 67.82 ± 7.52 years which is comparable to 62.4 ± 8.4 years reported in Kano but less than 50.54 ± 15.18 and 56.1 ± 12.7 years reported in Abuja and Enugu respectively.[12,15,17]

Vagina cancer does not occur commonly as documented in previous studies from other parts of Nigeria.[17,18] The incidence of vaginal cancer in this study was 0.8% which is comparable to 1.1% reported in Enugu.[6]

The treatment modality offered for majority of the cases in this study was referral for chemoradiation as recorded in 44.2% of the cases. This was closely followed by combined surgery/chemotherapy (30.5%), chemotherapy alone (18.5%) and few had surgery alone (6.8%). This is in concordance with the common treatment approach where early-stage diseases are managed with chemoradiation depending on the type of cancer and later stages with combined surgery/chemotherapy.[21]

The overall survival rate in the period under review was 79.4% and mortality was 20.6%. The high survival rate might be due to the fact that the commonest malignancy in this study was cervical cancer and early presentation and prompt treatment probably led to the better survival rate. Additionally, all the cases of choriocarcinoma which curable with chemotherapy all had appropriate treatment which definitely improved the general overall survival rate. It was shown in this study that ovarian cancer contributed the highest mortality amongst all the cases. This may be attributed to the late presentation and advanced stage of the disease at the time of presentation.

This study demonstrated a significant association between age and the type of gynecological malignancy ($p < 0.001$), with cervical and endometrial cancers predominantly occurring in older women, while choriocarcinoma affected younger women of reproductive age. The finding that 93.1% of cervical cancer cases occurred in women aged 45 years and above aligns with the natural history of HPV-related cervical carcinogenesis, which typically takes 10–20 years from persistent HPV infection to the development of invasive cancer.[10] This age distribution is consistent with reports from other Nigerian studies, where the peak incidence of cervical cancer occurs in the fifth and sixth decades of life.[12,15] The

absence of cervical cancer cases in women under 35 years in our study is noteworthy and may reflect a lower prevalence of high-risk HPV infection in this age group, though it could also suggest underdiagnosis due to limited screening services. This finding underscores the importance of targeting screening programs toward women aged 30 years and above, as recommended by the World Health Organization, while also emphasizing the need for HPV vaccination in adolescent girls to prevent future cases.[22]

The observation that all endometrial cancer cases (100%) occurred in women aged 55 years and above with a mean age of 67.82 ± 7.52 years is consistent with the known epidemiology of this malignancy. Endometrial cancer is typically a disease of postmenopausal women, with the majority of cases diagnosed between ages 55 and 70 years.[10] The mean age in our study is slightly higher than the 62.4 ± 8.4 years reported in Kano but comparable to findings from other Nigerian centers.[12] This age distribution reflects the cumulative effect of prolonged unopposed estrogen exposure, which is associated with obesity, late menopause, and conditions such as polycystic ovarian syndrome. The predominance of endometrial cancer in older women in our setting may also reflect the fact that these patients are more likely to present with postmenopausal bleeding, a symptom that prompts earlier medical evaluation compared to the often subtle early symptoms of ovarian cancer.[10],[17]

Ovarian cancer occurred across all age groups but was most common in women aged 55 years and above (54.1%), with a mean age of 51.81 ± 13.30 years. This distribution is consistent with the well-established fact that ovarian cancer is predominantly a disease of perimenopausal and postmenopausal women, though it can occur at any age.[10]

In contrast, choriocarcinoma predominantly affected women under 45 years (95.8%), with a mean age of 34.04 ± 6.61 years. This finding is consistent with the epidemiology of gestational trophoblastic disease, which is linked to pregnancy and active reproductive life.[11] The higher proportion of choriocarcinoma in our study (18.3%) compared to other Nigerian reports (2.7%–6.6%) may reflect a higher burden of molar pregnancies in the study setting, possibly related to poor access to early antenatal care and delayed diagnosis of benign trophoblastic disease.[6],[17] This age distribution has important clinical implications, as choriocarcinoma is highly curable with appropriate chemotherapy, and early diagnosis in young women can preserve fertility. The findings underscore the need for clinicians to maintain a high index of suspicion for choriocarcinoma in women of reproductive age presenting with abnormal vaginal bleeding, especially following a molar pregnancy or abortion.[11]

The significant association between parity and the type of gynecological malignancy ($p < 0.001$) observed in this study aligns with established epidemiological evidence. Cervical cancer was associated with the highest mean parity (2.52 ± 0.68), with 62.1% of cases occurring in women with parity 5 and above. This finding is consistent with the well-documented relationship between high parity and increased risk of cervical cancer.[23] The biological mechanism is thought to involve increased susceptibility to HPV infection due to cervical trauma during childbirth, hormonal changes during pregnancy that may promote HPV persistence, and the immunosuppressive state associated with

pregnancy.[23] Additionally, women with high parity in resource-limited settings often have limited access to screening services, further contributing to their risk of developing invasive cervical cancer. This finding emphasizes the need for targeted cervical cancer screening efforts among multiparous women in Nigeria.

Choriocarcinoma had the lowest mean parity (1.17 ± 0.38), with 83.3% of cases occurring in women with parity 0–2. This is consistent with the fact that choriocarcinoma is a complication of pregnancy and can occur after any type of pregnancy, including first pregnancies. The lower parity observed in these patients may reflect the fact that choriocarcinoma is more common in younger women who have not yet achieved higher parity, as well as the potential for the disease to affect fertility, thereby limiting subsequent pregnancies.[11] The fact that 16.7% of choriocarcinoma cases occurred in women with parity 3–4 suggests that the disease can also affect women of higher parity, highlighting the need for vigilance across all reproductive-age women.

Ovarian cancer was also associated with relatively low parity, with 78.4% of cases occurring in women with parity 0–2 and a mean parity of 1.35 ± 0.72. This finding supports the established protective effect of multiparity against ovarian cancer, which is thought to be mediated by the reduction in the number of ovulatory cycles, leading to decreased ovarian epithelial trauma and reduced exposure to gonadotropins.[10] The observation that the majority of ovarian cancer cases in this study occurred in women of low parity (0–2) is consistent with findings from other Nigerian studies and has implications for risk assessment and counseling of women presenting with ovarian masses. This is particularly relevant in the study setting, where women are often encouraged to have larger families, and those who remain nulliparous or have few children may not be recognized as being at higher risk for ovarian cancer. While this study focused on malignant ovarian tumors, the clinical evaluation of ovarian masses in must also consider benign etiologies. Benign ovarian neoplasms such as mature cystic teratomas can present with similar diagnostic challenges, particularly in younger age groups, and may require fertility-preserving surgical approaches. A recent case report highlighted such a presentation in a prepubertal girl with bilateral giant ovarian masses and torsion, underscoring the need for a comprehensive diagnostic approach for all ovarian masses, regardless of the patient's age.[24] This reinforces the importance of histopathological confirmation for accurate diagnosis and appropriate management.

Endometrial cancer, in contrast, showed a bimodal distribution in relation to parity, with 36.4% occurring in women with parity 0–2 and 63.6% in women with parity 5 and above (mean parity: 2.27 ± 1.00). The protective effect of multiparity against endometrial cancer is well established, attributed to the shedding of endometrial cells during pregnancy and the antiproliferative effect of progesterone.[10] This finding may indicate that women of high parity in the study setting have had limited access to healthcare and may present at a more advanced stage, leading to a higher likelihood of diagnosis. Further studies are needed to explore the interaction between parity and other risk factors for endometrial cancer in the study population.

Conclusion/Recommendations

Gynecological malignancy is still a cause of significant morbidity and cervical cancer remains the commonest gynecological cancer despite declining incidence in developed countries. Choriocarcinoma also contributes significantly to the burden of gynecological malignancies in this study overtaking endometrial carcinoma as the third commonest gynecological malignancy.

Health care programs and policies that strengthen public awareness campaigns, health education and promotion like HPV vaccination and follow up surveillance will help to reduce the morbidity and mortality associated with cervical cancer. High index of suspicion and histological examination of all products of conception from early pregnancy losses is also advocated to identify and treat benign trophoblastic disease and prevent malignant transformation.

Strengths and Limitations

This study provides facility-specific data that contribute to understanding the local burden and pattern of gynecological malignancies.

However, several limitations should be acknowledged. The retrospective design relies on the accuracy and completeness of medical records. As a single-center study, findings may not be generalizable to other regions.

Declarations

Ethics approval and consent to participate

This retrospective chart review study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Ethical approval was obtained from the Ethical Committee of UNIOSUN Teaching Hospital, Osogbo (UTH/REC/2025/11/1410). The requirement for informed consent to participate in this study was formally waived by the ethics committee. This waiver was granted because the research involved the analysis of pre-existing, anonymized clinical data extracted from medical records, and posed no more than minimal risk to the study participants. To ensure confidentiality, all patient-identifying information was removed and data were de-identified prior to analysis.

Consent for publication

Not applicable

Competing interests

The authors know no competing interest for this study.

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Author Contribution

SBO, HOA and KA worked on the study design; HOA, AOO and TAB collected data; MAO and EDO analyzed the data; SBO, HOA, SCA and KA ensured accuracy; SCA, EDO and HOA were major contributors in writing the manuscript. All authors read and approved the final manuscript.

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Data Availability

The datasets generated and/or analyzed during the current study are not publicly available due to the restrictions imposed by the ethics approval obtained for this retrospective review. These data were extracted from the medical records of Osun State Univeristy Teaching Hospital and contain potentially identifiable patient information.

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Figures

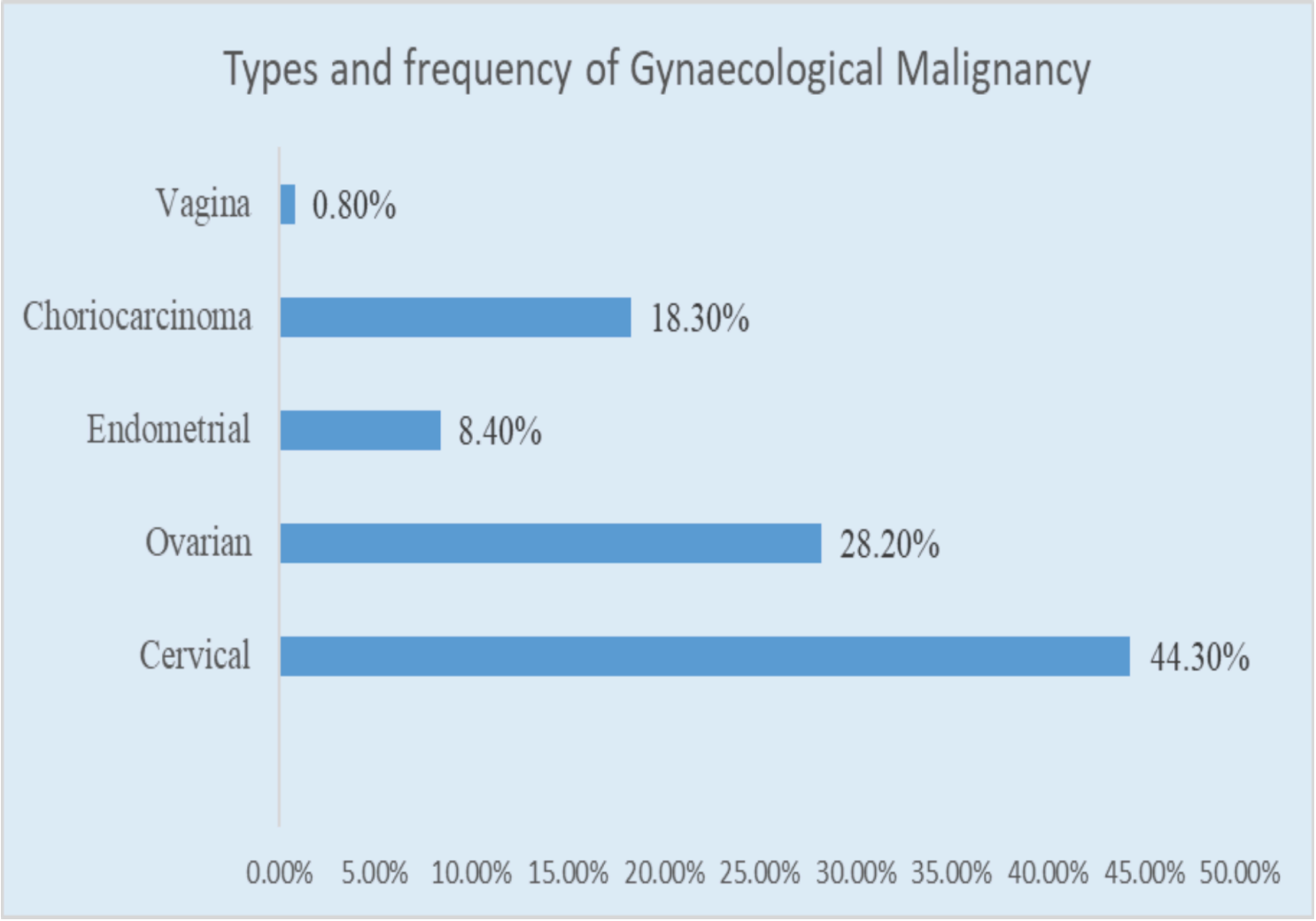


Figure 1

Types and frequency of Gynecological Malignancy

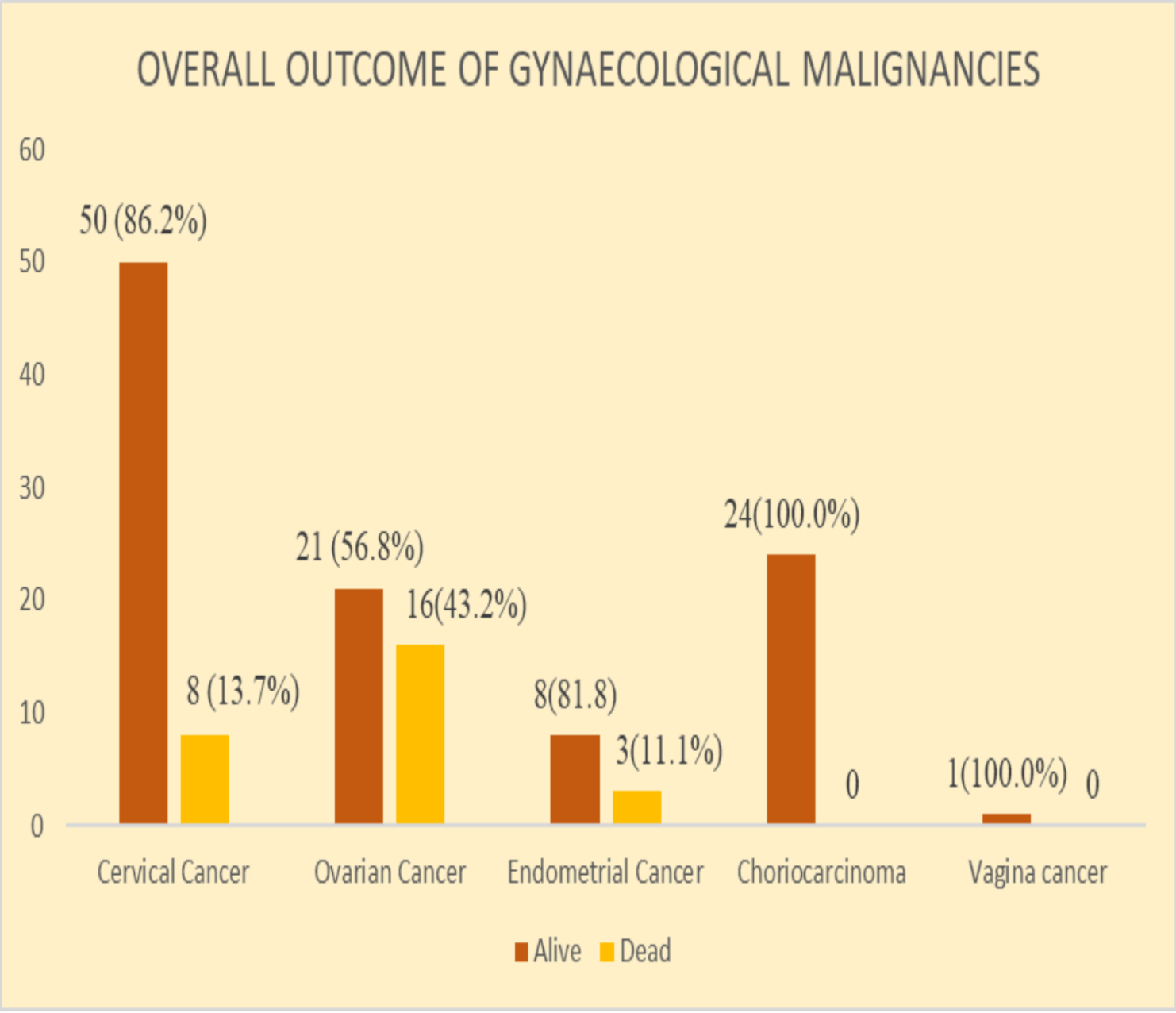


Figure 2

Overall outcome of gynecological malignancies