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REVIEW

# Epidemiological Situation and Medical Management of Gynaecological and Breast Cancers from 1998 to 2018 in West Africa: A Systematic Review

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## Abstract

**Objective:** Gynaecological cancers are public health diseases and contribute to the global burden of diseases. In West Africa most have been carried out on all gynaecological and breast cases to describe the epidemiological features and management modalities. **Methods:** Our research covered a period from 1998 to 2018. The terms "gynaecological cancers" and "West Africa"; are used to find records in the research databases (PubMed, ScienceDirect, Scopus and Google Scholar). There are countries (Cape Verde, Guinea, Gambia, Liberia, Sierra Leone) in which we have not found any work in the research databases. The process for selecting studies followed selection steps based on PRISMA 2009. **Result:** Cervical cancer is the commonest, followed by breast cancer, ovarian cancer, uterine or endometrial cancers, vaginal cancer and vulvar cancer. The lowest common was tubal cancers. The two English-speaking countries, Nigeria and Ghana, recorded 60 (60.82%) and 16 (15.68%) articles published respectively. At the same time, these two countries reported the most cases of gynaecological cancers including 72,848 cases (68.97%), 12, 327 cases (11.67%) and 12, 021 cases (11.38%) for Nigeria, Cote d'Ivoire and Ghana respectively. West Africa countries are characterised by poor outcome due to ignorance, superstition, self-denial, late presentation and unavailability of treatment facilities. **Conclusion:** Our study suggests that comprehensive national health insurance schemes as well as preventive strategies, patient and health work force education may improve the current situation. Also, West African countries must necessarily have a policy of acquiring the technical platforms to carry out these diagnostic and prognostic examinations.

**Keywords:** Gynaecological- Cancers- management- West Africa

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## Introduction

According to the International Agency for Research on Cancer, GLOBOCAN 2018 estimated 9.6 million cancer deaths and 18.1 million new cancer cases in 2018 [1]. Gynaecological cancers are public health diseases in the worldwide. Among them, breast cancer is the leading cause of cancer death and the most commonly diagnosed cancer, following by cervical cancer ranks 4th for both incidence and mortality of all cancers, ovary cancer, vulva cancer and vagina [1]. In countries with established screening programs, took place the highest cancer incidence

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rates [2]. The epidemiological outlook for cancers between now and 2020 predicts a continued increase in the number of cancers. This growing impact will have more adverse consequences in developing countries, which will account for 72% of the global burden of disease [3]. The possible reason for the increasing incidence has been suggested as the adoption of Western habits, particularly in the urban population [2]. Of all this, what is the exact situation of cancers and in particular gynaecological cancers in West Africa? Therefore, the purpose of our study is to determine frequency of occurrence, the histological types, symptoms and presenting signs of gynaecological cancers in West Africa.

## Materials and Methods

This study was a systematic review of literature about gynaecological cancers in West Africa during the period of 1998 to 2018. Gynaecological and mammary cancers were defined as cervical cancer, tubal cancer, ovarian cancer, vulvar cancer, vaginal cancer and breast cancer [4].

The search strategy included "Breast cancers" and "West Africa", "ovarian cancers" and "West Africa", "cervical cancers" and "West Africa", vulvar cancers" and "West Africa", "vaginal cancers" and "West Africa", "tubal cancers" and West Africa, and "gynaecological cancers" and "name of each country" in West Africa (including mainly the member countries (15 countries) of Economic Community of West African States (ECOWAS) that are Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal, Sierra Leone, Togo, Cape Verde, Guinea, Gambia, Liberia, and Sierra Leone) (Figure 1) (http://www.ecowas.int/member-states/). Databases of PubMed, ScienceDirect, Scopus and Google Scholar were used in our search.

The process for selecting studies included in the meta-analysis followed selection steps based on clear criteria (Figure 2). Indeed, all the resources obtained from the search bases have been collected in the Endnote software. Then the duplicates were removed. After reading the abstracts of the articles, those that did not deal with our subject of study (gynaecological or mammary cancers) were deleted. Full-text articles of the selected articles were read and only those articles from West Africa that studied at least one histologically confirmed gynaecological or breast cancer were retained for qualitative analysis. In order to ensure that only articles that studied prevalence, treatments received by patients, and stages of diagnosis were retained for quantitative analyses.

### *I. Epidemiological features of gynaecological and breast cancers*

Out of the 102 articles selected, the evolution of the number of articles found in the search bases shows a fluctuation of work depending on the year, with a peak of 17 articles in 2018. This can be explained by an increase of cancer cases, but also by the fact that less research was carried out in this field (Figure 3).

Studies have been carried out on all gynaecological and breast cases to describe the epidemiological features and management modalities. Cervical cancer (40,718 cases) was the most common cancer with 46 papers addressing it. It is followed by ovarian cancer (18,182 cases) then breast cancer (15,218 cases). There were no tubal cancers (Figure 4).

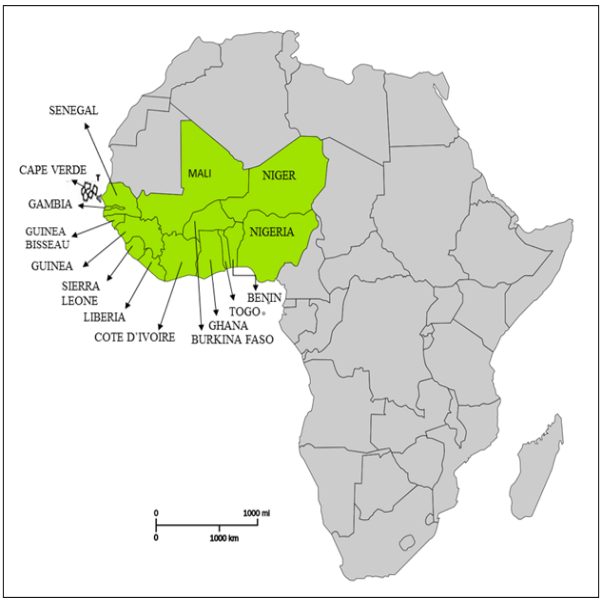


Figure 1. Maps of ECOWAS Countries in West Africa (Adapted by Zouré et al. Source (http://www.ecowas.int/member-states/).

### *All gynaecological and breast cancers*

In West Africa most studies were carried out to determine the frequency of occurrence, symptoms, presenting signs, and features of gynaecological cancers. In Benin, cervical cancer with 54.44% was the leading in 90 gynaecological cases, following by breast cancer accounted for 34.44%, and ovarian cancer (5.57%). The patients have relative age younger with mean age at 45 years [6]. While other study was on 12,808 gynaecological cases in ten years reviewed with 494 gynaecological malignancies. Of these, cervical (62.5%) was also commonest cancer, following by ovarian (17.0%), endometrial cancers (6.8%) and vulva cancer 28 (5.7%) which 78.9% were first diagnosed after the age of 50 years [7]. Likewise, in Ghana, the commonest cancer was cervical cancer constituted 80.4% (2,797) and vulva cancers accounting for 2% (70) while the least was vaginal cancer for 1% (22) from 3,479 cases of gynaecological cancers recorded [8]. Always in Ghana, cervical cancer constituting about 57.8% and was the commonest of gynaecological cancers. In order, ovarian cancer, endometrial cancer, choriocarcinoma and vulvar carcinoma followed [9]. Also, in Nigeria, the lead of gynaecological cases (94) was cervical cancer (44.7%), following by ovarian cancer (29.8%), endometrial carcinoma (6.4%) an vulva carcinoma (1.1%) [10]. Then information provided by these studies and hospital cancer registries, can be used for the improvement of cancer care in low and middle-income countries as Nigeria,

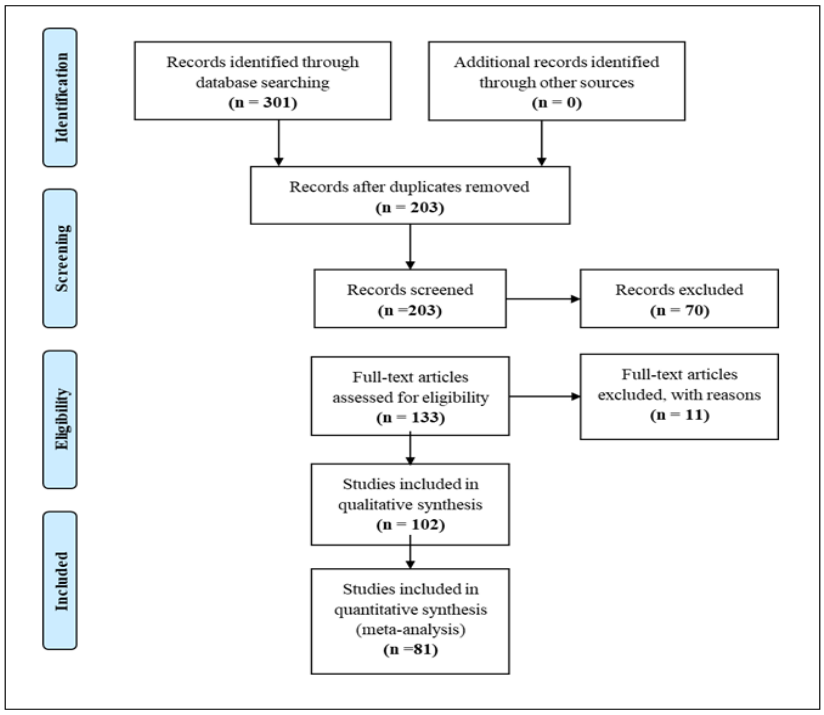


Figure 2. Flow Diagram of Process for Selecting Studies Included in the Meta-analysis According PRISMA 2009 [5].

where on 6,484 gynaecological cancers from 11 hospital cancer registries in 2009 and 2010, breast and cervical cancers were found the most common cancers [11]. Furthermore, from 161 Nigerian women, cervical cancer is the commonest (51.6%), followed by ovarian cancer (35.4%), endometrial cancer (9.9%), and choriocarcinoma (1.9%). The highest mean age was found in vulvar cancer (70 years) and lowest in choriocarcinoma (36 years) [12]. At last, to determine the pattern and frequency of female genital tract cancers in North Eastern of Nigeria (382 cases of gynaecological cancers), cervical cancer was the commonest (70.5%), followed by ovarian cancer (16.3%) and uterus cancer (8.5%) [13]. In University of Ilorin Teaching Hospital, Nigeria, from 166 gynaecological cancers, cervical cancer accounted 59.6% and was the commonest followed by ovarian cancer with 21.1%, trophoblastic cancers represented 7.8% and corpus uteri cancer which accounted 6.0%. Others included cancer of the vulva (3.6%) and cancer of the vagina (1.8%) [14]. All these studies shown that in the features of gynaecological cancers in West Africa, cervical cancer was the most frequent of gynaecological cancers and the least was tubal cancers. In West Africa, this important public health problem need to be addressed in various countries to find the clear pattern to control these cancers [15]. The young age of presentation of all gynaecological cancers and the high incidence cervical cancer underlies the importance of screening programmers' and awareness campaign in West Africa [13].

### *Cervical cancers*

Most of cervical cancers in West Africa were diagnosed already locally advanced [16]. The following studies addressed only cervical cancer to assess the descriptive epidemiology in their work. From Komfo Anokye and Korle Bu Teaching Hospitals, Ghana, 1,725 women with

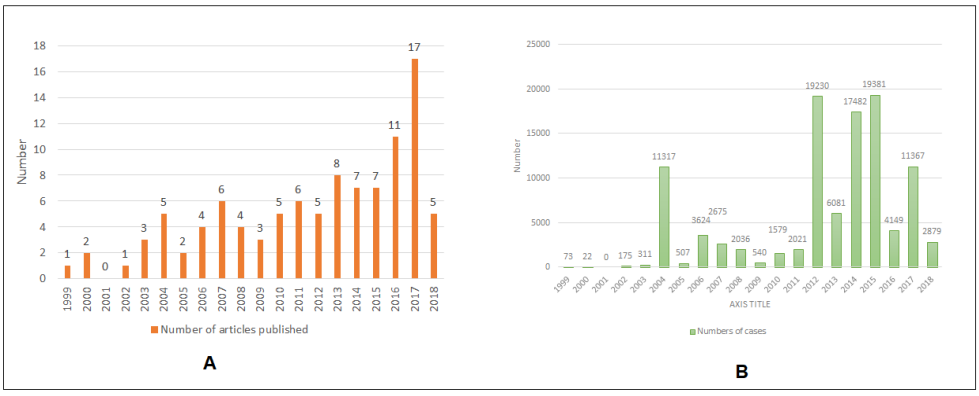


Figure 3. Evolution of Research Work According to the Year. (A) Number of Articles Published and (B) Number of Cases of Gynaecological and Breast Cancers Listed in Published Articles

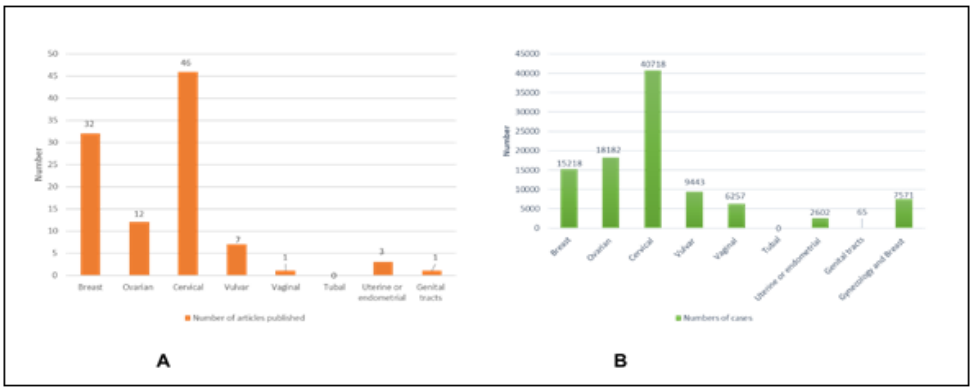


Figure 4. Evolution of Research Work According to Types of Cancers. (A) Number of Articles Published and (B) Number of Cases of Gynaecological and Breast Cancers Listed in Published Articles. Note: the gynaecological and breast group designed articles which addressed several cancers.

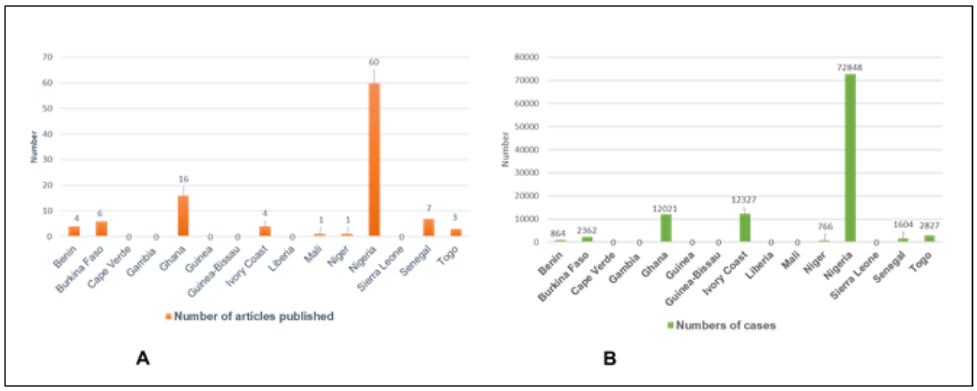


Figure 5. Evolution of Research Work According to Types of Countries. (A) Number of Articles Published and (B) Number of Cases of Gynaecological and Breast Cancers Listed in Published Articles.

cervical cancer were records with 56.9 years as mean age (11-100 years). At cervical cancer, the incidence and mortality rates increased with age between 75 to 79 year and decreased at older ages [17]. Also, in Nigeria, a retrospective review showed that cervical cancer was the leading causes of mortality following by choriocarcinoma, septic abortion and ovarian cancer. Then an organized cancer programme was need to limit morbidity and mortality from malignant disease of the female genital tract [18]. So, cervical cancer is a public health disease in West Africa [19]. In addition to the medical management of these cancers, preventive screening is also often carried out in West Africa. However, in Enugu, south-east, Nigeria, 989 cervical smears were performed over a 10-year period with 65.3% smears were normal. From abnormal smears, 19.5% showed non-specific inflammatory, 13.8% had dyskaryotic cells whereas 1.4% had neoplastic. The participation rate (51% was) very lows. Because the programme was highly subsidized, almost the majority of participants (52.3%) were from the middle class. In cervical cancer screening services, highly subsidised is need to reverse the low participation rate in developing countries [20].

*Ovarian cancers*

Ovarian cancer is the second commonest of gynaecological cancers in some studies in West Africa. Some reasons should be the decreasing fertility rate associated an increasing use of ovulation induction drugs [21]. Thus, in Nigeria, it is the second most common of the gynaecological cancers [7]. In this country, among gynaecological cancers, ovarian cancer has the highest mortality rate with late presentation, because of lack of effective screening methods and non-specific early warning symptoms with late presentation [21]. Furthermore, from Korle-Bu Teaching Hospital in Ghana, two studies on 706 ovarian cancers were reviewed found between January 2001 to December 2010. Germ cell were the most common following by surface epithelial (35-44years) and sex cord stromal [22-23]. Lastly, little information is available on features of ovarian cancers in children and adolescents (<15 years). Over a 22½ year period in Nigeria, childhood ovarian neoplasms presented 2.8% of all cases of ovarian cancers. 58.3% cases of childhood ovarian neoplasms were benign, and 41.7% were malignant [24]. Likewise, in Ghana, of a total of 706 diagnosed 9.5% ovarian tumours in children and adolescents aged, 0 to 19 years over a 10-yr period (2001-2010) were reviewed [25]. In these two countries, mature cystic teratoma was the most common childhood

ovarian neoplasm. Burkitt lymphoma was the most common malignant childhood ovarian tumours [24-25].

*Vulvar and vaginal cancers*

Vulvar and vaginal cancers are the rare tumours of the gynaecological cancers. For vulvar carcinoma, very few studies have looked at the management strategies [26]. For example, in Nigeria, a retrospective study found 344 were gynaecological cancers which of 4.36% were vaginal cancers with 66.67% occurred in adults while 33.33% were in children below the age of 20 years [27]. Also, in Burkina Faso, a prospective study (2 years) noticed 21 vulvar cancers (mean age was 55 years), ranking it as the 4th commonest of gynaecological cancers. Scars from female circumcision and HIV infection were noticed [28]. While in Nigeria, over a 12-year period, there were 867 gynaecological cancers and vulvar carcinoma presented 1.27%. Parity was with an average of 6.7 children [26]. In contrast, vaginal and vulvar cancers were respectively the 4$^{th}$ and 5$^{th}$ most common in Nigeria. Notably, in the USA and the United Kingdom, vulvar cancer is more common than vaginal cancer. These oppose findings could suggest that it is need to use strictly the FIGO guidelines in West Africa, as this tool has implications for clinical management [29].

*Breast cancers*

Among women worldwide, breast cancer has commonest a high mortality rate in low-income countries [30]. In West Africa, breast cancer constitutes an important health disease and is the most common cause of cancer mortality in women [1]. In Togo, a retrospective and descriptive 8-year study found that breast cancer (21.2%) was the most common of gynaecological cancers [31]. In Niger, 245 breast cancers with mean old was 45.4 years, identified in period 2010-2013. Male breast cancers represented 2.05% [32]. In Senegal, between 2007 and 2015, the incidence of women younger under 35 years old with breast cancer was 22.6% [33]. Always, in Senegal, a retrospective and prospective study from 2010 through June 2014, found 188 women patients met the inclusion criteria. Their mean age at diagnosis was 43.3 years [34]. In Nigerian, between 2014 and 2016, an integrative epidemiology of breast cancer study found 316 breast cancers [35]. This confirms that among women, breast cancer is the most commonly diagnosed, with 2.1 million new cases in 2018, and accounts for almost one-quarter cancer cases [1]. However, figure 4 shows that breast cancer, with 15,218 registered cases, was addressed in 32 published articles, second only to cervical cancer (72 published articles).

*Uterine and endometrial cancers*

In our work, very few studies (3 articles) have worked on these cancers. Endometrial cancer is often common among women, but among the researchers, public and clinicians, it need to increase the sensibilisation of endometrial cancer [36]. Whereas, uterine cancers are rare gynaecologic cancers, but with a high mortality. In West Africa, its clinical presentation, frequency and histologic variants need to be known [37]. However, in Nigeria, in cross-sectional study, among 239 women, 48.1% had endometriotic lesions. Dysmenorrhea and pelvic pain were causes of endometrial cancer and dysmenorrhea was more linked endometriosis [36]. Likewise, in Nigeria, a 12-year retrospective from clinico-pathological study revelated 4% uterine cancers of gynaecological cancers. Abnormal vaginal bleeding and malignant mixed mesodermal was the most common (36.4% each) clinical presentation [37].

*II. Management modalities of gynaecological and breast cancers*

The two English-speaking countries, Nigeria and Ghana, recorded 60 (60.82%) and 16 (15.68%) articles published respectively. At the same time, these two countries reported the most cases of gynaecological cancers including 72,848 cases (68.97%), 12, 327 cases (11.67%) and 12, 021 cases (11.38%) for Nigeria, Cote d'Ivoire and Ghana respectively (Figure 5). The modalities of gynaecological and breast cancer management may differ from one country to another depending on the health care system. Thus, delays in care or appropriate medical treatment are important factors in avoiding advanced stages of cancer. It need to increase efforts of the early detection of gynaecological cancers [6].

*Benin*

A study found that invasive ductal carcinomas and invasive squamous cell carcinomas were respectively the most common histological types for the breast and for the cervix. From the onset of first symptoms to first consultation, the median time was 92 days. Most cancers (60.43%) were diagnosed at an advanced stage (stage II, III or IV). The only therapeutic mean available was surgical treatment [6]. In this case, mortality could worsen or relapse due to lack of chemotherapy or radiation treatment. Thus, it is necessary to have a high-performance technical platform with oncologists and radiotherapists to complement the work of the surgeons. Unfortunately, many West African countries have this glaring lack of personnel at the moment.

In addition, poor educational and socioeconomic status likely influenced late for diagnosis and management of vulvar cancer patients. The authors think that good public awareness about vulvar cancer could influence early presentation positively. Hemi vulvectomy, excision biopsy and wide local excision were used in surgical treatment. 35.7% of patients were in-operable and 57.1% of the patients had chemotherapy while 10.7% had radiotherapy [7]. Once again, the rate of access to treatment is not high even if there is treatment available in the country for a given type of cancer.

*Burkina Faso*

A prospective and descriptive study collected 81 breast cancers over ten [10] months to study the place of surgery in the management of breast cancer. The average consultation time was 14.26 months. Tumours T3 to T4 represented 82.71% of cases. 41.97% were immediately operable. 46.91% were operated with a

mastectomy according to Madden in 94.74% of cases and clean surgery in 2 cases (5.26% of cases). Neoadjuvant chemotherapy was performed in 29.63% of cases. Adjuvant chemotherapy was performed in 52.63% of the patients operated on. Evacuation punctures were noted in 23.68% of cases of lymphocele complications. Indications for surgery are limited by the consequent delay in diagnosis of advanced breast cancer. The absence of radiotherapy makes the practice of conservative surgery difficult and mastectomy still plays an important role. Early diagnosis would increase surgical indications [38-39]. There is always the problem of access to treatment. Furthermore, the mean time from first symptoms to first consultation of vulvar cancer was 29 months. The main reasons for consultation were ulceration and pain. More patients were at advanced (stage III, IV) and two thirds patients had metastatic disease. Patients are mostly circumcised and HIV-infection is common. A majority of diagnosis was belatedly made [28]. The education for self- examination and awareness of the population would allow earlier diagnosis. Lastly, breast cancer was diagnosed at late presentation (stage II, III and IV) constituted 93.75 % of cases [40]. In Burkina Faso, patients often resort to traditional medicine or other treatments before coming to a consultation. As a result, health insurance coverage is not yet effective. This could explain why these cancers are very advanced in their diagnosis.

Finally, in West Africa, it need to perform a sequencing of predisposition gene as BRCA genes involved in developing breast cancer [41-42].

*Ivory Coast.*

In West Africa, few studies are carried out on biological factors for cancer diagnosis or prognosis. But for example, breast cancer is a hormone-dependent and heterogeneous disease. For its prognostic evaluation and treatment, the detection of the progesterone receptor (PgR) and estrogenic receptor (ER) is determining. A 20 months prospective study including 302 breast cancers revelated 56% and 49% expressed ER and PgR respectively. The ER+PgR+ (43%) was predominant while ER-PgR- accounted 38%. The systematic use of hormonal treatment should be revaluated [43]. In the absence of hormone receptor results, some patients default to hormone therapy. This is restrictive and costly. Therefore, knowledge of the status of these receptors or any other prognostic factors for cancer could be very useful for patients and clinicians. West African countries must necessarily have a policy of acquiring the technical platforms to carry out these diagnostic and prognostic examinations.

*Nigeria*

Late presentation and poor outcome due to ignorance, superstition, self-denial and unavailability of treatment facilities were characteristics of Nigeria and other West Africa countries. While in Western world, the early detection and better management decreasing the mortality [44]. Thus, incidence of cervical, ovarian and endometrial cancers remains high and presentations are at late stages [12]. In addition, vaginal cancers and uterine sarcomas are rare in Nigeria, but they contribute to high mortality among women [13-27]. Among gynaecological cancers worldwide, ovarian cancer has the highest fatality rate because lack of non-specific early warning symptoms and effective screening methods. 80% of the patients presented in stages III and IV. Only 23.8% had adjuvant therapy using cisplatin. Six months after surgery, the mortality rate was 76% [21]. An integrative epidemiology of breast cancer study found 94.9% of breast cancer which of 67.77% had diagnosed at late stages (II, IV) [35]. The level of education and living in a rural area showed strongly associated with later stage, the knowledge and practice of breast cancer screening methods [35-44]. Breast cancer screening still needs to be promoted among both health workers and general population to improve the attitude and practice detection [44]. Also, in vulvar cancers, most of the patients were of low socio-economic class. In Nigeria, patients had surgery as 1st line treatment or by radical vulvectomy if patients presented in the advanced stage. Radiotherapy and surgery remain the main treatments of this disease in Nigeria and can be highly successful if patients present early. The complications of surgery included haemorrhage, chronic lymphedema, wound infection and anaesthetic complications. Late presentation, with stage III (45.4%) was the commonest stage at presentation [26]. Almost a study demonstrates that laminin expression may have important roles in the aggressive nature observed in the basal-like and triple negative molecular subtype of Nigerian breast cancer women [45]. These kinds of studies are often specific to these West African populations. This could reveal better prognostic receptors but also validate or not prognostic receptors already found in other populations.

Lastly, for cervical cancer, implementation a large scale vaccine introduction, increase sensibilisation and prevent misconceptions about the HPV vaccine should be use by public health education and appropriate communication strategies [46].

*Ghana*

The screening methods to detect premalignant lesions of gynaecology cancers for treatment, in Ghana was low coverage and late presentation of cancers complicates treatment efforts [19]. Indeed, two-thirds of cervical cancers presented in advanced stages [17] as well as ovarian carcinoma presented with advanced disease while most with endometrial carcinoma presented with early stage disease [9]. Late presentation was associated with lack of previous screening. Thus, early cervical cancer screening need intensification of efforts in awareness [19]. Always, the majority (63%) of cervical cancers presented at late presentation with stage IIB or lower. Cobalt 60 external beam radiation therapy (point A was 83 Gy; bladder and rectal points were 71 Gy and 65 Gy, respectively) was followed by 2 low-dose-rate brachytherapy insertions on 3-year over- patients. 69% of patients received 14 cycles of cisplatin. The overall treat-all survival and locoregional recurrence rates of 86% and 19%, respectively. Nearly 300 patients who were offered curative treatment but never returned to start treatment

[16]. This study was the largest series of its kind and was promising outcomes in treatment of cervical cancer with concurrent chemoradiation therapy and brachytherapy in Ghana. It demonstrates what can be achieved with a well-established cancer program in West Africa. Indeed, from 706 ovarian tumours in Ghana, most patients (47.7%) presented within 1 month of onset of symptoms, feeling a lower abdominal mass (38.5%). Patients who develop ovarian tumours have no specific symptoms or signs at presentation, to aid early diagnosis [23]. In contrast, previous studies find Ghanaian women are diagnosed at a younger old and at more advanced stages (III and IV) compared to African Americans and Caucasian Americans [47]. They had an aggressive biology at diagnosis on higher tumour grade of cancer spread and recurrence [48]. Also, the triple-negative molecular marker pattern was the most common subtype of breast cancer, regardless of age, tumour grade, or stage of diagnosis [47]. A region-wide population-based active registry is important to implement cancer control programs and improve survival in West Africa [48]. Research into the molecular pathogenesis of triple-negative may help elucidate the reasons for its increased prevalence among women with African ancestry [47]. The major challenge from vulva cancer in Ghana, was late presentation, higher proportion of advanced disease and non-compliance among patients. In the absence of sophisticated radiation treatment, definitive chemoradiation was associated with modest survival rates (2-5-year overall survival) even if is fraught with treatment interruptions as result of severe toxicities. indeed, there was an 80% and 74% complete clinical response in the primary lesion and lymph nodes [8].

### *Mali*

In West Africa, most breast cancer patients are diagnosed with advanced disease. In Mali, the main barriers throughout a breast cancer patient's pathway from symptom recognition to treatment were a low level of breast cancer knowledge among women, their families, and during the help-seeking interval, mistrust in the community health care centres and economic hardship. During the diagnosis interval, barriers were low quality of health care services and lack of social support, and during the pre-treatment interval lack of specialised services and high costs [30]. To ensure access, affordability, and availability of a minimum quality of health system for gynaecology cancer patients in West Africa, multilevel interventions are needed.

### *Niger*

In this country, emerging cancer and infectious breast diseases were double burden women. 90% of breast cancer presented at advanced stages and the main medical treatment was mastectomy. Common features were younger age and late diagnosis. In diagnosing and treating, patient and system barriers to care were common [32]. Implementation of clinical guidelines for managing advanced cases, reducing barriers to access to care are important needs for reducing cancer morbidity and mortality in Niger.

### *Senegal and Togo*

In Senegal, for breast cancer was most (79% of cases) locally advanced at diagnosis, because the average time to consultation was 12.5 months. Invasive ductal carcinomas were more positive hormone receptors (19.4%) and overexpression of HER-2 (12.9%). 87.1% of patients received chemotherapy and 62.9% were operable by surgery. Recurrence more occurred and mean survival was 36.7 months [33]. Breast cancer occurs in young women, who had their first menses after 12 years, are premenopausal, had their first pregnancy before the age of 30, and breastfed for several months [34].

In Togo, cancers are frequent with a worse prognosis. The most important were the prostate cancer, breast cancer and cervical cancer. To decrease the mortality, emphasis should be placed on early detection and diagnosis [31].

This worrisome situation needs call for a thorough search of the profile, to better identify cancerous pathologies and implement modern health systems that will be able to cope with them.

### *Limitations of the study*

Due to the lack of an effective system of care, the articles do not fully address the issues of medical treatment (chemotherapy, radiotherapy and surgery). This has prevented us from conducting a comparative study of the quality of care between Western countries. Also, some countries really don't have enough published articles on gynaecological cancers. Finally, predisposing factors (genetic, environmental...) are little studied, which makes it difficult to compare the factors for the occurrence of these cancers between West African countries and other countries in the world.

In conclusion, our research covered a period from 1998 to 2018 found that cervical cancer was the commonest, followed by breast cancer, ovarian, uterine or endometrial cancers, vaginal and vulvar. The lowest common was tubal cancers. Nigeria, Cote d'Ivoire and Ghana reported the most cases of gynaecological cancers including 72,848 cases (68.97%), 12, 327 cases (11.67%) and 12,021 cases (11.38%) respectively. West Africa countries have in common a poor outcome due to ignorance, superstition, self-denial, late presentation and unavailability of treatment facilities. Our study suggests that comprehensive national health insurance schemes as well as preventive strategies and a policy of acquiring the technical platforms to carry out these diagnostic and prognostic examinations.

### *Competing interests*

The authors declare no conflict of interests.

### *Author Contribution*

AAZ and BB conceived and designed the study. AAZ and BB collected the data and wrote the manuscript. AAZ, BB, HAB and AYS analysed and interpreted the results. CO, JMAL and JS revised the manuscript. All authors were major contributors in writing the manuscript. All authors read and approved the final manuscript.

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