The ACTION Study: **Development and evaluation of an** online curriculum for breast cancer genetic testing & counselling for Nigerian healthcare providers



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BREASTANBUL Conference, Istanbul, Turkey, October 10-12, 2024, PP-044

Introduction

- Breast cancer in Nigeria: Driven by early onset (15-39 years, late-stage diagnosis (>80% Stage III/IV), high prevalence of triple-negative tumors (~40%).
- **Context**: Limited access to genetic testing and counseling, shortage of trained genetic counselors & training programmes
- Intervention: In our study we designed, developed and implemented a hereditary breast cancer educational curriculum tailored for Nigerian HCPs

Methods

Curriculum Development:

- Developed collaboratively through virtual meetings
- Modules: Epidemiology, Hereditary Breast Cancer Principles, Communicating Genetic Test Results, and Clinical Management

Hybrid Design:

- Online learning over one-month via Moodle-based platform
- Featured interactive videos, printable workbooks, assessment strategies, and supplementary resources.

Team Formation: June - Sept 2023

- Multidisciplinary team from West Africa and North America
- Includes genetic counselors, surgical oncologists,
 - gynecologists, and education experts

Invitations to Apply

Invites sent to all cadres of HCPs in tertiary hospitals across Nigeria

Objective

To develop and assess the effectiveness of a breast cancer genetics educational curriculum for Nigerian healthcare providers (HCPs) delivered through e-learning and in-person formats

Results

- Twenty-six (67%) trainees completed the curriculum and provided feedback through a Likert-scale evaluation
- 81% strongly agreed the curriculum met its objectives, with 85% praising its overall effectiveness.
- 65% strongly agreed the course provided real-world examples, though 15% felt it needed more cultural relevance
- 81% reported improved knowledge of BRCA1/2 pathogenic variants, 77% gained a clearer understanding of genetics, 69.2% felt confident in their understanding of hereditary cancer, and 73% believed learning about genetic testing would positively impact their practice
- Altogether 96% viewed online learning positively, though 12% suggested improvements to module duration

	The curriculum met the stated objectives
(%	The teaching platform was conducive to learning
s) S	Online learning was effective in achieving its educational outcomes
Responses (%)	The material was clear and presented in an effective manner
bo	Knowledge assessments were well suited to content
Re	Cases illustrated real world context
eV -	have a clear understanding of the principles of genetic testing and counseling
tion survey _	Videos Audio visuals and graphics enhanced learning
s u	Learning about genetic counseling will positively impact my current work
tic	The content expanded my knowledge in BRCA1 and BRCA2 gene mutations

3.8	15.4		80.8	
3.8		53.8		42.3
3.8	4			53.8
3.8		84.6		
3.8 <mark>3.8</mark>	26.9		65.	4
<mark>3.8</mark> 3.8	26.9		65.	4
7.7	15.4		76.9	
7.7	19.2		73.1	
7.7	19.2		73.1	
11.5 7.7		80.8		
11.5	19.2		69.2	
<mark>3.8</mark> 3.8 7.7	19.2		65.4	
3.8 <mark>11.5</mark>	23.1		61.5	

Evaluat

I feel confident in my understanding of hereditary breast cancer The content was culturally appropriate and well suited to my context The duration of each module was appropriate

Neither Agree nor Disagree

Disagree Strongly Disagree

Agree Strongly Agree

Figure 1: Online Course Evaluation



- The e-learning course was well received and deemed effective by HCP trainees throughout Nigeria.
- This collaborative effort underscores the vital role of accessible education to support genetic counseling services in Nigeria and advocate for equitable breast cancer care globally.

Acknowledgments

This study was funded through the PMCC Health Equity Grand Challenge



