



Barriers to Accessing Affordable Anticancer Medications in Nigeria: A Patient-Centric Perspective

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Authors' contributions

This work was carried out in collaboration among all authors. Authors EBT, ADA and SCO were involved in study design, data collection, data analysis and interpretation, coordination of the study and drafting of the manuscript. Author FMN was involved in study design, data interpretation and drafting of manuscript. Author JCN participated in study design, data collection, data interpretation and drafting of manuscript. All other authors were involved in data collection. All authors read and approved the final manuscript.

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ABSTRACT

Background: Limitations to accessing affordable medications for cancer patients in Nigeria is increasing on a daily basis. Several government interventions have been established to address the affordability of drugs for patients at treatment centers. However, they haven't been commensurate improvement in patient outcome due to barriers to accessing these medications. This manuscript provides a critical examination of the barriers to affordability of anticancer medications in Nigeria, offering a unique patient-centric perspective that is often underrepresented in healthcare research.

Methodology: The study was a cross-sectional descriptive survey amongst patients that are 18 years and above with Cancers and other tumor diseases in the Oncology unit of the University of Nigeria Teaching Hospital (UNTH) who were willing to participate in the study. Interview based questionnaire distribution was utilized in data collection. 200 questionnaires were distributed, 180 were returned hence giving us (98% response rate) and making our sample size (n= 180). Data gotten was analyzed using descriptive statistics. The IBM statistical package for Social Sciences (SPSS) was utilized.

Results: A total of 180 participants were included in the study, there was an unequal distribution of respondents' gender (44.4% males and 55.6% females). Only about 36.7% of participants reported to be within the age range of (46- 55 years) which was the most participated age range. More than 60% of the study participants are married. Just about half of the study participants had their monthly incomes between fifty thousand to ninety-nine thousand naira while others earned less.

Conclusion: In this study, barriers to accessing affordable anticancer medications were noted. Government aiding /subsidizing the cost of anticancer medication as well as availability of anti-cancer medicines in government hospitals should be improved.

Keywords: Barriers; affordable; anticancer; medication; Nigeria.

1. INTRODUCTION

Cancer is considered to be a worldwide problem and is among the primary root causes of death [1]. One of the chief causes of this death despite advances in drug discovery is the inaccessibility and unaffordability these medications indicated for the management of this conditions. This has become a global issue with Nigeria also witnessing these devastating impacts as a low-income nation.

Access to affordable anticancer medications is a serious challenge in Nigeria, affecting the ability of patients to receive necessary treatment. In 2019, over 930 million people worldwide experienced financial hardship as regards health care and, annually, about 100 million people were impoverished [2].

High cost of anti-cancer medicines is a global issue, and places financial burden to patients, families and societies in both low and middle-income countries (LMICs) and High-Income

countries (HICs); however, economic factors including wealth levels determine the pattern of affordability. Individuals diagnosed with cancer are likely to declare bankruptcy and experience other financial hardship than individuals with no cancer [3].

Limitations to accessing affordable medications for cancer patients In Nigeria is increasing on a daily basis. The Nigeria Cancer Health Fund has been established as a means to address the affordability of drugs for patients at treatment centers [4]. However, barriers to accessing these medications still exist, particularly in terms of adherence to oral anticancer medications [5]. Patients in Nigeria may face specific challenges related to medication access and use, which can affect their ability to adhere to treatment regimens.

The affordability of anticancer medications remain a significant obstacle for many patients with cancer, not only in Nigeria but globally [6]. This barrier to care can have serious

consequences, including increased risk of drug resistance and cancer recurrence [5]. In order to improve patient outcomes, it is essential to address issues related to the availability, affordability, access, and pricing of anticancer medicines [7]. Efforts to overcome barriers to cancer care in Nigeria and other African countries require collaboration and innovation [8].

Africa has a small number of publications on the availability and affordability of anti-cancer medicines, and studies done reported a scarcity of important medicines including anti-cancer medicines [9].

Limited information on anticancer medicines has a high and direct effect on cancer health care in Nigeria. Consequently, it hinders the adoption of effective measures the government and partners can use to ensure that cancer patients receive efficient and inexpensive anti-cancer medicine accordingly. From a medical perception, cost remains a serious challenge to the availability of oncological care, highlighting the need for interventions to improve affordability, access, and pricing of anticancer medications [10].

By providing patients with access to innovative medicines and addressing affordability concerns, it is possible to improve cancer care outcomes in these regions. Additionally, policies aimed at improving affordability and ensuring patient access to prescription drugs can help to reduce the financial burden of cancer treatment [11]. In order to optimize cancer care in Nigeria, it is important to consider patient-centric perspectives and experiences. Understanding the factors that influence medication usage, as well as patient expectations and barriers toward treatment, can help to inform strategies for improving access to affordable anticancer medications [12].

By addressing these barriers and working towards greater affordability and access to medications, it is possible to enhance cancer care outcomes for patients in Nigeria and other developing countries.

The aim of this cross-sectional study was to conduct an assessment to determine the level of availability and affordability of the cancer treatment drugs in the cancer treatment hospitals in Nigeria. Specifically, identifying the socioeconomic factors, and evaluating the barriers to accessing affordable anticancer medications in Nigeria.

2. LITERATURE EVALUATION

Nigeria's budget for health has been on a downward trend since 2012. Nigeria budgeted 340 billion Naira (9.7 billion USD) which is 3.9% of the 8.6 trillion national budgets planned for the year 2018. This allocation is less than the 4.16% and 4.23% made to the health sector by the administration in 2017 and 2016 budgets [13]. Most of the cancer patients pay out of pocket for their treatment not minding the poor GDP. There is limited health insurance coverage for those not working in the government sector. Also, our National Health Insurance Scheme (NHIS) has limited coverage for oncology drugs for the treatment of cancer. There is a limited number of donor agencies involved in cancer screening, diagnosis and treatment in Nigeria. There is limited access to loans for private-sector driven health systems.

There were price variations in the individual and medicine categories and between brands [14], for example, there was the highest variation with hormonal cancer drugs (714.24%) and lowest variation with targeted anti-cancer medicines (5.56%) [15]. Prices for acquiring infectious disease and cardiovascular disease medication are much lower than the median price of anticancer medicines [16]. The price variation in public vs. private facilities was also evident [15]. The countries in the Africa region pay more for a package of essential cancer medicines than countries in the Latin America region [14]. The median price paid for a package of cancer medicines was \$12.63, with the lowest price of \$0.03 and the highest price of \$5250 [17]. Another study estimated a cost of US\$442 and US\$278 to treat a 30 kg child for standard-risk leukemia and Hodgkin's lymphoma, respectively [15]. Five anti-neoplastic Originator Brands (OB) were 1.2–1.4 times more expensive than their most-sold and Lowest Priced Generic (LPG) counterparts. Patients buy medicines in the private sector at 1.3 times and 2.0 times the government price and the consumer prices, respectively [14].

3. METHODOLOGY

3.1 Study Design and Setting

The study was a cross-sectional descriptive survey amongst patients with Cancers and other tumor diseases in the Oncology unit of the University of Nigeria Teaching Hospital (UNTH). The University of Nigeria Teaching Hospital is

one of Nigeria's first-generation University Teaching Hospitals. She boasts of having the best hands in the country, with more experienced professionals. The Oncology pharmacy unit has more specialized pharmacists in the oncology specialty. This results in higher patient volume than the hospital's capacity.

3.2 Study Population and Instrument

The study participants were drawn from patients with Cancers and other tumor diseases in the Oncology unit of the University of Nigeria Teaching Hospital (UNTH). The questionnaire was a self-administered knowledge-based questionnaire that evaluated the barriers to accessing anticancer medications in Nigeria.

3.3 Data Collection Tool

Data were collected by using questionnaire form developed for this study. We did a pilot study to evaluate the effectiveness of questionnaire form. During pilot study, we surveyed 20 patients and recorded data regarding the topic. Pilot study provided satisfactory results for the questionnaire form to be used in our study.

3.4 Data Collection Process

The questionnaire was a self-administered knowledge-based questionnaire that evaluated the barriers to accessing anticancer medications in Nigeria. The study tool was distributed over 4 weeks from 1st of September to 30th September 2024. The survey tried to achieve this using different approaches like deciphering the primary reason for difficulty accessing medications, whether economic or financial issues pose a big problem to their accessing anticancer medications etc.

3.5 Data Analysis

Data were analyzed using the IBM statistical package for Social Sciences (SPSS). Frequencies and percentages as well as other descriptive statistics were computed for necessary socio-demographic characteristics, finances, social support, unavailability of medication and outcome.

4. RESULTS

Of the 200 questionnaires distributed, 180 were completed and returned (98% response rate).

From Table 1, There was an unequal distribution of respondents' gender (44.4% males and 55.6% females). Only about 36.7% of participants reported to be within the age range of (46- 55 years) which was the most participated age range. More than 60% of the study participants are married. 40% of the respondents had a monthly income of 50,000 to 99,000 while 31.1% earned below 50, 000 naira monthly. Only about 28. 8 earned above 100,000 naira. 95.6% of the patients were not under any health insurance. 62.2% of these patients were not employed. 93.3% of the patients identified as Christians. Breast cancer, prostate cancer, cervical cancer, and pelvic cancer were the predominant cancer at 25.5%, 23.3%, 16.7%, and 7.8% respectively.

4.1 Unavailability of Medication

Most of study participants often experience difficulty accessing anticancer medications while some patients noted that they have never experienced any difficulty in accessing medications. Just about half reported that they sometimes experience medication stock-out. However, a few agreed to have never experienced medication stock-out. More than half of the participants agreed that financial constraint was their primary reason for having difficulty in accessing medication.

4.2 Finances

Half of the participants skipped their doses due to medication cost. Majority of the participants reported to have experienced financial hardships during the course of treatment which has in turn affected not just them but their families as well. Most of the participant spend (31-50%) of their income on medication while a handful pay 51-80% of the treatment cost out of their own pockets. Some also mentioned to have quit their jobs because of the treatment.

4.3 Social Support

Majority of the study participants has their family's support and mentioned it has significantly helped them in the treatment process. Almost half of the participants mentioned that emotional support was very important to them. Nearly 30% still noted that they stigma and discrimination in their daily contact with the society. This still points to the need for continuous sensitization of the general public.

Table 1. Socio-demographic characteristics

Socio-demographic factors		Frequency(f)	Percentage (%)
Age	18-25		
	26-35	30	16.7
	36-45	24	13.3
	46-55	66	36.7
	>55	60	33.3
Gender	Male	80	44.4
	Female	100	55.6
Marital Status	Single	40	22.2
	Married	114	63.3
	Divorced	12	6.7
	Widowed	14	7.8
Educational level	Primary	34	18.9
	Secondary	62	34.4
	Tertiary	80	44.4
	None	4	2.2
Occupational status	Employed	42	23.3
	Unemployed	112	62.2
	Self-employed	26	14.4
Monthly income	<50000	56	31.1
	50000-99000	72	40.0
	100000-199000	42	23.3
	200000-299000	8	4.4
	>300000	2	1.1
Religion	Christian	168	93.3
	Islam	6	3.3
	Traditionalist	4	2.2
	Others	2	1.1
Health Insurance	Insured	8	4.4
	Not insured	172	95.6
Cancer Type	Breast	46	25.5
	Lung	6	3.3
	Prostrate	42	23.3
	Colorectal	2	1.1
	Cervical	30	16.7
	Pelvic	14	7.8
	Blood tumor	2	1.1
	Cardiac tumor	2	1.1
	Eye	2	1.1
	Gastrointestinal Stromal Tumor	2	1.1
	Gestational	2	1.1
	Trophoblastic Disease		
	Uterus	2	1.1
	Vaginal	2	1.1
	Vulva	2	1.1
	Others	24	13.3

Table 2. Unavailability of medication (frequency=F, percentage =%, n=180)

How often do you experience difficulties accessing anticancer medications?	Unavailability of medication								
	Often		Sometimes		Rarely		Never		
	F	%	F	%	f	%	f	%	
How Often do you experience medication stock outs?	68	37.8	48	26.7	40	22.2	22	12.2	
	24	13.3	82	45.6	48	26.7	24	13.3	

Table 3. Reasons for patients' difficulty in accessing medications

Primary reason for difficulty accessing medications	F	%
Financial constraints	118	65.6
Lack of availability	36	20.0
Limited accessibility	14	7.8
Insufficient healthcare provider knowledge	8	4.4
Others	2	1.1
How long do you wait for medication refills (weeks)	F	%
<1	10	5.6
1-2	52	28.9
2-4	94	52.2
>4	22	12.2

Table 4. Finances (frequency=F, percentage =%, n=180)

Finances	F	YES %
Have you ever skipped doses due to cost?	90	50.0
Have you experienced financial hardship due to treatment cost	144	80.0
Percentage of Monthly income that goes anticancer medications	F	%
<10%	14	7.8
11-30%	26	14.4
31-50%	86	47.8
>50%	52	28.9
How has treatment affected your employment status	F	%
No impact	6	3.3
Reduced work hours	54	30.0
Quit job	66	36.7
Others	10	5.5

Table 5. Social support (frequency=F, percentage =%, n=180)

Social support	F	YES %
Do you have support system (family/friends) during treatment?	110	61.1
Have you experienced stigma or discrimination due to cancer diagnosis	46	25.6
How important is emotional support during treatment	F	%
Very important	86	47.8
Somewhat important	58	32.2
Not very important	4	2.2
Not at all important	4	2.2

Table 6. Outcomes (frequency=F, percentage =%, n=180)

Outcomes	F	%
How has treatment affected your overall quality of life		
Significantly improved	36	20.0
Somewhat improved	114	63.3
No change	8	4.4
Somewhat worsened	12	6.7
Significantly worsened	8	4.4
How would you rate your current health status	F	%
Excellent	4	2.2
Good	82	45.6
Fair	72	40.0
Poor	20	11.1

4.4 Outcomes

More than half of our respondents agree that the treatment has somewhat improved their quality of life. Just about half of the respondents rated the current state of their health as good which implies there is positive impact and also points out that there are still rooms for improvement.

5. DISCUSSION

This study is aimed at evaluating the barriers that hinder patients from accessing affordable anticancer medication. Among the barriers mentioned were financial constraint, difficulty accessing anticancer medication, social support, outcomes to mention but a few.

The socio-demographic characteristics of the study participants were taken and from the results, the study suggests that most of our study participants were within ages 46 years and 55 years and majority were female. It also suggests that more than half were married, just about half reached the tertiary level of education and more than half were unemployed which agrees with the article by Akinwande et al. [6]. It was deduced from the result that over 90% of responders didn't have health insurance which most indicated that they don't have it bureaucratic bottleneck involved in the insurance process. This study is in concordance with the article 'Barriers to the Accessibility, Availability and Affordability of Radiotherapy Services in Nigeria' by Akinwande et al. [6] which was observed that majority of the patients (77.2%) had no health insurance. Most of the responders were diagnosed with breast cancer and prostate cancer which has been identified as the most common cancer for the female and male gender respectively which is in concordance with the study on Onwusah et al. [5], James et al. [10].

Unavailability Medication; More than 30% of study participants often experience difficulty accessing anticancer medications, just about 30% noted that they sometimes experience difficulty while accessing anticancer medication while some patients noted that they have never experienced any difficulty in accessing medications. Just about half reported that they sometimes experience medication stock-out. However, a few agreed to have never experienced medication stock-out. More than half of the participants agreed that financial constraint was their primary reason for having difficulty in accessing medication while lack of

availability of medication is the second major reason why participants cannot access anticancer. This is also in tandem with a study conducted in India by Barrios et al. [18].

Finances: This factor is vital in the treatment of cancer and other chronic diseases. It greatly impacts on the patient and their families, determining if they will be able to continue treatment, whether or not the children of the patient will complete their education to mention but a few. In this study, half of the participants skipped their doses due to medication cost. Majority of the participants reported to have experienced financial hardships during the course of treatment which has in turn affected not just them but their families as well. Most of the participant spend (31-50%) of their income on medication and in relation to the earlier mentioned socio-demographic were it was noted that majority of our participants earn between fifty to ninety-nine thousand naira monthly. This supports the study that mentioned that the expenses of the treatment course, splurge these patients and their families into financial hardship or doom and in a very unfortunate case were the patients succumb to the illness, leaves the families taking care of the pile of debt left behind which was created during the cause of treatment. From the results of the study, a handful pay 51-80% of the treatment cost out of their own pockets which agrees with the article written by Akinwande et al. [6] where he mentioned that, in a country like Nigeria with a myriad of multi-dimensional challenges and a high percentage living below the poverty line. Coupled with a healthcare system that is predominantly dependent on out-of-pocket expenditure, uptake of such services could be prohibitive.

Some also mentioned to have quit their jobs because of the treatment. This explains why most patients after their cancer diagnoses, refuses treatment with fear that the emotional, financial and psychological trauma associated with the treatment will cause more harm than good. Some improvements that can be made was cited in the article, 'Availability, Affordability, Access, and Pricing of Anti-cancer Medicines in Low- and Middle-Income Countries: A Systematic Review of Literature' which mentioned that, governments should launch initiatives to promote generic prescribing by physicians, improve price transparency and empower patients to shop around for cheaper medicine prices [9].

Social Support: Majority of the study participants has their family's support and mentioned it has significantly helped them in the treatment process. This is a great improvement from where we were as a Nation it goes a long way to showcase that sensitizing the masses works. Almost half of the participants mentioned that emotional support was very important to them which agrees with the study carried out by Lipovetski and Cojocar [19] where Patients highlighted the importance to be recognized as unique, respected and acknowledged for their values and needs, and expected these qualities to be reflected within the encounters with their Oncologists. This is expedient as they are always with oncology specialist at every step of their treatment and the way they are treated by their, physicians, pharmacist and nurses will go a long way to soothe them. Nearly 30% still noted that they stigma and discrimination in their daily contact with the society. This still points to the need for continuous sensitization of the general public.

Outcomes: More than half of our respondents agree that the treatment has somewhat improved their quality of life. Just about half of the respondents rated the current state of their health as good which implies there is positive impact and also points out that there are still rooms for improvement.

Africa and indeed Nigeria is confronted with a high burden of diseases and cancer is one of its major challenges. Adequate investment in the healthcare sector, could substantially prevent any further loss of from the African population and stimulate economic growth and development. This study is also in agreement with studies in Uganda [20] and in agreement with that of Mostert et al. [21]. Which report that patients are the prime recipients of the impact of corruption on the health sector as access to necessary cancer care especially in (LMICs), is disrupted by longer waiting queues, delayed diagnosis and late or intermittent cancer treatment, resulting in recurrence or poor cancer survival or prognosis [21].

6. CONCLUSION AND RECOMMENDATION

This manuscript provides a critical examination of the barriers to affordability of anticancer medications in Nigeria, offering a unique patient-centric perspective that is often underrepresented in healthcare research. In this study, barriers to accessing affordable

anticancer medications were noted which ranges from unavailability of medication, finances, social support and outcomes. By highlighting the socio-economic, systemic, and policy-related challenges faced by patients, it contributes valuable insights into the multifaceted nature of healthcare inequities in low-income countries. The findings of this study can guide policymakers, healthcare professionals, and researchers in designing targeted interventions to improve medication accessibility and affordability. Government aiding /subsidizing the cost of anticancer medication as well as availability of anti-cancer medicines in government hospitals should be improved and the Government should curb underfunding for cancer treatment, or poor stock management in public hospitals causing suboptimal consumption of anti-cancer medicines. All cancer treating hospitals that have the option of chemotherapy shall ensure the availability of anti-cancer medicines in stock.

7. LIMITATIONS TO THIS STUDY

This study was conducted capturing only the perspective of patients. In as much as this is a great perspective, but in the quest to capture these barriers in accessibility of affordable cancer medication in Nigeria, we must take all perspectives into account in order to effectively mitigate against all these barriers. The study was conducted in one hospital, even though its one of the hospitals involved in the management of the bulk of cancer patients in the region. This work did not consider other specific barriers such as patients logistical, or informational challenges.

DATA AVAILABILITY

The dataset used in this study can be made available upon reasonable request to the corresponding author.

ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

Ethical clearance was obtained from the University of Nigeria Teaching Hospital Health Research Ethics Committee (NHREC/05/01/2008B-FWA00002458-1RB00002323), Ref: UNTH/HREC/2024/11/3043 where we collected the data. All study procedures were performed in accordance with the 1964 Declaration of Helsinki. Written Informed consent was obtained from all the participants before participating in the study.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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