



Socio-Demographic Profile of Cancer Cases at a Tertiary Hospital in Port Harcourt, Rivers State, Nigeria

Essien II, Sampson T* and RR Nrior

Department of Microbiology, Rivers State University, Rivers State, Nigeria

*Corresponding Author: Sampson T, Department of Microbiology, Rivers State University, Rivers State, Nigeria.

DOI: 10.31080/ASCB.2023.07.0448

Received: September 14, 2023

Published: October 20, 2023

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Abstract

Cancer is a significant public health concern globally, with its impact growing in low- and middle-income countries. Several factors influence the increasing rate of morbidity and mortality due to cancer. The study therefore, was a socio-demographic profile of cancer cases at a tertiary hospital in Port Harcourt, Rivers State, Nigeria, to comprehensively examine the occurrence of cancer cases in Port Harcourt, Rivers State, Nigeria. Data were collected over a 6-month period from patients diagnosed with cancer at the hospital. Demographic information and the clinical syndromes associated with the various cancer types were systematically obtained from the patients using well-structured questionnaires. Descriptive statistics and relevant analytical methods were employed to provide insights into the burden and distribution of cancer cases. From the study, the prevalence was higher among patients between the ages of 40-69 (71.4%), while patients between the ages 19-39 (14.3%) recorded the lowest prevalence. Higher prevalence was however reported among the female cases (81.8%) than the male cases (18.2%). Data showed breast cancer emerged as the leading cancer type (61.4%), followed by ovarian cancer (9.1%), skin cancer (8.0%), cervical and lung cancer (5.7%), and liver cancer (1.1%). Results also showed that cancer was more prevalent among those in business (46.6%) followed by civil servants (37.5%) and least among clergymen (1.1%). Prevalence based on treatment type showed that patients exposed to chemotherapy (68.2%) were more than those on non-chemotherapy (31.8%). The distribution of cancer types exhibited notable diversity, encompassing various organ systems. This study therefore underscored the importance of surveillance and research efforts to better understand the epidemiological landscape of cancer in Port Harcourt, Rivers State, Nigeria. The results will thus serve as a foundation for the formulation of evidence-based strategies for cancer prevention, early diagnosis, and management. Regular screening is hereby recommended to prevent the incidence of malignant cancer.

Keywords: Cancer; Prevalence; Public Health; Socio-Demographic; Tertiary Hospital

Introduction

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells, which if not controlled can result in death. Cancer is caused by external factors and internal factors. When cancer spreads from its original location to another part of the body, the new tumor has the same kind of abnormal cells and name as the primary tumor [1]. Cancer cells are generally hungrier for nutrients than normal cells, in order to sustain their

high proliferative rates. This is shown by their higher consumption of glucose, due to the lower efficiency in energy production by anaerobic glycolysis, and increased extracellular acidosis [2].

Many factors contribute to the cell changes that lead to cancer [3]. The interplay between the intrinsic and extrinsic factors is the major determinant of an individual's cancer risk [4]. Risk factors vary widely worldwide based on differences in lifestyle and in so-

cial, economic, and political development [5]. The most important modifiable risk factors are infection with cancer-causing viruses or bacteria [6]. As normal cells divide, mature, and die, abnormal cells that do not follow this progression lead to cancer development [7]. Cancer begins when damage is caused to 1 or more genes in a single cell. This harm will cause the cell to divide incorrectly, producing abnormal cells [8]. Cancer cells are known to divide more rapidly than normal cells [9]. During early stages of cancer, a person may have just 1 small cancerous tumor. More advanced stages may involve a larger tumor [10]. Cancer is caused by alterations in oncogenes, tumor-suppressor genes, and microRNA genes [11].

Various factors, including nutrition and physical activity have been broadly reported to influence the incidence of cancer in various ways. Physical activity reduces the risk of breast cancer. Eating a diet high in fruits and vegetables is however associated with lower risk of cancers [12]. The goal of cancer therapy is to cause the death of cancer cells while minimizing the harm on normal cells [13].

The incidence of cancer is increasing in most developing economies such as Nigeria. The epidemiology of cancer is affected by factors that relates to patients' ability to access therapy and other cancer management procedures. The outbreak of coronavirus disease in 2019, also known as covid 19 restricted patients' access to medical attention, and thus leading to increased disease burden. Not much is however known regarding the types and distribution of cancer in a post-covid era, especially in Port Harcourt, Rivers State, Nigeria. This study was therefore carried out to evaluate the prevalence of cancer in Port Harcourt, in a post-covid era.

Materials and Methods

Description of study area

The study was conducted at the Oncology Unit of a Teaching Hospital in Port Harcourt. The hospital lies within 4.8998° North, 6.9292° East. It is a major tertiary care teaching hospital and research facility in Rivers State, Nigeria, which consists of various departments for distinct health cases and a great number of patients from many geographical regions. The choice for use in this study was because it is the largest hospital presently receiving and managing cancer associated cases in Port Harcourt, Rivers State.

Research design and duration

The study was a cohort cross-sectional study, of which questionnaire were distributed and all respondent's data were treated as confidential. The research was for a period of 6 months (June-November, 2022). Participation in the study was voluntary and, after receiving written consent from the patients or their immediate relatives, the study was explained in English and then administered a semi-structured questionnaire. The questionnaire was divided into two sections: Socio-demographic Data and Medical History.

Method of data collection

A total of eighty-eight cancer cases were enrolled for the study using the convenience sampling technique, based on willingness and availability of the subjects. The subjects selected for study were diagnosed based on clinical manifestations, physical examination and tissue biopsy. Questionnaires were further administered to the patients to obtain their socio-demographic data.

Inclusion criteria

The inclusion criteria were; those accessing the oncology unit of the hospital, those presenting various forms of cancer, those receiving or not receiving cancer therapy and those with informed consent.

Exclusion criteria

These criteria where; those receiving antibiotics, ladies who were in their menstrual cycle and those who declined consent.

Ethical considerations

Informed consent from parents/guardians of the wards and patients was sought before collection of samples. Ethical approval with reference number UPTH/ADM/90/S.II/VOL.XI/1392 was obtained from the Ethical committee of the University of Port Harcourt before commencement of the research.

Statistical analysis

Statistical analysis involved simple percentages and the Pair-wise Pearson Correlations. All statistics was carried out using the Statistical Package for Social Science (SPSS v27).

Results

Prevalence of Cancer based on types and family history

Data from the study showed the prevailing types of cancer, as presented in Figure 1. It was observed that out of the eighty-eight (88) cancer patients, breast cancer (61%) was more prevalent while Colon, Gall Bladder, Markel, Spindle Cell tumor, and Liver Cancer were the least prevalent (1.1%).

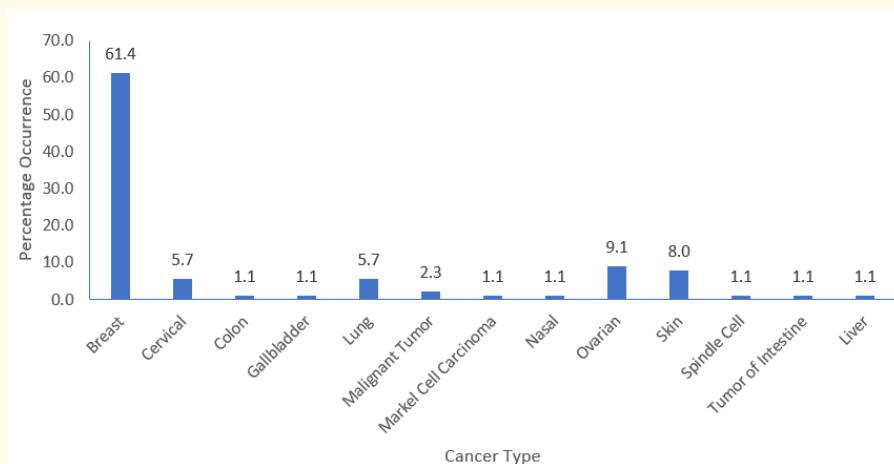


Figure 1: Types of Cancer in the study Population.

The prevalence of cancer based on family history is as presented in Figure 2. The study showed that 89.2% of the patients has no family history of cancer while 10.8% had history of cancer in the family line.

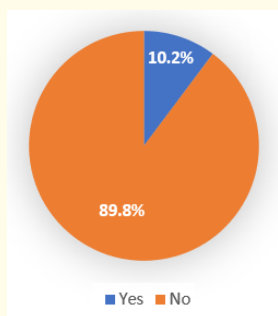


Figure 2: Prevalence of Cancer Based on Family History.

Role of occupation, age and gender in the occurrence of cancer

The prevalence of cancer based on occupation of patients was noted, as reported in Figure 3. It was observed that cancer was more prevalent (46.6%) among people that are into business, while the clergy recorded the least prevalence (1.1%).

Results showed that the age group of 40-49 years had the highest (27.3%) cancer disease while the age group of 19-29 years had the least (10.2%) prevalence (Table 1). Table 1 had revealed that

Cancer is more prevalent among the older group, as 27.3% of the cancer patients were between the ages of 40-49, 26.1% were between the ages of 50-59 while 14.8% of the patients were between the ages of 60-70.

Data on the prevalence based on gender of patients showed the prevalence was higher among female patients (92.1%) and least prevalent among male patients (7.1%), as recorded in Table 2.

Statistical analysis using the Pearson correlation, showed a significant ($p < 0.05$) positive relation between types of cancer and gender (sex). However, a weak positive and not significant ($p > 0.05$) relationship was observed between occupation and cancer type (Table 3).

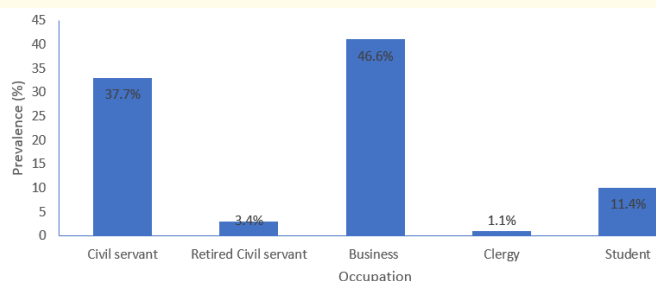


Figure 3: Prevalence of Cancer Based on Occupation.

Table 1: Prevalence of Cancer in the Age Groups.

Age Range of Patient	Number of Cases	Prevalence (%)
19-29	9	10.2
30-39	19	21.6
40-49	24	27.3
50-59	23	26.1
60-70	13	14.8
Total	88	100

Table 2: Prevalence of cancer based on gender.

Gender	Number of cases	Frequency
Female	76	81.8
Male	12	18.2
Total	88	100

Table 3: Relationship between the occurrence of cancer, occupation and gender.

Demographics	Demographics	Correlation	95% CI for ρ	P-Value
Type of Cancer	Sex	0.473	(0.292, 0.621)	0.000
Occupation	Type of Cancer	0.196	(-0.014, 0.390)	0.067

Proportion of patients accessing diagnosis and cancer treatment options

The annual prevalence, based on year of diagnosis is as shown in Figure 4. The study showed an increasing rate of cancer diagnosis between 2014 and 2022. The study reported that the highest prevalence of cancer was diagnosed between 2021 (38.6%) and 2022 (33 %) while the lowest was between 2014 (2.3%) and 2018 (0%).

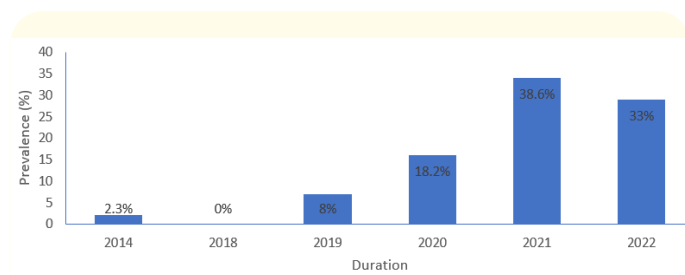


Figure 4: Prevalence of Cancer in patients based on year of exposure (diagnosis).

Prevalence based on treatment type showed higher prevalence among patients exposed to chemotherapy (68.2%) and least prevalence among patients who have not been exposed to chemotherapy (31.8%) as shown in Figure 5.

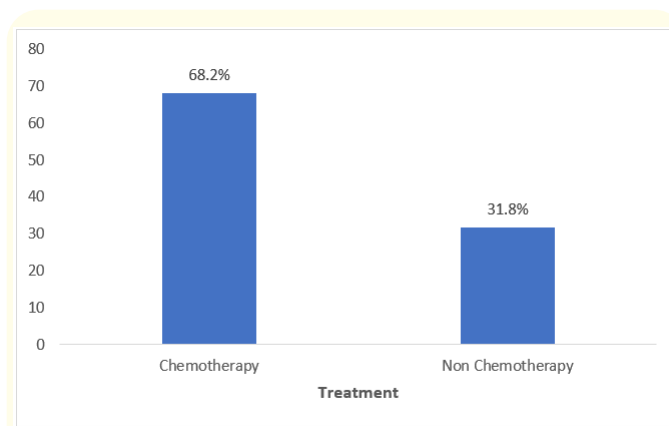


Figure 5: Prevalence of Cancers based on Exposure to Treatment.

Discussion

Prevalence of Cancer based on types and family history

The burden of cancer is currently at an alarming rate due to several factors influencing the outcome and management of cancer disease, including social, economic and host related factors. The manifestation of cancer depends on the affected sites. In this study it was reported that the incidence of cancer varied based on the different types of cancer encountered at the study location. The study revealed that breast cancer was the most prevailing cancer disease amongst other cancer diseases. This finding is however in agreement with Ntekim., *et al.* (2022) [14] who reported that breast cancer was the most prevailing type of cancer in Nigeria. Also, a study by Bray., *et al.* (2018) [15] also confirmed that breast cancer is the most prevalent cancer among women in Iraq, accounting for one-third of all cancer cases reported in women of all ages and accounting for 36.7% of all new cases of cancer in women in 2018. The high prevalence rate of breast cancer in this present study could be attributed to low level of awareness, poor health seeking behavior; low levels of female education, and empowerment in addition to a poor health system leading to suboptimal treatment services [16].

Family history is an uncommon determining factor to the prevalence of cancer among respondents. The study observed the role of family history in the epidemiology of cancer as a proportion, albeit small proportion, of the study population had a family history of cancer. This conforms with Australian Cancer Council (2022) [17] report where it was stated that cancer can occur in families just by chance, which is most often, because family members have

the same environmental and lifestyle risk factors, for example too much sun or smoking, because there is an inherited faulty gene which increases the risk of cancer, which is uncommon. Only a small percentage of certain cancers (up to 5%) are due to a faulty gene inherited from either the father or mother [17].

Role of occupation, age and gender in the occurrence of cancer

Occupation has been frequently reported to be associated with disease manifestation, depending on the type of occupation. It was noted in this study that those in business presented higher prevalence of cancer than other groups. This finding may be due to the fact that people in business are exposed to risky environments and dangerous lifestyles. This result agrees with that reported by UK (2021) [18] that revealed working in some jobs (occupations) or workplaces may mean a higher risk of some types of cancer. The research stated that exposure to health hazards at work causes around approximately 4 in 100 (4%) cancer cases in the UK.

The role of age in the epidemiology of cancer was observed in this study, as it was noted that patients at the higher age brackets were the most affected. This report agrees with Cancer Centre (2023) [19] whose study stated that the biggest contributing risk factor for most cancers is older age, as these numbers demonstrate: 1 percent of cancer cases are diagnosed in people under age 20. 2.7 percent of cases are diagnosed in between ages 20-34. 4.8 percent of cases are diagnosed in between ages 35-44. From the report, prevalence of cancer among older people can be attributed to decline in immune system and lifestyle.

Gender was another important host factor noted in the study. The observation in this study was in conformity with Siegel, *et al.* (2016) [20] where gender-specific differences in the incidence and mortality associated with various cancers were noted. Cancers such as prostate, lung, and colorectal cancer occurred mostly in males, while breast, lung, and colorectal cancer were predominant in females in the United States. The high cases of cancer associated with the female gender could therefore be as a result of breast cancer being the most frequently reported cases of cancer in this study area.

Proportion of patients accessing diagnosis and cancer to treatment options

The study showed that number of person diagnosis in the previous years were lower than those in the current years. It showed that the rates were lower prior to the outbreak of Covid-19 in 2019 and have remained higher in the post covid 19 era. The lower rate associated with earlier years could be due to mortality, as the report showed that only 2.3% of the total study population was diagnosed in 2014, while 33% was diagnosed in 2019. This implies that most of the persons diagnosed in earlier years most have died due to the severity of cancer.

The success of cancer management greatly depends on the management option patients can assess, due to the availability of the required equipment as well as economic factors. This study investigated the two categories of cancer patients, such as those chemotherapy and those not on chemotherapy. The report obtained indicated that most of the patients are exposed to chemotherapy. This study therefore showed that chemotherapy was the main treatment regimen in this study area, for the management of cancer patients.

Conclusion

The study has shed light on the occurrence of cancer in Port Harcourt. It showed that the burden of cancer is largely associated with breast cancer. This therefore makes it very critical for frequent screening for the predisposing factors. Primordial prevention strategies should therefore be put in place. Cancer enlightenment campaigns should be carried out to enlighten the population on risk factors and prevention methods.

Other factors influencing the epidemiology of cancer in the study location included family history, occupation, age and gender. While the burden was higher among those without family history, the study has however showed that family history has a role in the epidemiology of cancer.

The insights gained from this research will therefore serve as a foundation for targeted interventions, resource allocation, and policy development to effectively address the challenges posed by cancer and ultimately improve patients' outcomes.

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