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The Financial Strain of Cancer Care in Eastern Nigeria: Assessing Household Impacts and Coping Mechanisms

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ABSTRACT

Cancer care in Eastern Nigeria imposes significant financial strain on affected households, exacerbating economic instability and limiting access to life-saving treatment. This study assesses the financial burden of cancer care on households in Eastern Nigeria, exploring the direct and indirect costs associated with diagnosis, treatment, and supportive care. The research further examines the coping mechanisms employed by families, including out-of-pocket payments, asset liquidation, borrowing, and reliance on community-based financial support. Findings highlight the inadequacies of the National Health Insurance Scheme (NHIS) in covering cancer treatment, leading many families to experience financial distress and catastrophic health expenditures. Additionally, the study identifies systemic barriers such as limited specialized cancer care centers, high costs of treatment, and inconsistent government funding as key challenges contributing to the financial hardship of cancer patients and their families. To mitigate these effects, policy recommendations include expanding NHIS coverage for cancer care, increasing government investment in oncology services, subsidizing cancer treatment costs, and strengthening community-based financial aid programs. Addressing these issues is crucial for improving cancer care accessibility, reducing economic hardship, and enhancing patient outcomes in Eastern Nigeria.

Keywords: Cancer care, financial strain, household economic impact, coping mechanisms.

INTRODUCTION

Cancer is a growing public health concern in Nigeria, with an increasing incidence and mortality rate that poses significant challenges to individuals, families, and the healthcare system [1]. The rising burden of cancer in Nigeria can be attributed to multiple factors, including late diagnosis, limited access to quality healthcare services, high treatment costs, and a lack of comprehensive health insurance coverage [2]. These challenges exacerbate the economic burden on affected households, leading to financial distress, depletion of savings, and a decline in overall economic stability [3]. This study assesses the financial strain experienced by households in Eastern Nigeria due to cancer care and explores the coping mechanisms adopted by families to manage these economic challenges. Cancer is among the leading causes of morbidity and mortality worldwide, with low- and middle-income countries (LMICs) experiencing the highest burden due to inadequate healthcare infrastructure and financial constraints [4]. In Nigeria, cancer is responsible for thousands of deaths annually, with breast, cervical, prostate, and colorectal cancers being the most common types. The World Health Organization (WHO) has identified late-stage presentation and limited treatment access as critical factors contributing to poor cancer survival rates in Nigeria [5]. The financial implications of cancer extend beyond medical costs to include indirect expenses such as loss of income, transportation, nutritional support, and caregiving [6]. Many Nigerian families rely on out-of-pocket expenditures to cover medical bills, as the country's National Health Insurance Scheme (NHIS) has limited coverage for cancer treatment [1]. Consequently, families often resort to borrowing, selling assets, or seeking financial assistance from charitable organizations to fund cancer care.

Eastern Nigeria, which comprises states such as Anambra, Enugu, Ebonyi, Imo, and Abia, is known for its relatively high level of economic activities and entrepreneurial culture [7]. However, healthcare access remains a challenge due to inadequate public health infrastructure and the high cost of specialized medical services. Understanding the economic impact

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of cancer on households in this region is crucial for formulating policies that promote financial support systems and improve healthcare accessibility [8]. Cancer treatment in Nigeria is characterized by high costs, limited accessibility, and an overwhelming financial burden on patients and their families. This can lead to financial catastrophe, especially in Eastern Nigeria where poverty levels remain a concern [9]. The financial strain associated with cancer care includes the high cost of chemotherapy, radiotherapy, surgery, and supportive care, limited health insurance coverage, loss of income, and lack of government assistance [10]. There is an urgent need to explore how households cope with the economic burden of cancer and what policy interventions can mitigate these effects [11]. This study aims to assess the financial impact of cancer care on households in Eastern Nigeria, identify primary coping mechanisms used by families to manage the economic burden of cancer treatment, examine the role of health insurance and government support in alleviating financial distress among cancer patients, evaluate the effect of cancer-related expenses on household income, savings, and overall economic stability, and provide policy recommendations for improving financial assistance and healthcare accessibility for cancer patients in Eastern Nigeria. The significance of this study lies in its public health implications, as understanding the economic impact of cancer on households provides insights into the broader public health crisis in Nigeria. Addressing financial barriers can improve access to early diagnosis and treatment, ultimately reducing cancer mortality rates. Policy development can be informed by the findings of this study, which can inform government policies aimed at expanding health insurance coverage, subsidizing cancer treatment costs, and improving healthcare infrastructure in Eastern Nigeria. Economic impact analysis contributes to discussions on the socioeconomic implications of chronic diseases and the need for social protection mechanisms [12]. Healthcare system improvement stakeholders develop targeted interventions to support cancer patients and their families, while understanding how families cope with cancer-related expenses can lead to the development of communitybased support systems and financial relief programs. Cancer remains a major public health challenge in Nigeria, and its financial burden on households in Eastern Nigeria is a critical issue that requires urgent attention [13]. By examining the economic impact of cancer care and identifying coping strategies, this study seeks to contribute to policy discussions and practical solutions that can improve the financial well-being of affected families and enhance access to quality cancer care [14].

Cancer Burden in Eastern Nigeria

Cancer remains a significant public health concern in Eastern Nigeria, with a rising incidence of various malignancies [15]. The most frequently diagnosed cancers include breast cancer, cervical cancer, prostate cancer, colonal cancer, and liver cancer. Late-stage diagnosis is a significant challenge due to several factors, including limited cancer screening programs, low public awareness, high cost of diagnostic tests, and cultural beliefs and stigma [16]. The healthcare infrastructure in Eastern Nigeria faces numerous challenges in delivering effective cancer care, such as limited specialized cancer centers, shortage of oncologists and specialists, high costs of cancer treatments, and inconsistent availability of medications and equipment [2]. These issues lead to poor treatment adherence and survival rates, leading to poor treatment adherence and survival rates. To improve cancer care in Eastern Nigeria, a multipronged approach is required, including increased government funding, expanded screening programs, improved public awareness campaigns, strengthened healthcare infrastructure. addressing these issues, Eastern Nigeria can work towards reducing the burden of cancer and improving access to quality healthcare for its citizens [17]. The cancer burden in Eastern Nigeria is a significant public health concern, with a growing number of malignancies and challenges in detecting and treating these diseases. To address this issue, it is crucial to implement a multi-pronged approach that includes increased government funding, expanded screening programs, improved public awareness campaigns, and strengthened healthcare infrastructure.

The Financial Burden of Cancer Care

Cancer remains a significant public health concern in Eastern Nigeria, with a rising incidence of various malignancies [18]. The most frequently diagnosed cancers include breast cancer, cervical cancer, prostate cancer, colonal cancer, and liver cancer. Late-stage diagnosis is a significant challenge due to several factors, including limited cancer screening programs, low public awareness, high cost of diagnostic tests, and cultural beliefs and stigma. The healthcare infrastructure in Eastern Nigeria faces numerous challenges in delivering effective cancer care, such as limited specialized cancer centers, shortage of oncologists and specialists, high costs of cancer treatments, and inconsistent availability of medications and equipment. These issues lead to poor treatment adherence and survival rates, leading to poor treatment adherence and survival rates. To improve cancer care in Eastern Nigeria, a multipronged approach is required, including increased government funding, expanded screening programs, improved public awareness campaigns,

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Household Coping Mechanisms for Cancer-Related Financial Strain

The economic burden of cancer care in Eastern Nigeria has led to households adopting various coping mechanisms to manage treatment costs. These include relying on informal financial support, asset liquidation and debt accumulation, reduced spending on basic needs, seeking alternative or traditional medicine, and social and community-based interventions [19]. Informal financial support can be found through borrowing from relatives, friends, and community members, as well as fundraising through religious and community groups. However, this often leads to financial strain on the support network and can result in long-term economic and social consequences. Reduced spending on basic needs, such as education and nutrition, can also result from the high cost of cancer treatment. Patients may delay or abandon treatment due to financial constraints, leading to poorer health outcomes and increased mortality rates. Alternative or traditional medicine options, such as herbalists and herbal treatments, may also delay proper medical intervention [20]. Social and community-based interventions, such as assistance from NGOs and charities, can provide support for cancer patients. However, demand often exceeds available resources, leaving many without adequate support. Religious groups can also offer psychological and emotional support to patients and caregivers. To address the financial strain of cancer care in Eastern Nigeria, steps such as expanding the National Health Insurance Scheme (NHIS) to cover comprehensive cancer care, increasing government support for cancer care, and strengthening community-based financial aid can help improve cancer treatment accessibility, reduce mortality rates, and enhance the overall well-being of affected families

Policy and Healthcare System Challenges

The policy and healthcare system challenges in Eastern Nigeria are significant, affecting cancer care accessibility. These include limited health insurance coverage, inadequate government funding, and high costs of treatment. Health insurance is crucial for affordable cancer care, but most Nigerians lack it. The

National Health Insurance Scheme (NHIS) and private health insurance plans have limited reach, leaving most people to rely on out-of-pocket payments [22]. Private health insurance is expensive and beyond the reach of low- and middle-income individuals. Oncology services are often inadequate, leading to high out-of-pocket costs. Informal sector workers are also uninsured, making them vulnerable to catastrophic health expenditures. Insufficient government funding for cancer care results in limited treatment facilities, high costs, and restricted access to life-saving interventions. The Nigerian healthcare system receives insufficient budgetary allocations, affecting cancer screening programs, diagnostic services, and treatment facilities [23]. Few subsidized cancer treatment programs exist, forcing patients to bear the bulk of their treatment costs. Limited government-funded cancer centers are underfunded, leading to shortages of essential drugs, diagnostic tools, and medical staff. Government funding for cancer research, clinical trials, and epidemiological data collection is minimal, hindering evidence-based policy-making and innovative treatment strategies. The high cost of cancer drugs and medical equipment remains a major barrier to effective treatment in Eastern Nigeria [24]. Most chemotherapy and targeted therapy drugs are imported, making them expensive and unaffordable for many patients. Radiotherapy machines are scarce, leading to long wait times for treatment. Access to advanced diagnostic tools is limited, and poor maintenance and frequent breakdowns disrupt services further delaying cancer care. To improve cancer care accessibility in Eastern Nigeria, policy actions include expanding NHIS enrollment, increasing government investment in oncology services, regulating the cost of cancer drugs, improving cancer screening and early detection programs, and investing in cancer treatment infrastructure [25]. By addressing these challenges, Eastern Nigeria can improve cancer treatment outcomes, reduce financial burdens on patients, and enhance overall public health.

Recommendations for Reducing Financial Strain of Cancer Care

The financial strain of cancer care in Eastern Nigeria is characterized by high costs, limited access to treatment, and financial hardship for patients and their families. To reduce the economic burden of cancer care, systemic reforms, financial support mechanisms, and preventive strategies must be implemented [26]. Key actions that can improve affordability, accessibility, and long-term sustainability of cancer care in the region include strengthening health insurance coverage, increasing government investment in cancer care infrastructure, enhancing financial support mechanisms, expanding

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community-based and NGO support, promoting early detection and prevention programs, scaling up cancer screening and awareness programs, introducing free or low-cost screening in public hospitals, encouraging lifestyle modifications to lower cancer risk, integrating cancer prevention into primary healthcare services, and leveraging media and technology for cancer education. To address the high cost of cancer care in Eastern Nigeria, several recommendations should be made. First, the National Health Insurance Scheme (NHIS) should be expanded to cover cancer treatment for low-income households, ensuring basic cancer treatments are covered [27]. Second, a dedicated cancer insurance scheme should be introduced to cover cancer diagnosis, treatment, and palliative care at subsidized rates. Third, state governments should implement regional health insurance plans, mandate employer-sponsored health insurance for workers, and mandate employersponsored health insurance for workers.

The financial strain of cancer care in Eastern Nigeria is a significant challenge for affected households, exacerbating economic instability and limiting access to life-saving treatments. The lack of comprehensive health insurance coverage leads to borrowing, selling assets, and reducing expenditure on essential needs, deepening financial distress. The study highlights systemic gaps in healthcare accessibility and financial with informal financial assistance, support, community-based support, and alternative treatments providing temporary relief. Addressing these challenges requires a multi-faceted approach, including expanding the National Health Insurance

 Ndoh, K., Ahmed, A., Yates, R., Adewole, I., Bagudu-Shinkafi, Z., Odedina, F., Alawode, G., Alabi, S.: Cancer control funding in Nigeria: A case for universal health coverage. Journal of Cancer Policy. 32, 100335(2022).

https://doi.org/10.1016/j.jcpo.2022.10033

Oluwasanu, M.M., Adejumo, P.O., Sun, Y., Onwuka, C., Ntekim, A., Awolude, O.A., Aniagwu, T.I., Kotila, O.A., Brown, B.J., Ogbole, G.I., Dzekem, B.S., Ajani, O., Huo, D., Babalola, C.P., Ojengbede, O., Hammad, N., Olopade, O.I.: Challenges and Recommendations for Improving Cancer Research and Practice in Nigeria: A Qualitative Study with Multi-Stakeholders in Oncology Research and Practice. Cancer Control. 31, 10732748241298331 (2024). https://doi.org/10.1177/10732748241298331

Furthermore, the government should invest in cancer care infrastructure, such as increasing the number of oncology centers, recruiting and training more oncologists and healthcare professionals, subsidizing cancer treatment costs, upgrading medical equipment for cancer diagnosis and treatment, and establishing government-sponsored financial assistance programs [28]. Additionally, the government should encourage private sector involvement and publicprivate partnerships to develop co-financing schemes that lower treatment costs. Reducing the financial strain of cancer care in Eastern Nigeria requires a multi-faceted approach involving health insurance reform, government investment, financial support mechanisms, community involvement, preventive strategies. By implementing recommendations, cancer care can become more affordable and accessible, ultimately improving survival rates and reducing the economic burden on patients and families.

CONCLUSION

Scheme, increasing government funding for oncology services, implementing subsidized treatment programs, strengthening healthcare infrastructure, enhancing early detection programs, and regulating the cost of cancer medications. Community-based financial aid programs, partnerships with nongovernmental organizations, and public-private collaborations can also help alleviate financial hardship. A more inclusive and supportive healthcare system will improve cancer survival rates and overall well-being of families struggling with cancer treatment.

REFERENCES

- 3. Ugwu OPC, Anyanwu CN, Alum EU, Okon MB, Egba SI, Uti DE and Awafung EA. (2024). CRISPR-Cas9 Mediated Gene Editing for Targeted Cancer Therapy: Mechanisms, Challenges, and Clinical Applications. Newport International Journal of Biological and AppliedSciences, 5(1):97-102.
 - https://doi.org/10.59298/NIJBAS/2024/5 .1.9297102
- Dare, A.J., Knapp, G.C., Romanoff, A., Olasehinde, O., Famurewa, O.C., Komolafe, A.O., Olatoke, S., Katung, A., Alatise, O.I., Kingham, T.P.: High-burden cancers in middle-income countries (MICs): prevention and early detection strategies for at-risk populations. Cancer Prev Res (Phila). 14, 1061–1074(2021).

https://doi.org/10.1158/1940-6207.CAPR-20-0571

Mugisha www.idosr.org

- Cancer | WHO | Regional Office for Africa, https://www.afro.who.int/healthtopics/cancer
- 6. FNU, N., Kuan, W.-C., Kong, Y.-C., Bustamam, R.S., Wong, L.-P., Subramaniam, S., Ho, G.-F., Zaharah, H., Yip, C.-H., Bhoo-Pathy, N.: Cancer-related costs, the resulting financial impact and coping strategies among cancer survivors living in a setting with a pluralistic health system: a qualitative study. Ecancermedicalscience. 16,1449(2022).

https://doi.org/10.3332/ecancer.2022.1449

- Ezenkwa, U.S., Lawan, A.I., Garbati, M.A., Suleiman, D.E., Katagum, D.A., Kabir, A., Adamu, A.I., Modu, A.K., Olanrewaju, O.D., Dachi, R.A., Abdullahi, Y.M., Alkali, M., Bojude, D.A., Usman, H.A., Omotoso, A., Schlumbrecht, M., George, S.H.L., Audu, B.M.: Emerging cancer disease burden in a rural sub-Saharan African population: northeast Nigeria in focus. Front Oncol. 14, 1380615(2024). https://doi.org/10.3389/fonc.2024.138061
- Alum EU, Uti DE, Obeagu EI, Ugwu OPC, Alum BN. Cancer's Psychosocial Aspects: Impact on Patient Outcomes. Elite Journal of Medicine, 2(6): 32-42 (2024).
- Omotoso, O., Teibo, J.O., Atiba, F.A., Oladimeji, T., Paimo, O.K., Ataya, F.S., Batiha, G.E.-S., Alexiou, A.: Addressing cancer care inequities in sub-Saharan Africa: current challenges and proposed solutions. International Journal for Equity in Health. 22,189(2023).
 - https://doi.org/10.1186/s12939-023-01962-у
- 10. Smith, G.L., Lopez-Olivo, M.A., Advani, P.G., Ning, M.S., Geng, Y., Giordano, S.H., Volk, R.J.: Financial Burdens of Cancer Treatment: A Systematic Review of Risk Factors and Outcomes. J Natl Compr Canc Netw.17,1184-1192(2019).
 - https://doi.org/10.6004/jnccn.2019.7305
- 11. Alum, E. U., Obeagu, E. I., Ugwu, O. P. C., Orji, O. U., Adepoju, A. O., Amusa, M. O. Edwin, N. Exploring natural plant products breast cancer management: comprehensive review and future prospects. International Journal of Innovative and Applied Research. 11(12):1-9 (2023).Article DOI:10.58538/IJIAR/2055. DOI URL: http://dx.doi.org/10.58538/IJIAR/205
- 12. Okediji, P.T., Ojo, A.O., Ojo, A.I., Ojo, A.S., Ojo, O.E., Abioye-Kuteyi, E.A.: The

Economic Impacts of Chronic Illness on Households of Patients in Ile-Ife, South-Western Nigeria. Cureus. 9, e1756. https://doi.org/10.7759/cureus.1756

- 13. Mustafa, S.A., Al-Rudainy, A.J., Salman, N.M.: Effect of environmental pollutants on fish health: An overview. Egyptian Journal Aquatic Research. (2024).https://doi.org/10.1016/j.ejar.2024.02.006
- 14. Olivier M, Franck K S, Mbusa M, Tambavira G, Mathe J. The challenges of managing ovarian cancer in the developing world. Case Reports in Oncological Medicine. 8379628 (2020).(1),https://doi.org/10.1155/2020/8379628.
- 15. Oko-oboh, G.A., Auvinen, A., Obaseki, D.E., Pitkäniemi, J.: Improving cancer incidence evaluation through local government area matching: a study of the Edo-Benin cancer registry in Nigeria. BMC Public Health. 24, 514(2024).
 - https://doi.org/10.1186/s12889-024-17972-6
- 16. Hull, R., Mbele, M., Makhafola, T., Hicks, C., Wang, S.-M., Reis, R.M., Mehrotra, R., Mkhize-Kwitshana, Z., Kibiki, G., Bates, D.O., Dlamini, Z.: Cervical cancer in low and middle-income countries. Oncol Lett. 20, 2058-2074(2020).
 - https://doi.org/10.3892/ol.2020.11754
- 17. Odunyemi, A., Rahman, T., Alam, K.: Economic burden of non-communicable diseases on households in Nigeria: evidence from the Nigeria living standard survey 2018-19. BMC Public Health. 23, 1563 (2023).https://doi.org/10.1186/s12889-023-16498-7
- 18. Okonta, K.E., Echieh, P.C., Abubakar, U., Baiyewu, L.A., Nzewi, O.C.: Management of lung cancer in Africa: Underdiagnosis and poor access to treatment - A close look at Nigeria and West African Sub-region. J Pan Afr Thorac Soc. 2, 122-129 (2021). https://doi.org/10.25259/JPATS_11_2021
- 19. Emmanuel N. T., Yuwon N B., Egba S I., Ndohnui N. N. Prevalence, associated risk factors and methods of diagnosing cervical cancer in two hospitals in Yaounde, Cameroon. International Journal Advanced Research in Pharmaceutical and Biosciences, 3(1): 55-59 (2012).
- 20. Ozioma, E.-O.J., NwamakaChinwe, O.A., Ozioma, E.-O.J., NwamakaChinwe, O.A.: Herbal Medicines in African Traditional Medicine. In: Herbal Medicine. IntechOpen (2019).
- 21. Aja, P. M., Agu, P. C., Ezeh, E. M., Awoke, J. N., Ogwoni, H. A., Deusdedit, T., Ekpono,

www.idosr.org Mugisha

E. U., Igwenyi, I. O., Alum, E. U., Ugwuja, E. I., Ibiam, U. A., Afiukwa, C. A. and Adegboyega, A. E. Prospect into therapeutic potentials of Moringa oleifera phytocompounds against cancer upsurge: de novo synthesis of test compounds, molecular docking, and ADMET studies. *Bulletin of the National Research Centre.* **45**(1): 1-18 (2021). https://doi.org/10.1186/s42269-021-00554-6.

- 22. Derkyi-Kwarteng, A.N.C., Agyepong, I.A., Envimayew, N., Gilson, L.: A Narrative Out-of-Pocket Synthesis Review of Payments for Health Services Under Regimes: Policy Insurance Α Implementation Gap Hindering Universal Health Coverage in Sub-Saharan Africa. Int J Health Policy Manag. 10, 443-461 (2021). https://doi.org/10.34172/ijhpm.2021.38
- 23. Grace, O., Glory, M. E. N., Isaac, O., Regina I. Breast cancer knowledge and mammography uptake among women aged 40 years and above in Calabar Municipality, Nigeria. *Asian Journal of Medicine and Health*, 19,(8),1-10 (2021). https://doi.org/10.9734/ajmah/2021/v19i830351.
- 24. Salisu, W.J., Mirlashari, J., Varaei, S., Seylani, K.: Limited access to care for persons with breast cancer in Africa: A systematic review. European Journal of Oncology Nursing. 50, 101867 (2021). https://doi.org/10.1016/j.ejon.2020.10186

- 25. Umana U E, Ahunna C O, Timbuak J A, Ibegbu A O, Musa S A, Hamman W O. Dermatoglyphics and cheiloscopic patterns in cancer patients; A study in Ahmadu Bello University Teaching Hospital (ABUTH), Zaria, Nigeria. Current research journal of biology sciences, 5, (5), 220-225 (2013).
- 26. Wait, S., Han, D., Muthu, V., Oliver, K., Chrostowski, S., Florindi, F., de Lorenzo, F., Gandouet, B., Spurrier, G., Ryll, B., Wierinck, L., Szucs, T., Hess, R., Rosvall-Puplett, T., Roediger, A., Arora, J., Yared, W., Hanna, S., Steinmann, K., Aapro, M.: Towards sustainable cancer care: Reducing inefficiencies, improving outcomes—A policy report from the All.Can initiative. Journal of Cancer Policy. 13, 47–64 (2017). https://doi.org/10.1016/j.jcpo.2017.05.004
- 27. Mohite, P., Yadav, V., Pandhare, R., Maitra, S., Saleh, F. M., Saleem, R. M., Al-malky, H. S., Kumarasamy, V., Subramaniyan, V., Abdel-Daim, M. M., & Uti, D. E. Revolutionizing Cancer Treatment: Unleashing the Power of Viral Vaccines, Monoclonal Antibodies, and Proteolysis-Targeting Chimeras in the New Era of Immunotherapy. ACS Omega, 9(7), 7277–7295(2024). https://doi.org/10.1021/acsomega.3c0650
- 28. Kumar, R.V., Bhasker, S.: Scope, functioning, current problems and future of Peripheral Cancer Centers (PCCs) in India. Journal of Cancer Policy. 9, 18–23 (2016). https://doi.org/10.1016/j.jcpo.2016.03.008

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