Research Article

A Hospital-Based Survey of Cancer in Port Harcourt, Rivers State, Nigeria

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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 morbidity and mortality due to cancer. A hospital-based cross-sectional study was therefore carried out 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 a tertiary hospital in Port Harcourt. Demographic information, clinical presentations, and cancer types were systematically obtained and analyzed. Descriptive statistics and relevant analytical methods were employed to provide insights into the burden and distribution of cancer cases. The study showed the age-specific prevalence of cancer based on age-specific rate shows that patients between the ages of 40-69 (71.4%) were the highest, while patients between the ages 19-39 (14.3%) recorded the lowest prevalence. Cancer was more prevalent among female (81.8%) and least among males (18.1%). 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 underscores the importance of ongoing surveillance and research efforts to better understand the epidemiological landscape of cancer in Port Harcourt, Rivers State, Nigeria. The results served 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; Survey

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 social, 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, pro-

ducing 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 the University of Port Harcourt Teaching Hospital (UPTH), East West Road 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 descriptive 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. Thus, a total of eighty-eight questionnaire was distributed to patients within the oncology unit. The responses were collected and treated as confidential for the purpose of this study.

Inclusion criteria

The inclusion criteria were; those accessing the oncology unit of the hospital, those having 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 was obtained from the Ethical committee of the University of Port Harcourt before commencement of the research.

Statistical analysis

Descriptive statistics was carried out on the questionnaire to obtain the percentages and frequencies as well as comparing the various responses. All statistics was carried out using the Statistical Package for Social Science (SPSS v27).

Results and Discussion

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%). However, this study revealed that breast cancer (61%) was the most prevailing cancer disease amongst other cancer diseases in the oncology unit of the University of Port Harcourt Teaching Hospital (UPTH) as shown in Figure 1. This is 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 the 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] (Copson., *et al.* 2014).
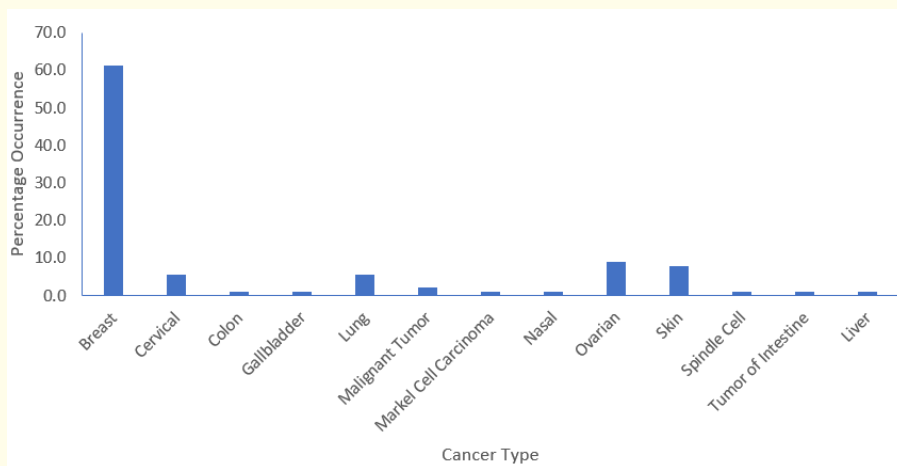
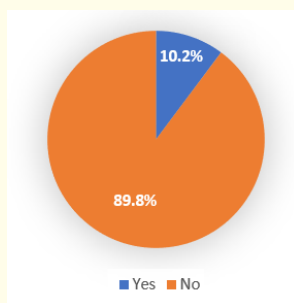**Figure 1:** Prevalence of Cancer in the study Population.

Figure 2: Prevalence of Cancer Based on Family History.

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. Family history is an uncommon determining factor to the prevalence of cancer among respondents. 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].

The prevalence of cancer based on occupation of patients is presented was noted as reported in Figure 3. It was observed that can-cer was more prevalent (46.6%), among people that are into busi-ness, while the clergy recorded the least prevalence (1.1%). This finding may be due to the fact that people in business are exposed to risky environments and dangerous lifestyles. This results 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%) can-cer cases in the UK.

The annual prevalence, based on year of diagnosis is as shown in Figure 4. The study showed an increasing rate of cancer 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%). This 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.

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). Again Table 1 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. 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.
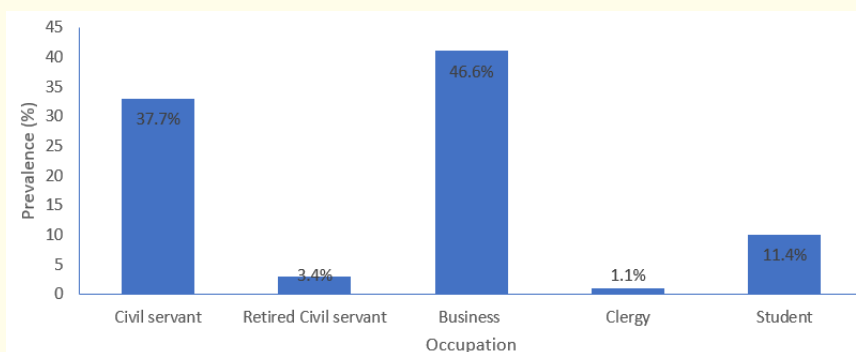

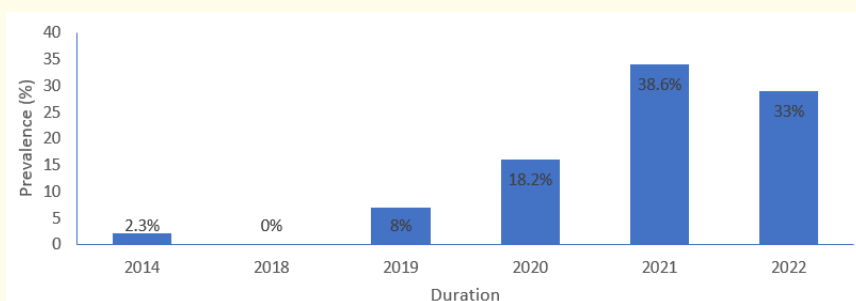**Figure 3:** Prevalence of Cancer Based on Occupation.

Figure 4: Prevalence of Cancer in patients after exposure (diagnosis).

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

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. This study therefore showed that chemotherapy was the main treatment regimen in this study area, for the management of cancer patients. 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. This result is in conformity

with Siegel., et al. (2016) [20] where gender-specific differences in the incidence and mortality associated with various 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 result of breast cancer been the most frequently reported cases of cancer in this study area.
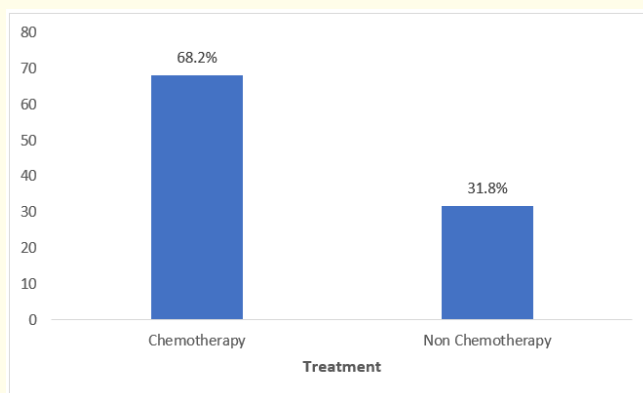
Figure 5: Prevalence of Cancers based on Exposure to Treatment.

Table 2: Prevalence of cancer based on gender.

Gender	Number of cases	Frequency
Female	76	86.4
Male	12	7.1
Total	88	100

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 and age and gender. While the burden was higher among those without family history, the study has however shown 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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