



# ACTION

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

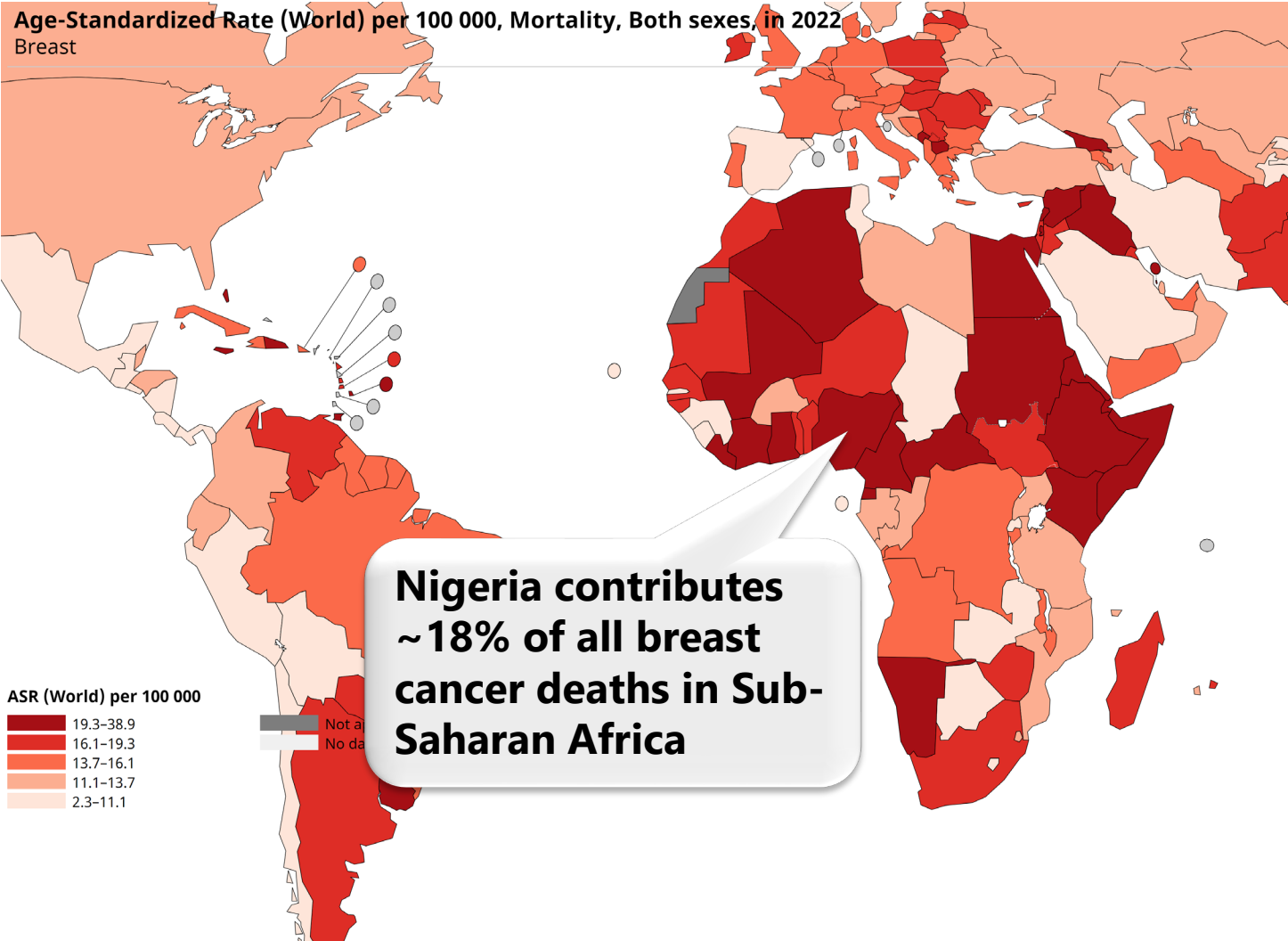
## CANADIAN GLOBAL ONCOLOGY NETWORK

MEHWISH RANA, MSC STUDENT

23 MARCH 2026

Co-authors: **F. Wuraola**, J.Ramruthan, N.Sunday-Nweke, O.Agodirin, O.Alatise, M.Castelo, A.Covelli, A.Dare, S.Folorunso, M.Jacobson, S.Lawal, O.Nwafor, O.Olasehinde, J.Papadakos, L.Peck, E.Reel, D.Rodin, E.Thain, and **T.Cil**

# BREAST CANCER BURDEN IN SUB-SAHARAN AFRICA (SSA)



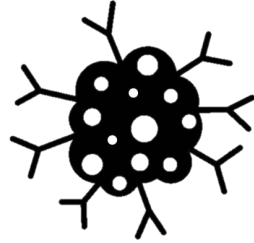
Country	Mortality Rank	Prop of SSA BC Deaths
<b>Nigeria</b>	1	17.9%
<b>Ethiopia</b>	2	10.5%
<b>Egypt</b>	3	10.5%
<b>South Africa</b>	4	5.7%
<b>Algeria</b>	5	5.4%
<b>Democratic Republic of Congo</b>	6	4.7%
<b>Morocco</b>	7	4.4%
<b>Kenya</b>	8	3.7%
<b>Sudan</b>	9	3.5%
<b>Ghana</b>	10	2.6%

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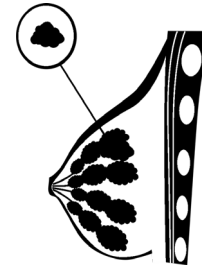
# CHALLENGES OF TREATING BREAST CANCER IN NIGERIA



Early onset  
**15-39**  
years at  
diagnosis



Late stage  
**III/IV**  
diagnosis



About  
**40%**  
aggressive  
TNBC



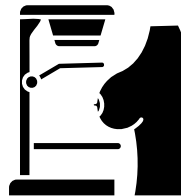
Overall  
**43.6%**  
survival



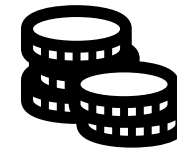
Estimated  
**220M+**  
people



About  
**20%**  
women  
have CBE  
each year



About  
**2.3%**  
women have  
mammograms  
each year



Government  
funded  
**\$\$\$**  
Public Health  
care system

# CHALLENGES OF TREATING BREAST CANCER IN NIGERIA



Early onset  
**15-39**  
years at  
diagnosis



Late stage  
**III/IV**



About  
**40%**



Overall  
**43.6%**  
survival

**These features point to underlying genetic susceptibility for breast cancer in Nigerian patients**



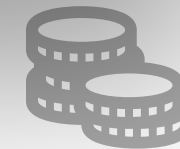
Estimated  
**220M+**  
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**20%**  
women  
have CBE  
each year



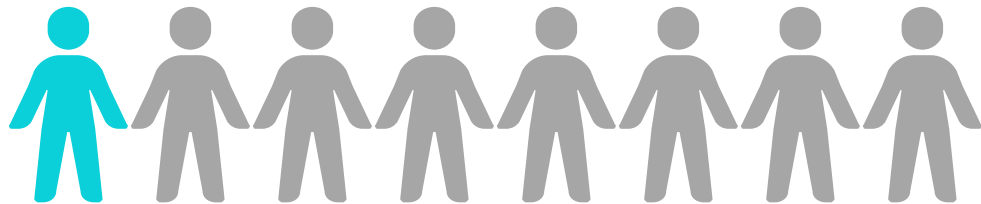
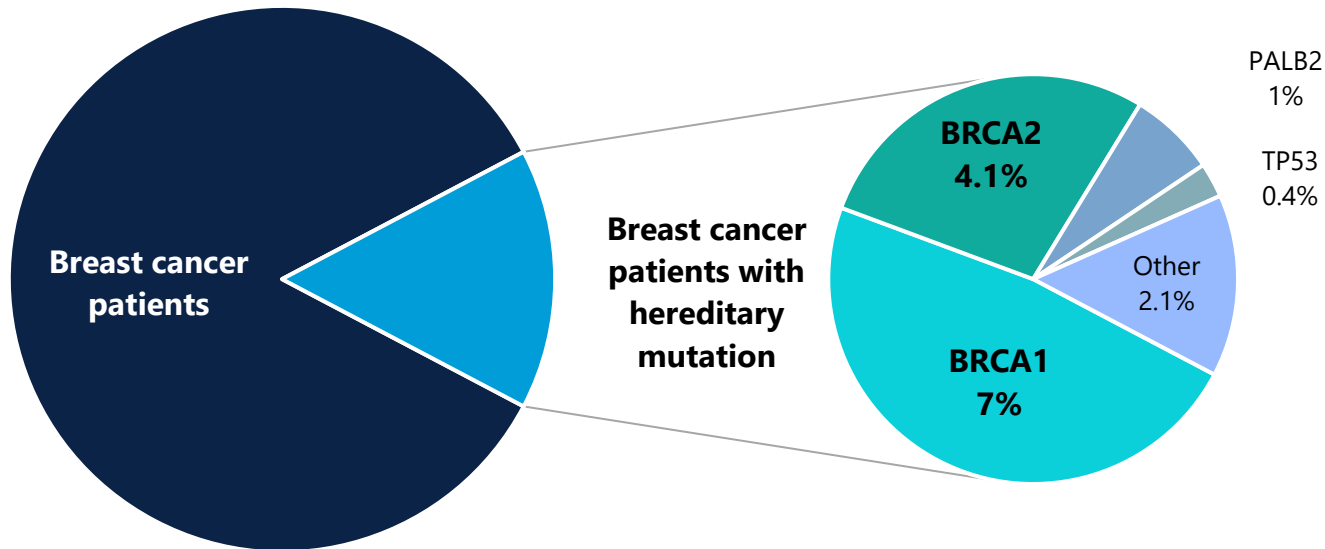
**2.3%**  
women have  
mammograms  
each year



Government  
funded  
**\$\$\$**  
Public Health  
care system

# HEREDITARY PREDISPOSITION IN NIGERIA:

## Findings From Ibadan



### KEY FINDINGS

**11.1%** (127 of 1,136) were found to have an inherited BRCA1/2 mutation

**Unlike in North America/Europe...**

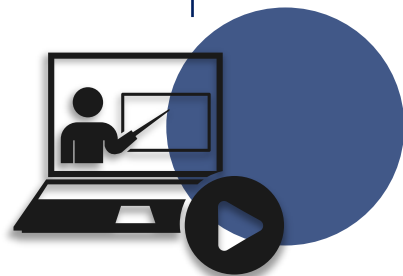
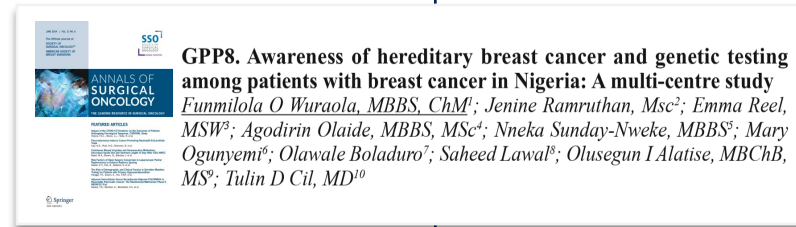
- Access to genetic testing and counselling is extremely limited in Nigeria

→ **Major oncologic health disparity**

# ACTION STUDY OBJECTIVES

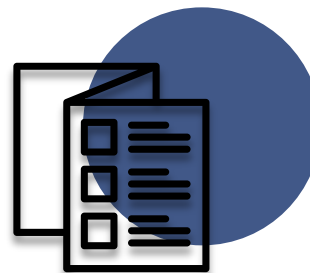
## EDUCATION

## IMPLEMENTATION



### Aim 1

Develop an education program to train Nigerian providers in genetic counselling



### Aim 2

Develop patient education materials to understand genetic testing

### Aim 3

Assess the feasibility of *BRCA 1/2* testing of breast cancer patients in Nigeria  
→ **Psychological Outcomes**

# PURPOSE



**To assess the psychological impact of *BRCA1/2* genetic testing for breast cancer patients in Nigeria**

# STUDY DESIGN



## Saliva sample collection in Nigeria

Obafemi Awolowo  
University Teaching  
Hospital (OAUTH)

University of Ilorin  
Teaching Hospital  
(UIITH)

Federal Teaching  
Hospital Abakaliki  
(FETHA)

**Inclusion Criteria:**  
New breast cancer diagnosis; 18 - 60 years of age

n = 100



## Laboratory Analysis in California

~ 23 days

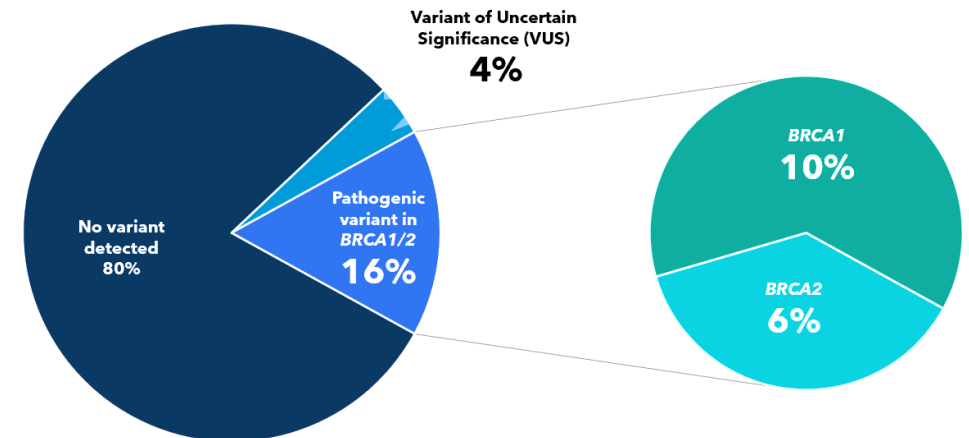


## Genetic Test Results Returned

~ 1 week



## MICRA administered post-disclosure



# MICRA

## MULTIDIMENSIONAL IMPACT OF CANCER RISK ASSESSMENT

19-item tool measuring psychological impact of genetic testing (score range: 0-95)



### **Distress**

6 items

- Anxiety
- Sadness
- Guilt
- Loss of control
- Reduced enjoyment of life



### **Uncertainty**

9 items

- Risk of cancer
- Meaning of results
- Family/personal impact
- Decision-making
- Frustration



### **Positive Experience**

4 items

- Relief
- Happiness
- Family communication
- Support

**Higher scores on the MICRA tool = Greater psychological impact**

# METHODOLOGY



## Structured Interview Format

### Interviewer-Administered

Trained research assistants conducted all surveys

### Post-Disclosure Timing

Administered 1-week after genetic test result disclosure

### Standardized Protocol

Minimized variability across three study sites



## Cultural & Linguistic Adaptation

### Language Preference

Delivered in participants' preferred local language

### Literacy Support

Ensured comprehension across varying literacy levels

**n = 84**

**completed the survey**

[12 *BRCA1/2* mutation carriers]

16 excluded due to loss of follow-up

# RESULTS: DEMOGRAPHICS

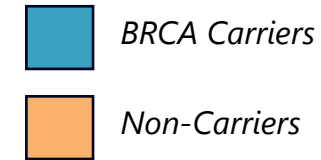
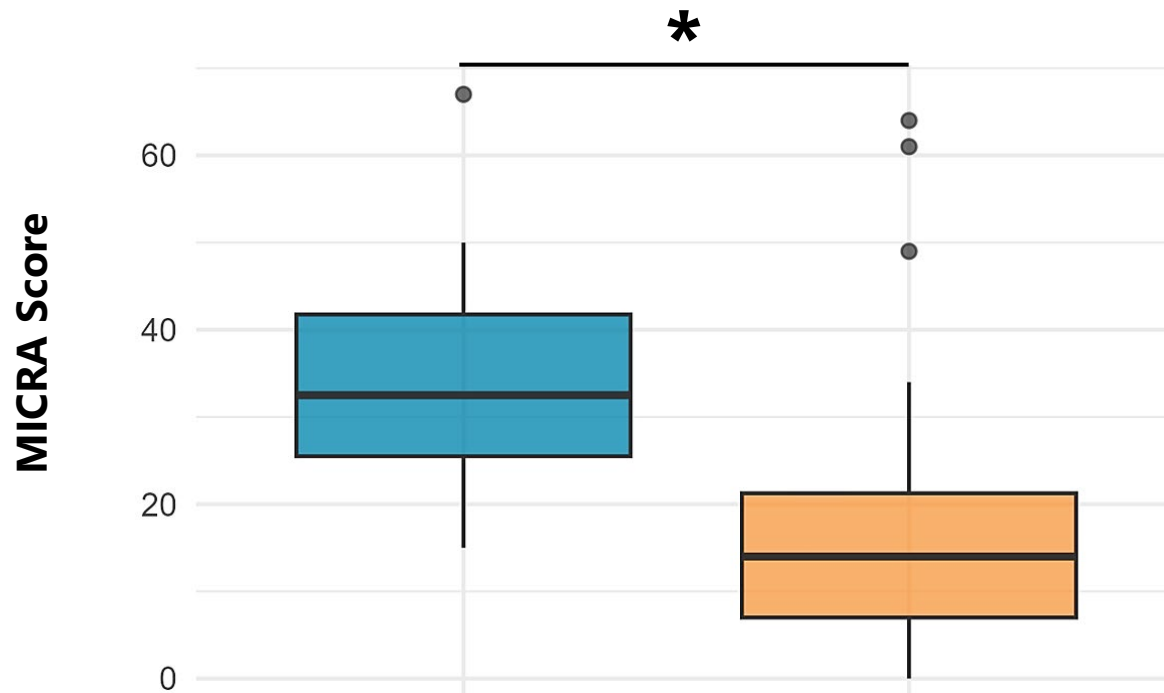
Characteristic	Non-Carrier N = 84	Carrier N = 16	p-value
<b>Age (median, IQR)</b>	43 (38,51)	42 (38,49)	0.6
<b>Hospital, Site</b>			0.7
OAU, Ile-Ife	56 (67%)	11 (69%)	
AEFUTHA, Abakaliki	17 (20%)	2 (13%)	
UIITH, Ilorin	11 (13%)	3 (19%)	
<b>Ethnicity</b>			>0.9
Yoruba	63 (75%)	13 (81%)	
Igbo	17 (20%)	3 (19%)	
Hausa	4 (4.8%)	0 (0%)	
<b>Religion</b>			>0.9
Christian	64 (76%)	13 (81%)	
Islam	20 (24%)	3 (19%)	

**No significant differences were observed between *BRCA* carriers and non-carriers across age, site, ethnicity, or religious background within this cohort.**

# MICRA RESULTS

## MULTIDIMENSIONAL IMPACT OF CANCER RISK ASSESSMENT

Total MICRA Scores by Carrier Status



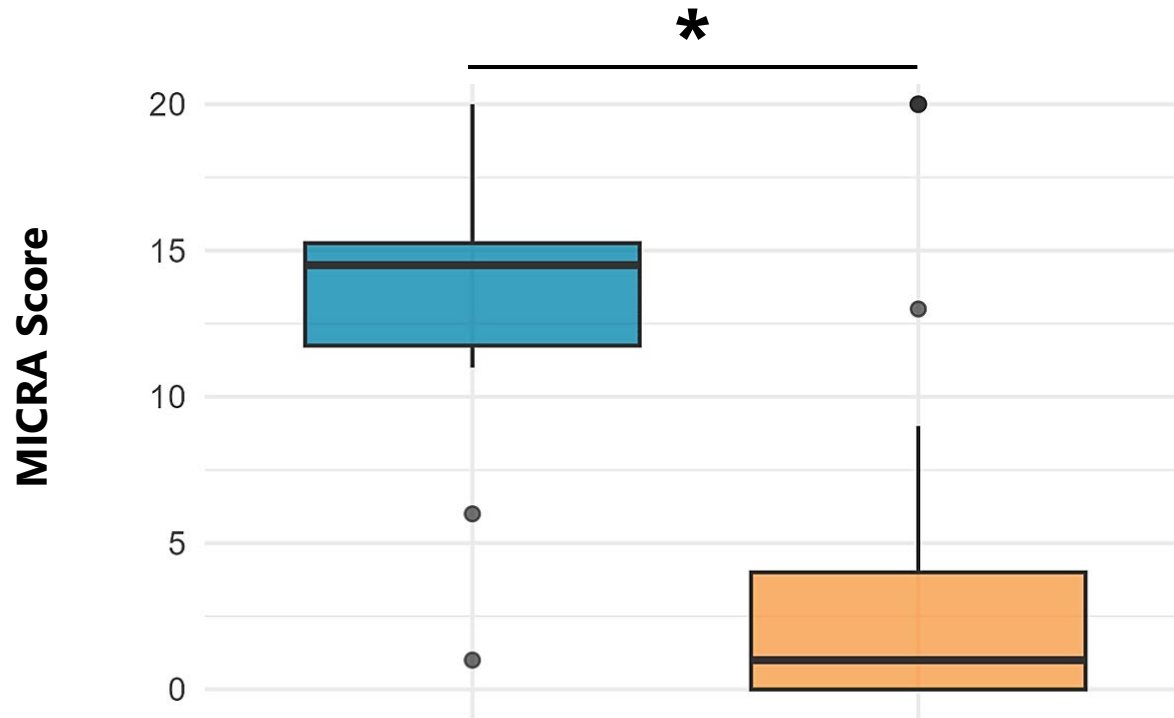
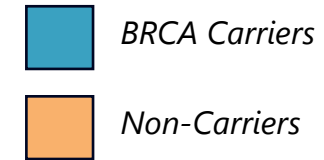
BRCA carriers reported significantly **higher total MICRA scores** compared with non-carriers  
( $p < 0.001$ )

N	12	72
Median (IQR)	33 (25,45)	14 (7,22)

# MICRA RESULTS

## MULTIDIMENSIONAL IMPACT OF CANCER RISK ASSESSMENT

### Distress Scores by Carrier Status



**Distress**  
6 items

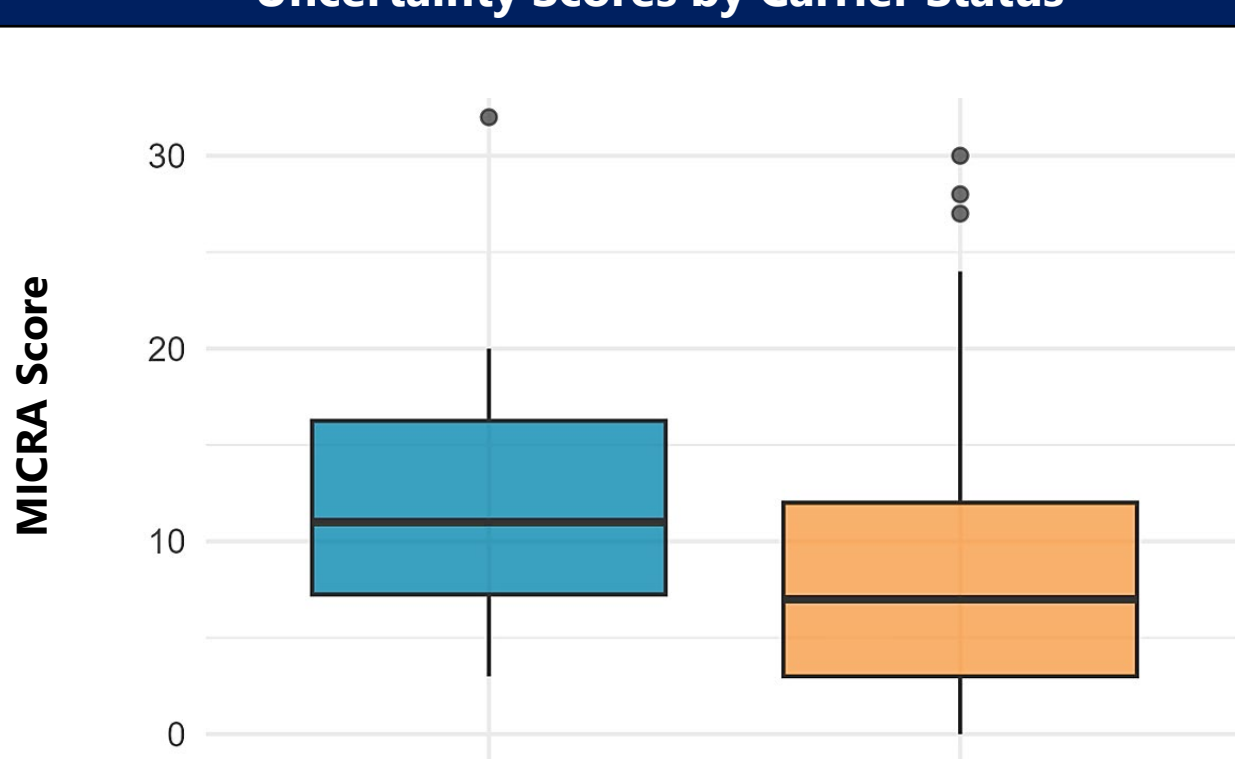
- Anxiety
- Sadness
- Guilt
- Loss of control
- Reduced enjoyment of life

Median (IQR)	14.5 (11.5, 15.5)	1.0 (0, 4.0)
p-value	<b>&lt;0.001</b>	

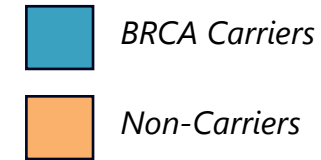
# MICRA RESULTS

## MULTIDIMENSIONAL IMPACT OF CANCER RISK ASSESSMENT

### Uncertainty Scores by Carrier Status



Median (IQR)	11 (7,17)	7 (3,12)
p-value	0.085	



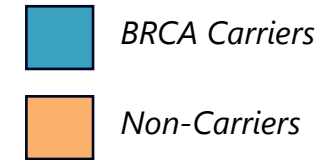
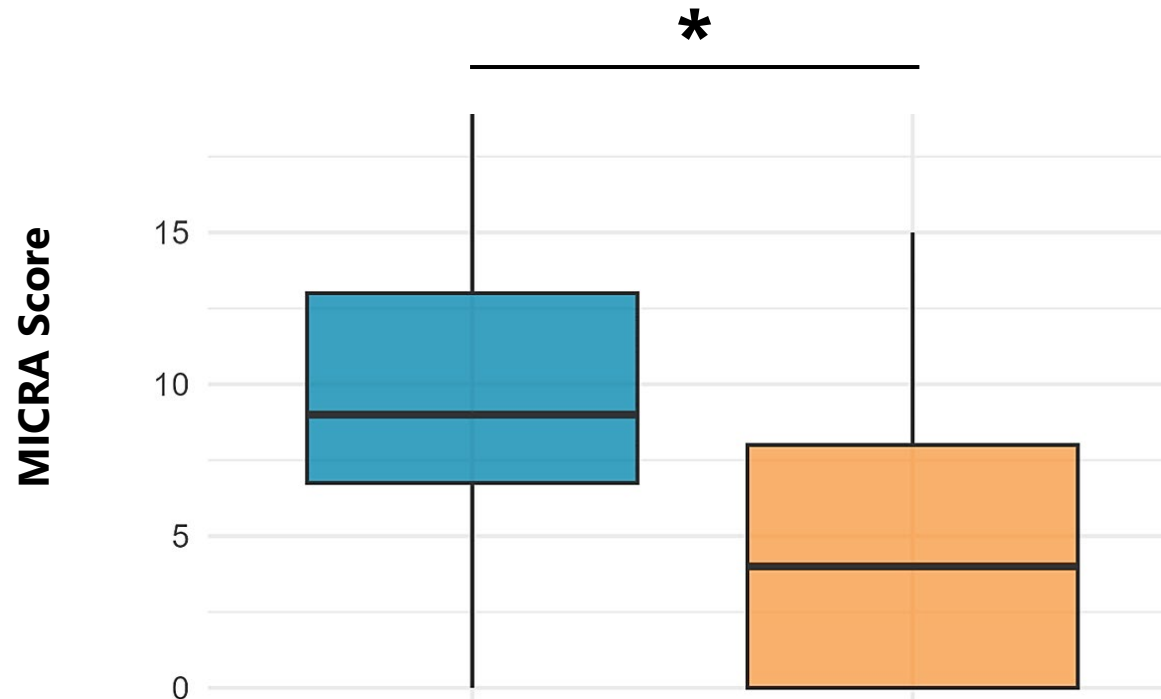
### Uncertainty 9 items

- Risk of cancer
- Meaning of results
- Family/personal impact
- Decision-making
- Frustration

# MICRA RESULTS

## MULTIDIMENSIONAL IMPACT OF CANCER RISK ASSESSMENT

### Positive Experience Scores by Carrier Status



### Positive Experience REVERSE – CODED 4 items

- Relief
- Happiness
- Family communication
- Support

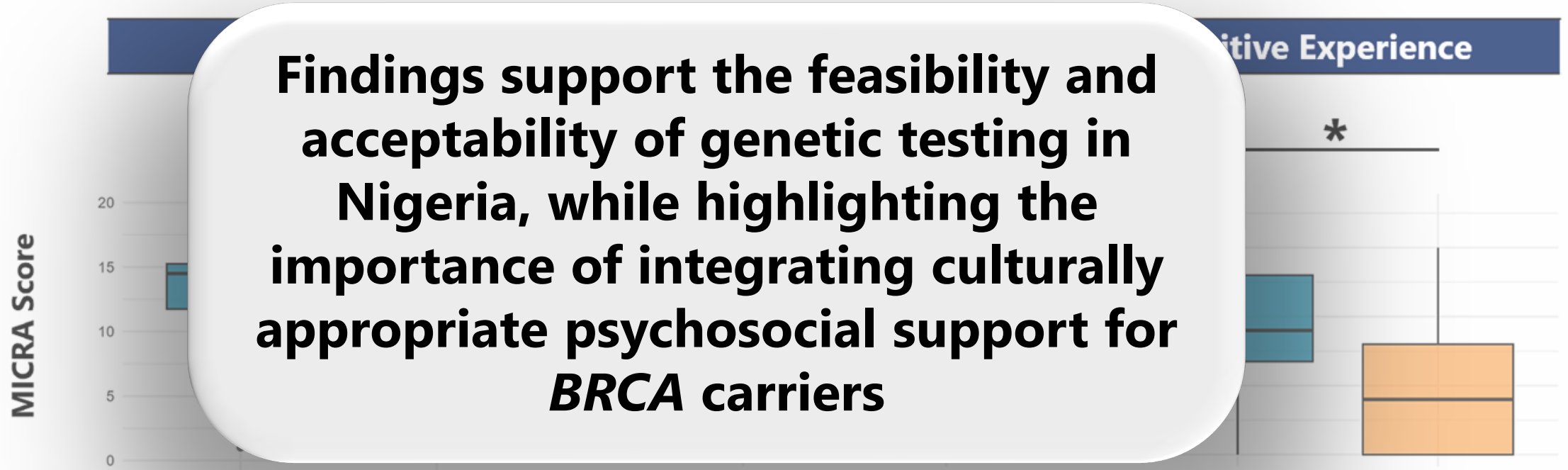
Median (IQR)	9.0 (6.5,13.0)	4.0 (0.0,8.0)
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p-value	0.002	
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# MICRA RESULTS

## MULTIDIMENSIONAL IMPACT OF CANCER RISK ASSESSMENT

■ BRCA Carriers (N=12)
 ■ Non-Carriers (N=72)



Median (IQR)	14.5 (11.5,15.5)	1.0 (0,4.0)	11 (7,17)	7 (3,12)	9.0 (6.5,13.0)	4.0 (0.0,8.0)
p-value	<b>&lt;0.001</b>		0.085		<b>0.002</b>	

# STRENGTHS

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- ❑ First study to use the MICRA tool in SSA and LMIC settings
- ❑ Addresses an unmet need for BC patients in Nigeria

# LIMITATIONS

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- ❑ Small sample size (N=84)
- ❑ Response bias (paper-based vs. verbal)

# CONCLUSIONS & FUTURE DIRECTIONS

- ❑ Psychological impact & distress of genetic testing in Nigeria mirrors high-income settings, supporting global generalizability.
- ❑ First application of MICRA in SSA/LMICs, confirming cross-cultural validity, and feasibility for its interviewer-administered, language-adapted use in resource-limited settings.

**These findings support the feasibility of integrating genetic testing and counselling in Nigeria and underscore the importance of culturally appropriate psychosocial support alongside genetic services**



# THANK YOU

Principal investigators: Dr. Funmi Wuraola and Dr. Tulin Cil

[wuraie@yahoo.com](mailto:wuraie@yahoo.com) | [tulin.cil@uhn.ca](mailto:tulin.cil@uhn.ca)

[actionstudy@uhn.ca](mailto:actionstudy@uhn.ca)



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