

# Epidemiology of cancers in women in Kinshasa, Democratic Republic of the Congo

## Abstract

**Introduction:** Cancer is a public health problem in developing countries. It is compounded by diagnostic confirmation difficulties. This study aims to determine the epidemiological profile of cancers in women.

**Methods:** This was a descriptive retrospective study. Data recorded between 2007 and 2021 at the oncology department of the Nganda Hospital Center in Kinshasa (DRC) were used.

**Results:** A total of 1,104 cases of cancer in women have been reported. Breast (46.11%) and cervical (27.45%) cancers were the most common. The mean age was 46.52±13.05 years for breast cancer, 56.12±11.58 years for cervical cancer, and 49.52±18.14 years for other cancers. The trend line over the past 15 years shows an upward curve for breast cancer and a downward curve for cervical cancer.

**Conclusion:** Breast cancer is more common in women followed by cervical cancer. A national cancer registry is needed in the country for effective monitoring of cancer cases.

**Keywords:** cancer, epidemiology, women, breast cancer, cervical cancer, Kinshasa

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Stanislas Maseb'a Mwang Sulu,<sup>1</sup> Désiré Kulimba Mashinda,<sup>2</sup> Olivier Mukuku,<sup>3</sup> Donatien Babaka Batalansi,<sup>1,4</sup> Stanislas Okitotsho Wembonyama,<sup>5</sup> Justin Esimo Mboloko,<sup>6</sup> Antoine Tshimpi Wola<sup>6</sup>

<sup>1</sup>Nganda Hospital Center, Kinshasa, Democratic Republic of the Congo

<sup>2</sup>School of Public Health, University of Kinshasa, Kinshasa, Democratic Republic of the Congo

<sup>3</sup>Institut Supérieur des Techniques Médicales de Lubumbashi, Lubumbashi, Democratic Republic of the Congo

<sup>4</sup>Kinshasa Provincial General Reference Hospital, Kinshasa, Democratic Republic of the Congo

<sup>5</sup>Faculty of Medicine, University of Lubumbashi, Lubumbashi, Democratic Republic of the Congo

<sup>6</sup>Kinshasa University Clinics, Kinshasa, Democratic Republic of the Congo

**Correspondence:** Olivier Mukuku, Institut Supérieur des Techniques Médicales de Lubumbashi, Lubumbashi, Democratic Republic of the Congo, Tel +243997925649, Email oliviermukuku@yahoo.fr

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**Abbreviations:** BC, breast cancer; DRC, Democratic Republic of the Congo; HPV, human papillomavirus; SSA, sub-Saharan Africa; WHO, World Health Organization

## Introduction

Cancer is a global public health issue. It affects all categories of the world's population, regardless of age, gender or socio-economic level. According to estimates for 2020, more than 19 million people worldwide were diagnosed with cancer, and nearly 10 million died in the same year from this disease.<sup>1</sup> Cancer has become a real burden on society and is one of the global health problems in general and in the Democratic Republic of the Congo (DRC) in particular. Currently in sub-Saharan Africa (SSA), anarchic urbanization, food transition, and disorderly lifestyle changes are creating optimal conditions for the emergence of chronic non-communicable diseases, which make cancer epidemic.<sup>2</sup> As a result of the epidemiological transition and the development of risk factors, including sedentary, alcohol consumption, smoking, low fiber diets, and changes in reproductive life,<sup>3</sup> the number of cancer cases is increasing significantly in recent decades. In the DRC, according to data from the World Health Organization (WHO), cervical and breast cancers are the leading cancers in women.<sup>1,4</sup> Mashinda et al.,<sup>2</sup> in their study from 1969 to 2008 based on the registers and protocols of biopsies consulted with the histopathology laboratories of the Kinshasa University Clinics and the General Reference Hospital in Kinshasa, found that cancers of the cervix uteri (27.7%) and breast (13.7%) were the most prevalent in women. Cancer mortality remains high, with low survival linked to poor access to care and late management.<sup>5</sup>

In order to develop effective prevention strategies, reliable surveys are needed that identify the main risk factors and levels specific to each

setting. In our community at present, there are no available cancer registries and the few fragmentary data available are from hospital investigations where histopathological analyzes are available. The cancer registry of the Nganda Hospital Center in Kinshasa allowed us to provide data on cancer in women over 15 years and gives us a profile on the trend of the main cancer sites.

## Materials and methods

This was a descriptive retrospective study. Data recorded between January 2007 and December 2021 at the oncology department of the Nganda Hospital Center in Kinshasa (DRC) were used.

In this study, no inclusion restrictions were imposed. All available records were reviewed. The sampling was thorough and appropriate. All registered cases were considered and only confirmed cancer cases were considered. The variables studied were those reported in the registers, namely: the year of diagnosis, age, sex, and site of cancer (organ affected).

Data were encoded using Epi Info 7.2 software, and analyzes were performed in STATA version 16. These analyzes allowed the calculation of frequencies and central trend measurements for age and the comparison of mean ages between cancer sites, using the ANOVA test.

## Results

A total of 1,104 cancers were recorded among women in the oncology department of the Kinshasa Hospital Center from 2007 to 2021.

The breast was the organ most affected by cancer in women in almost half of the cases recorded (509 or 46.11%). Breast cancer (BC)

is followed by cervical cancer, which involved 303 (27.45%) women. These are the two main sites for cancer in women; the other organs are reached in proportions of between 0.18% and 4.71%. For all cases, organs affected by cancer are shown in Figure 1.

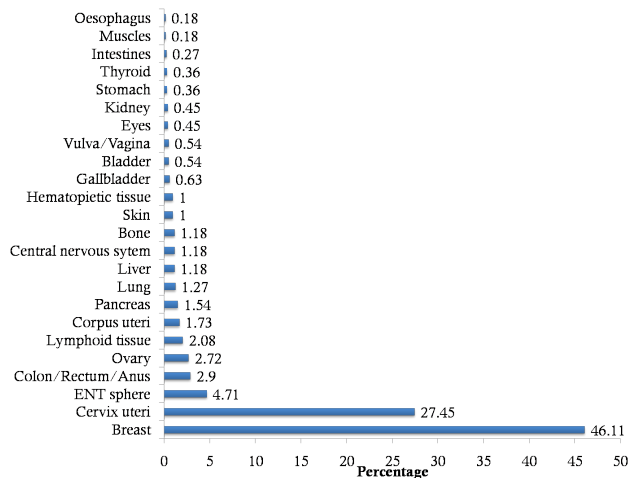


Figure 1 Distribution of cancer sites in 1,104 women.

Figure 2 shows the distribution of cancer sites over the study period. BC is the most common cancer in the 15-year period, with the exception of 2012 and 2013, when it follows cervical cancer, and in 2016 it comes after other cancers. The trend line of BC progression shows an upward curve with rates exceeding 50% of cancer cases recorded in the last five years (2018 to 2021). Compared to BC, cervical cancer shows a downward trend (Figure 2).

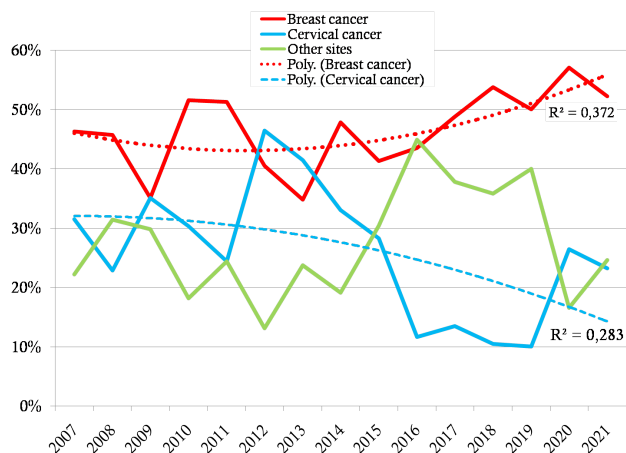


Figure 2 Distribution of cancer sites during the study period.

The mean age of patients at diagnosis was 49.94±14.76 years (range: 2 and 88 years). Figure 3 shows the mean age of women by cancer site. The mean age was 46.52±13.05 years (range: 13 and 85 years) for BC, 56.120±11.58 years (range: 26 and 82 years) for cervical cancer, and 49.52±18.14 years (range: 2 and 88 years) for other cancer sites. A comparison of these different mean ages shows a statistically significant difference (p<0.0001).

Figure 4 highlights a progressive increase in cases of BC, linked to age, up to a peak in the age group of 35 to 39 years where the highest frequency was observed, (n=78; 15.32% of BC), then comes the age group between 40 and 44 years old (n=71; 13.95% of BC). On the other hand, for cervical cancer, the peak is noted in the age group of 50 to 59 years (49 cases or 16.17% of cervical cancers).

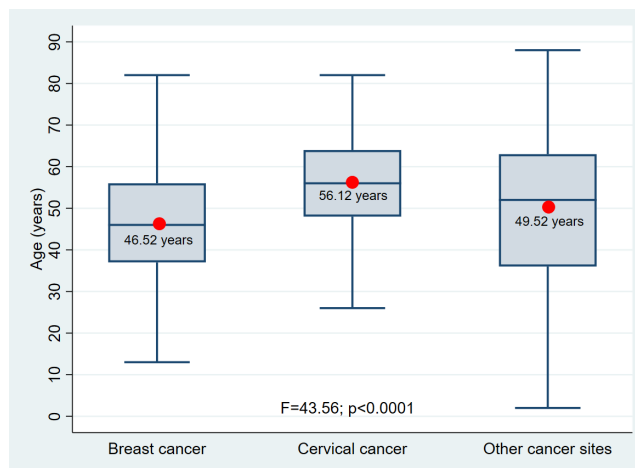


Figure 3 Mean ages by cancer site.

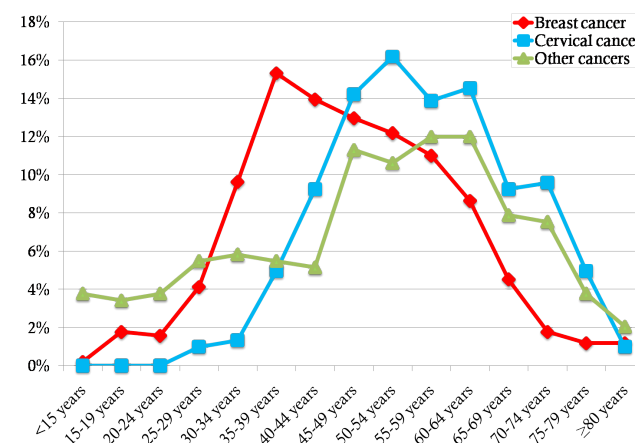


Figure 4 Distribution of cancer sites by age group of patients.

## Discussion

Breast (46.11%) and cervical (27.45%) cancers were the most commonly diagnosed cancers in women in this study. Similarly, Katumbayi et al.,<sup>6</sup> recorded 3163 gynecological cancers in five histopathology laboratories in Kinshasa city (DRC) over a 10-year period (2010 to 2020), of which BC was predominant (49.9%) followed by cervical cancer (40.47%). Overall, breast and cervical cancers are the most commonly diagnosed cancers in women. Several recent publications have made the same observation.<sup>1,7-9</sup> BC is a growing health problem in SSA,<sup>10,11</sup> having now surpassed cervical cancer as the leading cause of death in many countries.<sup>12</sup> As developing countries experience rapid societal and economic changes, the shift to lifestyles typical of industrialized countries leads to an increased burden of cancers associated with reproductive, dietary, and hormonal risk factors.<sup>13</sup> As in this study, Abate et al.,<sup>14</sup> had shown an increasing trend in the incidence of BC over the years. Part of the increase in incidence probably reflects the increase in life expectancy among women and the adoption of lifestyles that promote higher incidence rates (delayed reproduction, lower total fertility, obesity).<sup>15</sup> The fact that many BCs in women are diagnosed late (at an advanced stage) exacerbates the BC situation in SSA. Adding to this the scarcity of infrastructure and resources related to diagnosis and treatment, it is clear that more emphasis needs to be placed on primary and secondary means of prevention,<sup>5</sup> especially as the early ages of many BCs lead to associated disabilities and years of life lost.<sup>15</sup>

The present study reports a mean age of 46.52 years with a peak in the 35-39 age group (51.87% of the cases aged 30-49 years) for BC. Our results are consistent with those of Abate et al.,<sup>14</sup> who had found a peak in BC in the 30-39 age group (61.08% of the cases aged 30-49 years). This finding contrasts with that made in France by Sancho-Garnier and Colonna, who had found the peak in the 65 to 69 age group.<sup>16</sup> A Cameroonian study found a mean age of 47.83±13.57 years.<sup>17</sup> This mean age in this study is consistent with the mean age at diagnosis of BC (43-49 years) as reported in several SSA studies.<sup>18-22</sup> Differently from SSA countries, the mean age at diagnosis in most developed country series is around 60.<sup>23</sup> According to Akarolo-Anthony et al.,<sup>10</sup> this is explained, in part, by the reversal of age pyramids in SSA including the DRC, with a younger population compared to developed countries.

Cervical cancer is the second most frequently diagnosed cancer in women, with 303 cases (27.45%) out of 104 cancers recorded in the last 15 years. Cervical cancer is a major public health concern for women in Central Africa.<sup>24</sup> In 2020, the incidence rate is estimated at 31.9 cases of cervical cancer per 100,000 women in the DRC;<sup>1</sup> for reference, this incidence is 7 in metropolitan France and 7.7 in Belgium.<sup>1</sup> In the DRC, there is neither screening campaign nor vaccination campaign against the human papillomavirus (HPV) at the national level.<sup>6</sup> HPV is a major but not sufficient cause of cervical cancer.<sup>25</sup> Other important co-factors include certain sexually transmitted infections (HIV and *Chlamydia trachomatis*), smoking, high multiparity and long-term use of oral contraceptives.<sup>26</sup> This study reports a decrease over time in the incidence of cervical cancer. This has also been the case in most parts of the world in recent decades. These decreases were attributed to factors related to either increase socio-economic levels or decreased risk of persistent HPV infection resulting from improved reproductive health, reduced parity, and decreasing prevalence of sexually transmitted diseases.<sup>27</sup> Cervical cancer is considered almost entirely preventable due to highly effective primary (HPV vaccine) and secondary (screening) prevention measures. High-quality screening programs are also important to prevent cervical cancer in unvaccinated women and for oncogenic subtypes not covered by the vaccine. The WHO recommends screening of women aged 30-49 years with prompt and effective treatment of pre-cancerous lesions.<sup>28,29</sup>

The results of this survey, however, must take into account some limitations in their interpretation. The first limitation is the nature of the frequencies observed in the hospital setting, which cannot be extrapolated to the general population. Second, because access to diagnostic explorations is limited because of the poverty of populations, the diagnosis of cancer is either undervalued or overvalued under our conditions, often based solely on clinical data. The lack of infrastructure suitable for histopathological analysis is an additional handicap from a geographical point of view. The very large size of the country and transportation challenges hampers the reference of elements to be analyzed to the few centers of expertise available. Data analysis also suffered from the paucity of information in the registers. For each patient, only the date of registration, name, age, sex, and organ of the cancer were available.

Nevertheless, this survey has the merit of having addressed and presented results covering a relatively long period (15 years), and of having highlighted the real difficulties of oncological diagnosis in our setting. It identified the main cancer sites encountered, and established their frequency in hospital settings.

## Conclusion

The present study, based on hospital data, has shown that breast and cervical cancers are the most common in women in our setting. These

results can provide a basis for understanding the weight of cancer in general pathology in women. The establishment of a cancer registry is necessary in the DRC health system for better epidemiological surveillance of cancer and surveillance data necessary for the development of cancer control policies and their integration into primary health care.

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## Conflicts of interest

The authors have no conflicts of interest relevant to this article to disclose.

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