Genetic Testing for Breast Cancer Patients in Nigeria: A Survey of Health Care Providers

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1 Introduction

Breast cancer is the most common female malignancy in Nigeria, the most populous country in Africa

- Incidence rate is 54.3/100,000
- Highest reported mortality rate in Sub-Saharan Africa (Figure 1)
- Stage-specific survival is worse than in high-income countries due to:
  - ❖Diagnosis at a *younger* age and *later stage (*>80% with stage III/IV)
  - ❖Higher proportion of *triple negative* tumors (~40%)

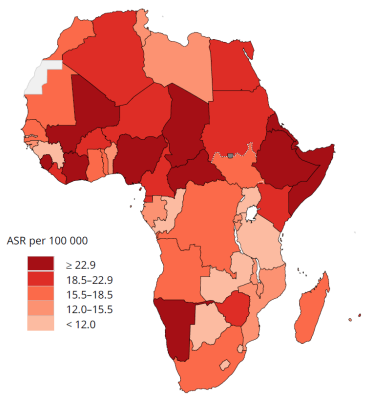


Figure 1: Map of Africa showing distribution of age-standardized mortality rates by countries

The role of genetics in the management of breast cancer has become increasingly important.

- The prevalence *BRCA1* and *BRCA2* mutations are higher than in North American populations (7.1% and 3.9% respectively)
- Low and middle-income countries like Nigeria have limited access to genetic counseling and testing

Objective: To assess the knowledge and perceptions of hereditary breast cancer testing amongst breast cancer health care providers (HCP's) in Nigeria

2 Methods & Materials

A 36-item questionnaire was developed using google forms

The questionnaire explored the domains of *knowledge*, *perceptions*, and *training* related to hereditary breast cancer

Nigerian HCP's invited to participate in the study

The following disciplines were included: general surgeons, radiation oncologists, breast radiologists, nurse oncologists

The survey was sent to participants via WhatsApp

36 MCQs and 5-point Likert scale questions with weekly reminders were sent on WhatsApp

Data Collection and Analysis

Data collection was ongoing for 4-weeks in June 2022 and responses were analyzed using SPSS

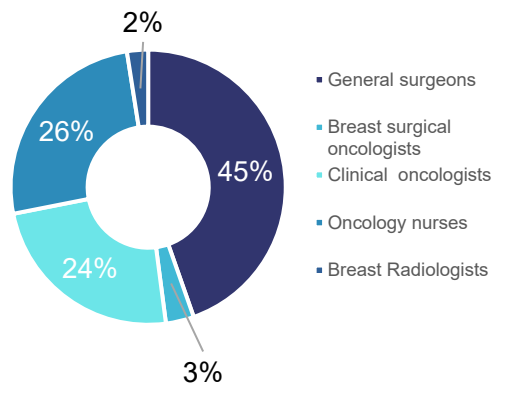
Figure 2: Methodology process flow

REB approval was obtained from Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria.

3 Results

Sociodemographic Characteristics

- 121 respondents (22% response rate)
- 36% female, 64% male
- ~ 78% of respondents work in public teaching hospitals across all geopolitical zones of the country



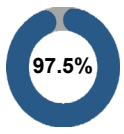
Assessing Knowledge of Hereditary Breast Cancer

Questions based on the NCCN guidelines highlight >70% of participants had significant knowledge about the criteria for hereditary breast cancer genetic testing, with opportunities continuing education in this area

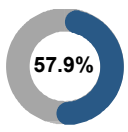
Table 1: Knowledge of indications for Hereditary Breast Cancer GT

Indication for Breast Cancer Genetic Testing	N= 121	%
Breast cancer at Age >50 years	93	76.9
Triple negative breast Cancer	80	66.1
Positive Family History of breast Cancer	85	70.2
Personal History of multiple malignancies	94	77.7

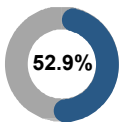
Barriers to Genetic Testing (GT) in Clinical Practice



Lack of a genetic counselling services
Despite assess to some testing facilities, the number of trained genetic counsellors in the country is limited



No Pathway for Referral
No direct referral pathways to genetic testing and counselling services

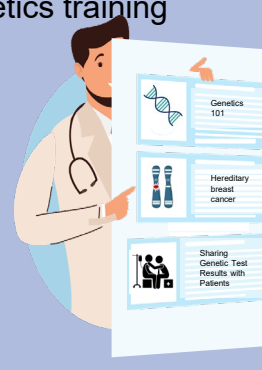


Lack of testing facilities
Nigeria has capacity for sequencing, however infectious diseases are often prioritized. GT usually done privately at high out of pocket cost to patient

Figure 3: Composition of survey participants

Training

- <10% of respondents have Formal genetics training
- All are willing to be trained or send a colleague from their institution for training



- Preferred mode of training is hybrid (online and in person) model

4 Discussion and Conclusions

- Breast cancer is steadily increasing in Nigeria, with over 40% of patients with TNBC
- This survey highlights the need for breast cancer genetic training for HCPs

Conclusion: This survey study identified a variety of barriers to genetic testing access for breast cancer patients in Nigeria. It also highlighted educational opportunities for HCPs. Improving access and care in this area will require a multi-pronged approach to address these specific issues.

Future Study: Our group has undertaken a 3-phase project including development of educational modules for genetic testing information and a pilot study to develop a genetic testing program in 3 Nigerian Hospitals.

ACTION
Addressing global inequities in breast cancer genetic testing, counselling, and management among breast cancer patients in Nigeria

Canadian Breast Cancer Symposium
June 15-16 2023, Toronto, Ontario, Canada

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