



# Today's Presentation

- **A brief history of the BWHS**
  - Dr. Yvette Cozier
- **Recent BWHS findings**
  - Dr. Kimberly Bertrand
- **BWHS Environmental Health Study**
  - Dr. Etienne Holder
- **BWHS Cognitive Health Study**
  - Dr. Lisa Barnes
- **Q & A**
- **Looking Ahead**
- **Wrap up**



# BWHS Leaders



***Julie Palmer, ScD***



***Yvette Cozier, DSc***



***Kimberly Bertrand, ScD***

# BWHS Advisory Board



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MD, MPH***



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***Shiriki Kumanyika,  
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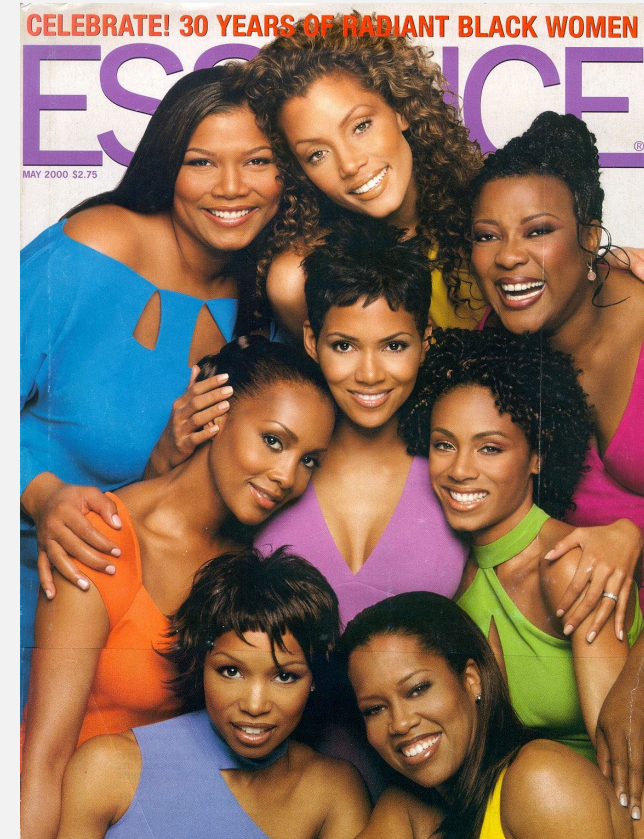


***Jacqueline McLeod,  
MPH, MEd***

# **A Brief History of BWHS**

# In 1995 . . .

- 59,000 black women completed the first postal questionnaire
- *Essence* subscribers, members of professional organizations (educators, healthcare), family and friends
- 21-69 years (median=38 years)
- Information updated every two years



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75% of BWHS participants have completed at least 10 questionnaires!

# Today (2026) . . .



- Ages 51 - 100 years (median = 69 years)
- Participants now or turning 100 this year: 11
- Active participants: 46,500







# Dietary Assessment: 1995, 2001, 2013, 2021

The next questions are about your usual diet during the past year. Mark the column to show how often, on average, you ate each food during the past year. Mark whether your usual serving size is small, medium, large, or super. Please DO NOT OMIT serving size unless you never ate the food or ate it less than once a month.

- a small serving size is about half the medium serving size or less.
- a large serving size is about one and a half times the medium size.
- a super serving size is more than 2 times the size of a medium size.

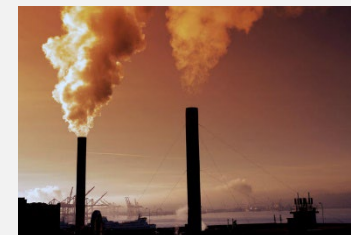
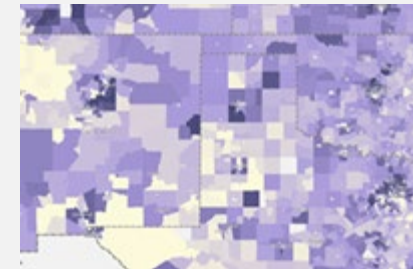
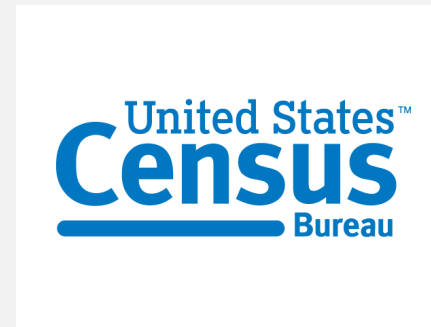
Please do not skip any foods. If you never eat a food, mark "never or <1 per month"

Example: During the past year, you ate a super serving of rice ( 2 cups) about twice a month, 2 medium apples and 1 medium pear each week (3 per week), and sausage less than once a month (<1 per month).

EXAMPLE TYPE OF FOOD	HOW OFTEN										HOW MUCH				
	Never or <1 per month	1 per month	2-3 per month	1 per week	2 per week	3-4 per week	5-6 per week	1 per day	2 or more per day	Medium serving	Your serving size				
											small	medium	large	super	
Apples, pears										1 medium			●		
Rice			●							3/4 cup					●
Regular bacon or regular sausage	●									2 pieces					
TYPE OF FOOD	HOW OFTEN										HOW MUCH				
TYPE OF FOOD	Never or <1 per month	1 per month	2-3 per month	1 per week	2 per week	3-4 per week	5-6 per week	1 per day	2 or more per day	Medium serving	Your serving size				
											small	medium	large	super	
<b>36. FRUIT AND JUICES</b>															
Apples, pears	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 medium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Bananas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 medium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Cantaloupe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1/4 medium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Canned fruit, fruit cocktail, applesauce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1/2 cup	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Oranges, tangerines, grapefruit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 medium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other fruit (strawberries, grapes, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1/2 cup	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Orange or grapefruit juice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8 ounce glass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other fruit juices, fortified fruit drinks, kool-ade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8 ounce glass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<b>37. BREAKFAST FOODS</b>															
High fiber, bran or granola cereals, shredded wheat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 medium bowl	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Highly fortified cereals, such as Product 19 or Total	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 medium bowl	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other cereals, such Corn Flakes, Rice Krispies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 medium bowl	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other cooked cereals, or grits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 medium bowl	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Eggs, including egg sandwich	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2 eggs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Regular bacon or regular sausage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2 pieces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Turkey bacon or turkey sausage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2 pieces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

# Additional Data Sources

- Cancer registries
- Medicare
- Census bureau
  - Neighborhood SES
  - Built environment
- EPA
  - Environmental exposures



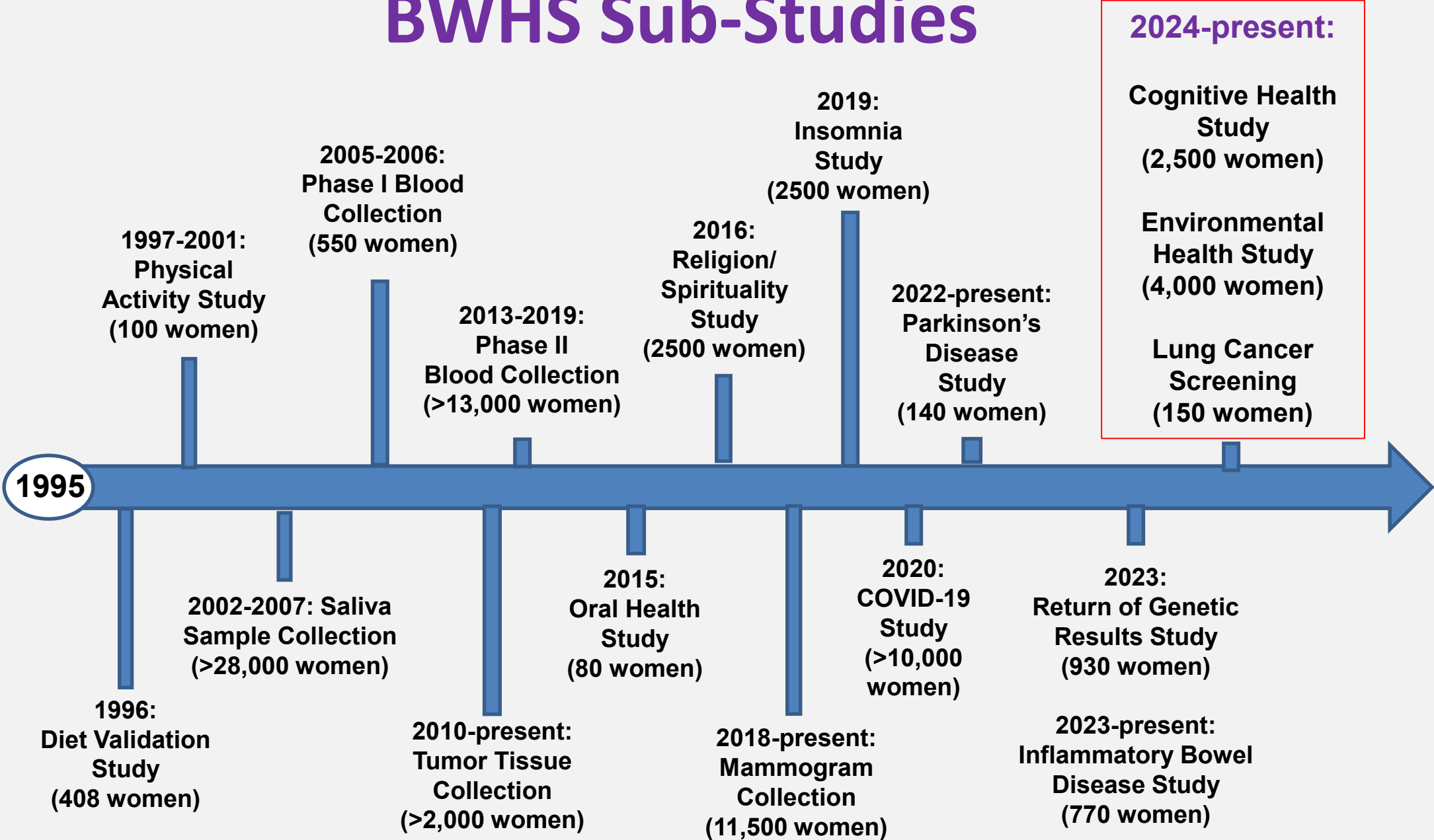
# BWHS Research Areas: 1996-2024



<i>Cancer</i>
<b>Breast</b>
<b>Colorectal</b>
<b>Liver</b>
<b>Ovarian</b>
<b>Lung</b>
<b>Pancreatic</b>
<b>Endometrial</b>
<b>Cervical</b>
<b>Leukemia/Lymphoma</b>

<i>Non-cancer conditions</i>	
<b>Obesity</b>	<b>Cognitive health</b>
<b>Type 2 diabetes</b>	<b>Parkinson's Disease</b>
<b>Uterine fibroids</b>	<b>Hip fracture</b>
<b>Sarcoidosis</b>	<b>Osteoarthritis</b>
<b>Hypertension</b>	<b>Kidney health</b>
<b>Lupus</b>	<b>Urinary tract health</b>
<b>Preterm birth</b>	<b>CVD</b>
<b>Asthma</b>	<b>Rheumatoid Arthritis</b>
<b>Oral health</b>	<b>Inflammatory Bowel Disease</b>

# BWHS Sub-Studies





# **BWHS research highlights and current projects**

# Breast cancer risk prediction



- **Estimated 5- and 10-year risk** based on medical, reproductive, and family history
- **Model showed improvement over existing models established in non-Hispanic white women**
- **New AI models** in development based on mammogram images

*Palmer et al., JCO 2021*

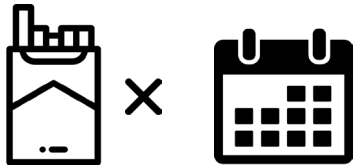
*Zirpoli et al., Breast Cancer Research 2024*

# Lung cancer screening guidelines

## 2021 USPSTF guidelines



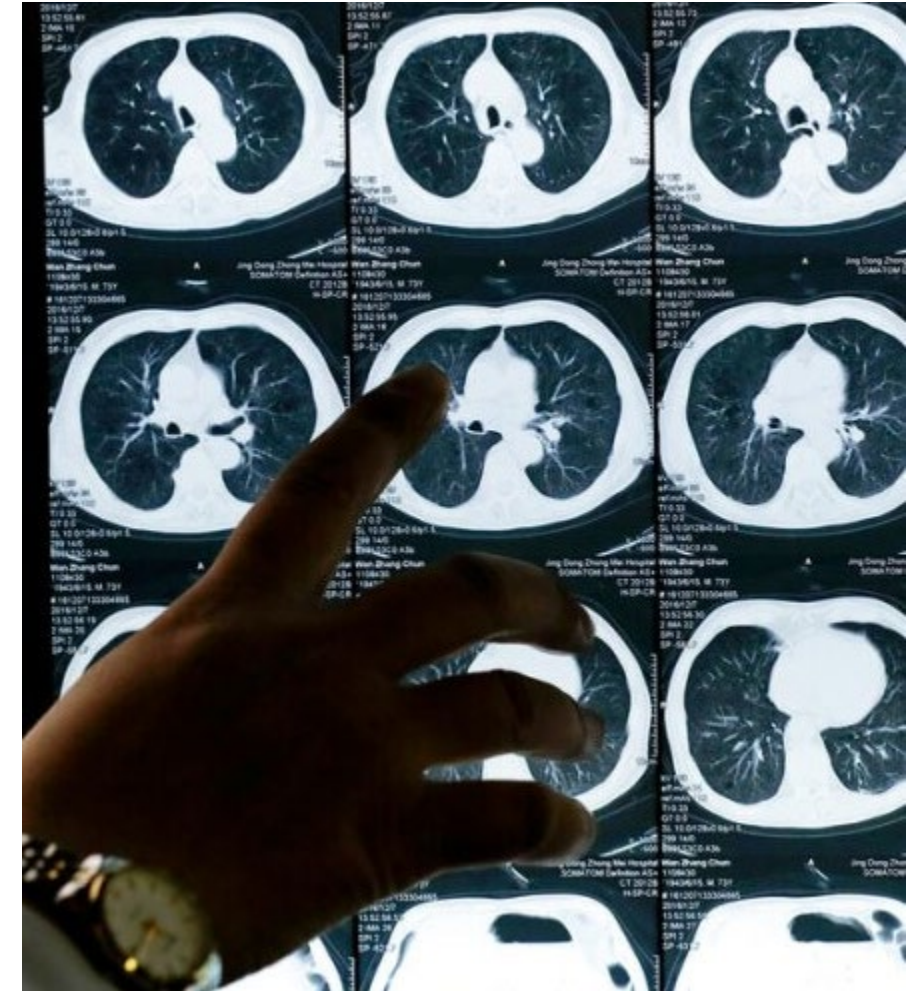
50-80 years old



20+ **pack-years** smoking history



Currently smoke or quit within the past 15 years



# Neighborhood disadvantage & lung cancer risk

Among never smokers, living in **disadvantaged neighborhoods** was associated with increased risk of **lung cancer**



# Experiences of racism and diabetes and CVD risk

## Experiencing Racism Increases Black Women's Heart Disease Risk, BU Research Finds

New study shows perceived racism in employment, housing, and interactions with the police associated with 26 percent higher risk of coronary heart disease



"Racism has a real impact on the heart health of Black women," says Shanshan Sheehy, a study coauthor and BU Chobanian & Avedisian School of Medicine assistant professor. Photo by FG Trade/iStock

**Racism in employment, housing, and the police was associated with increased risks of:**

- **Diabetes**
- **Coronary heart disease**
- **Stroke**

*Bacon et al., Diabetologia 2017*  
*Sheehy et al. JAMA Netw Open 2023*  
*Sheehy et al., Circulation 2024*

# Racism and neighborhood disadvantage and cognitive health

- **Neighborhood disadvantage was associated with increased risk of **Alzheimer's disease** & related dementias**
- **Experiences of racism were associated with worse subjective **cognitive function****

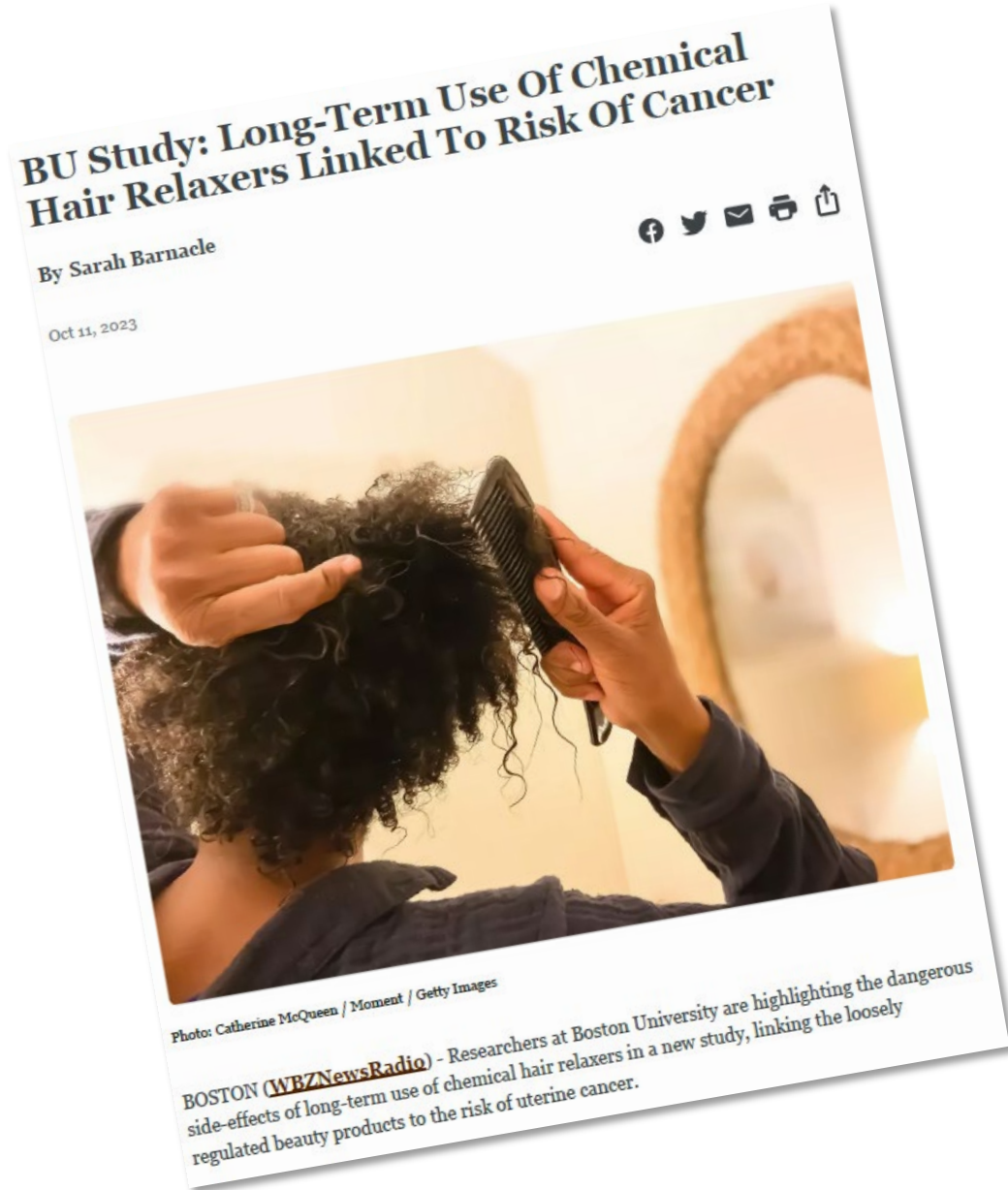
*Coogan et al, Alz Dement 2020*

*Coogan et al, Alz Dement 2025*

*Hill-Jarrett et al, Psychol Aging 2025*



# Chemical hair relaxers and reproductive health



Long-term use of **chemical hair relaxers** was associated with higher risks of :

- Uterine fibroids
- ER-positive breast cancer
- Uterine cancer

*Wise et al., AJE 2012*  
*Coogan et al., Carcinogenesis 2021*  
*Bertrand et al., Env Res 2023*

# **BWHS Environmental Health Study**



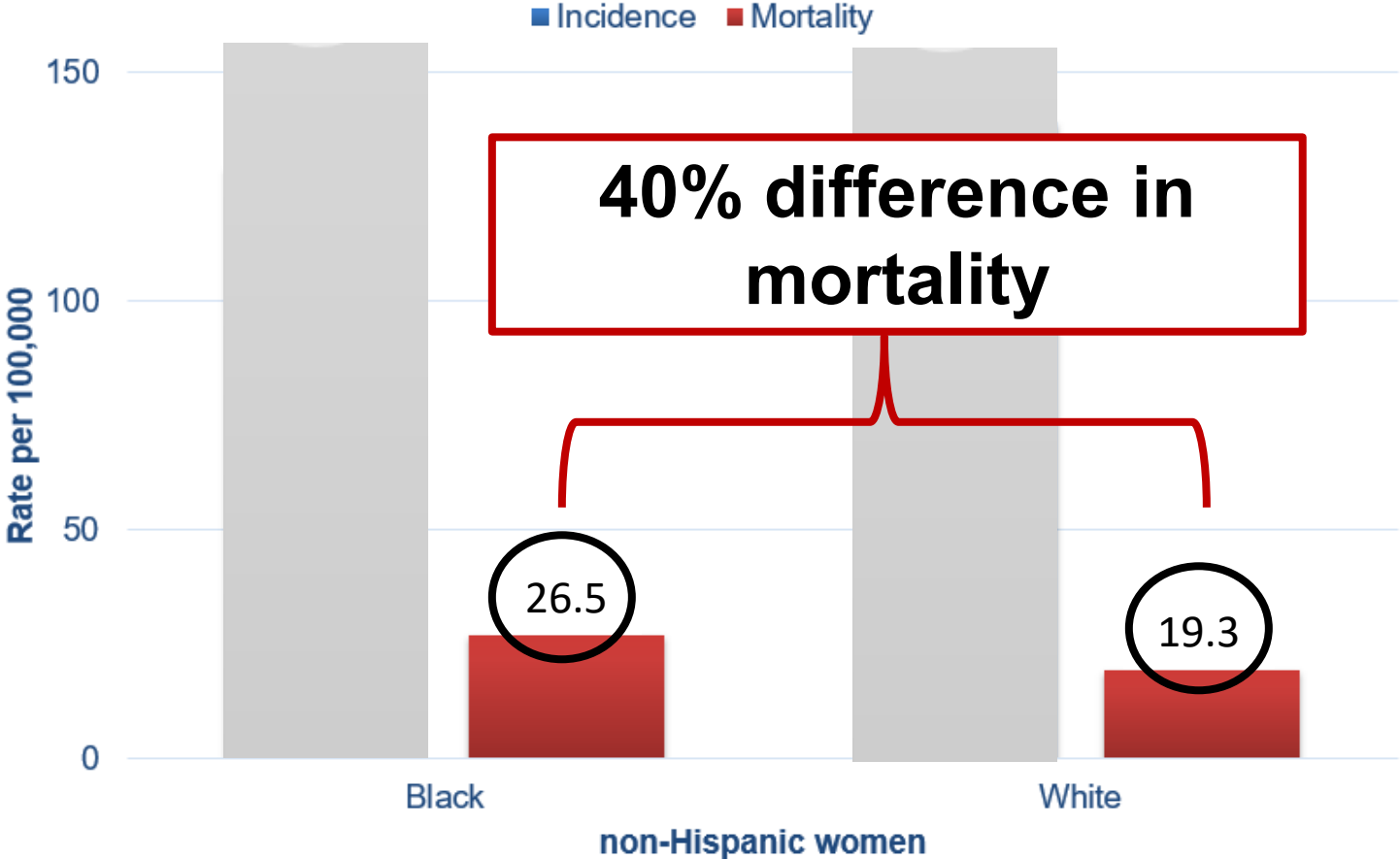
# Socio-environmental influences on health



Étienne Holder, PhD  
Postdoctoral Associate

# Black women are diagnosed with breast cancer slightly less often than White women but are more likely to die from it.

## Breast Cancer Incidence (2018-2022) and Death Rates (2019-2023) by Race and Ethnicity, United States



# Our Environment

## Community & Social Conditions

- Income and financial stability
- Education and employment opportunities
- Chronic stress and discrimination



# Our Environment

## Pollution & Toxic Exposures

- Air and water pollution
- Industrial and traffic-related exposures
- Chemicals in consumer products



# Our Environment

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## Our Physical Surroundings

- Housing quality and safety
- Access to parks and greenspace
- Access to healthy foods






RESEARCH ARTICLE

Open Access



# Neighborhood disadvantage and individual-level life stressors in relation to breast cancer incidence in US Black women

Lauren E. Barber<sup>1,2</sup>, Gary R. Zirpoli<sup>2</sup>, Yvette C. Cozier<sup>1,2</sup>, Lynn Rosenberg<sup>1,2</sup>, Jessica L. Petrick<sup>2,3</sup>, Kimberly A. Bertrand<sup>2,3</sup> and Julie R. Palmer<sup>2,3\*</sup> 



JAMA Network | **Open**<sup>™</sup>



Original Investigation | Equity, Diversity, and Inclusion

## Neighborhood Disadvantage, Individual Experiences of Racism, and Breast Cancer Survival

Etienne X. Holder, PhD, MPH; Mollie E. Barnard, ScD; Nuo N. Xu, MSPH; Lauren E. Barber, PhD; Julie R. Palmer, ScD

# Neighborhood disadvantage & breast cancer risk

Living in **disadvantaged neighborhoods** is associated with:

Increased risk of ER-negative breast cancer

Increased risk of breast cancer death

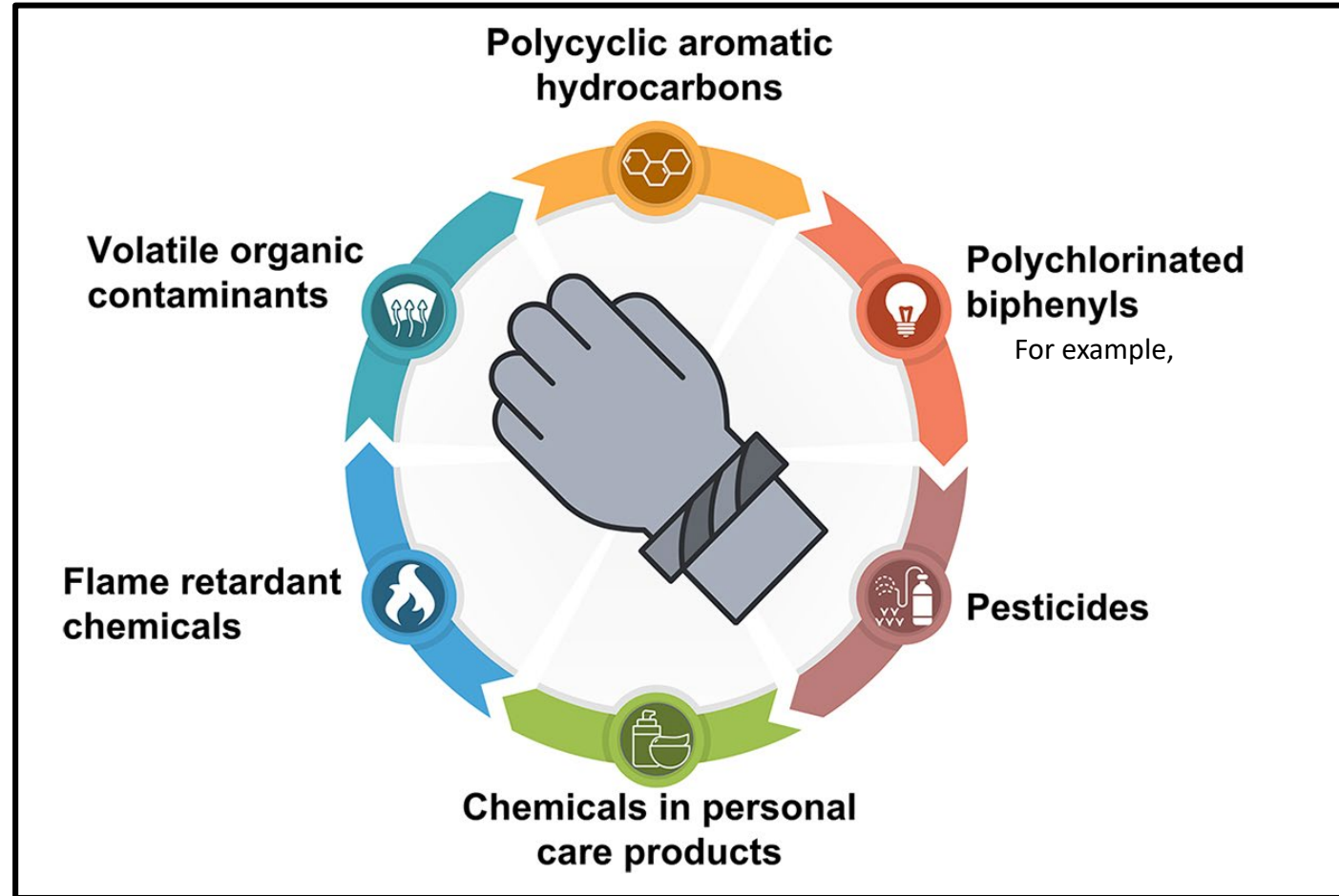


# Environmental Factors in the BWHS

How the **environment affects health**:

Study wristbands measure everyday chemical exposure

Helping us to understand how the environment influences health outcomes



# Pilot study - Wristband Project

We have completed wristband collection!

**4,014** women participated

To date, **816** wristbands were sent to the lab to be analyzed

Wristband Questionnaire

Please fill in this form at the end of wearing your wristband for 7 days and nights in a row.

What is your name?  
First name   
Last name

What is today's date?  
 /  /  mm/dd/yy

When did you START wearing your wristband?  
Day Started  /  /  mm/dd/yy  
Time Started  :  hh:mm  am or pm (circle one)

When did you STOP wearing your wristband?  
Day Started  /  /  mm/dd/yy  
Time Started  :  hh:mm  am or pm (circle one)

Which hand is your dominant hand (the hand you usually write with)?  
 Right  
 Left

Which wrist did you put the wristband on?  
 Right  
 Left

Did you also wear a watch or jewelry on the same wrist while wearing the wristband?  
 Yes  
 No

What type of watch or jewelry did you wear? Check all that apply.  
 Apple Watch or other smartwatch  
 Regular watch  
 Fitbit or other fitness tracker  
 Gold, silver, or other metal jewelry  
 Something else

Turn page over (→)



# The Public Health Impact

- Policy changes for the chemicals allowed in our environment + personal care products
- Disease prevention
- Improve **quality of life** and **survival** outcomes after a diagnosis





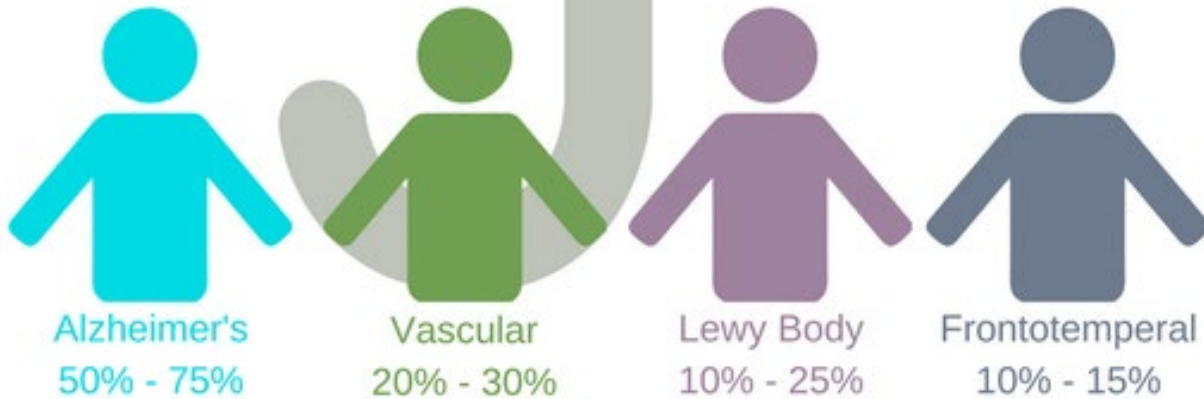
# **BWHS Cognitive Health Study**

# BWHS Cognitive Health Study



# DEMENTIA

An "umbrella" term used to describe a range of symptoms associated with cognitive impairment.




**Other, including mixed dementia**

Chronic loss of memory, language, problem solving, and other thinking skills

Severe enough to interfere with daily functioning

**Dementia is  
a growing  
health  
concern for  
our aging  
population**

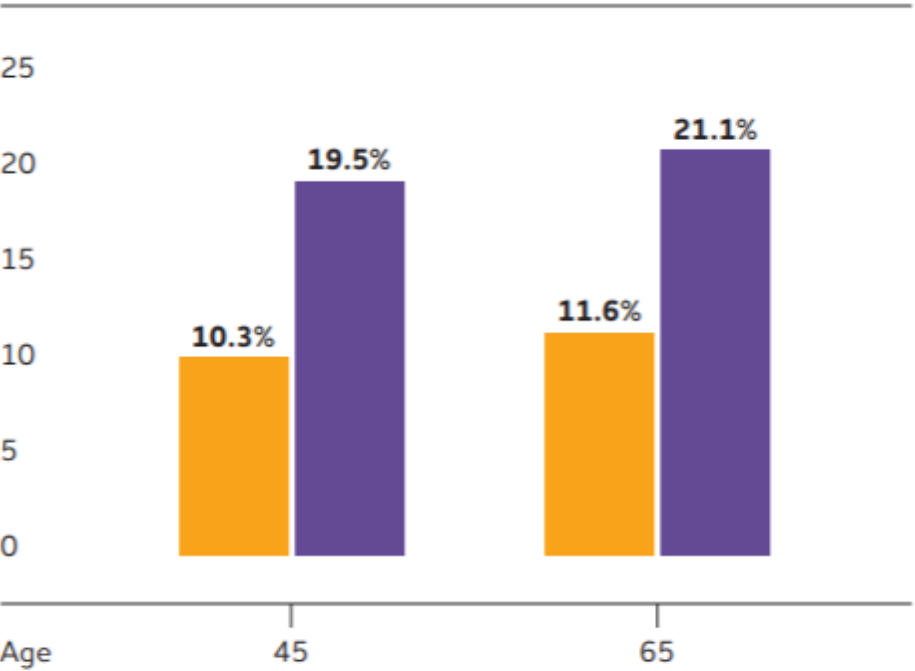
- Today 1 in 8 older Americans (>65 years of age) are affected by Alzheimer's disease and other dementias, at an annual cost of more than \$200 billion.
  - With projected population increases in the oldest age groups, ~13.5 million individuals in the USA will have Alzheimer's by the year 2050.
  - Thus, prevention is a public health priority.
- 

# Women are at greater risk of Alzheimer's Dementia

**FIGURE 2**

Estimated Lifetime Risk for Alzheimer's Dementia, by Sex, at Ages 45 and 65

Percentage ■ Men ■ Women



Alzheimer's Disease Facts and Figures, 2026

# Higher incidence of Alzheimer's dementia among African Americans

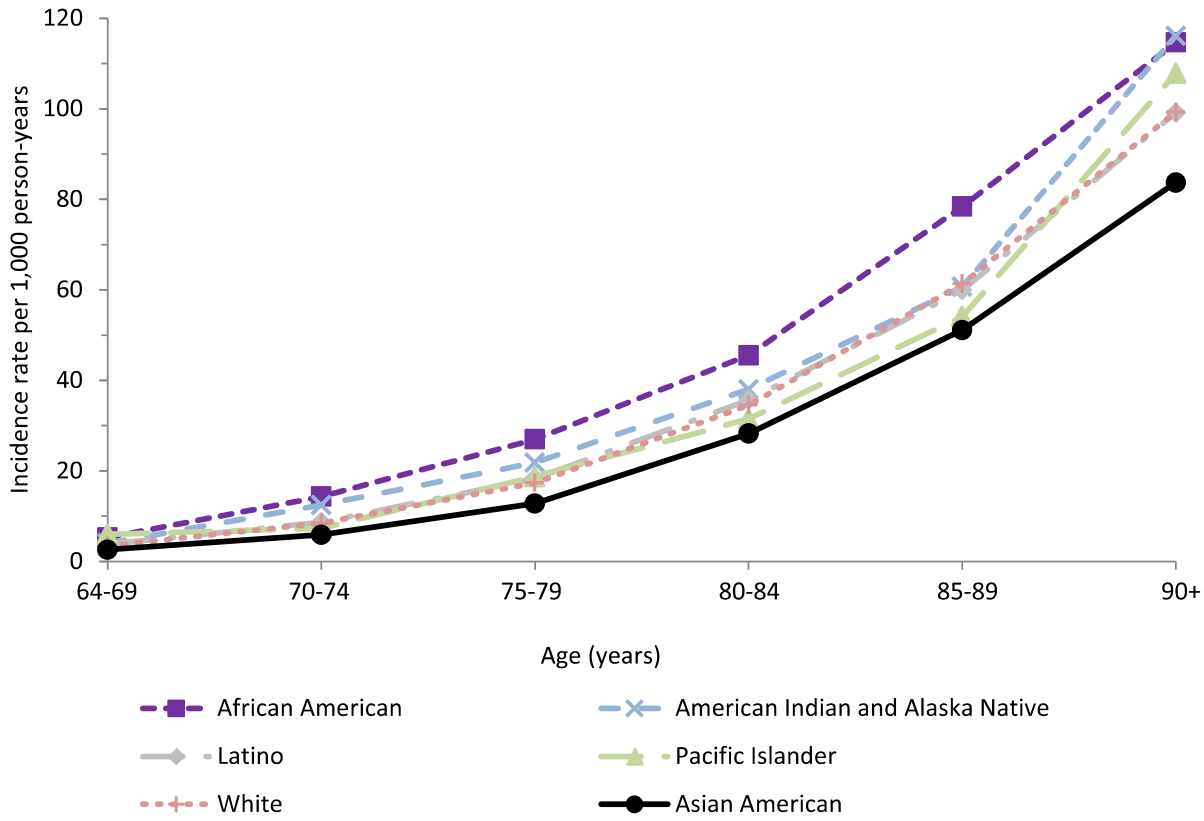
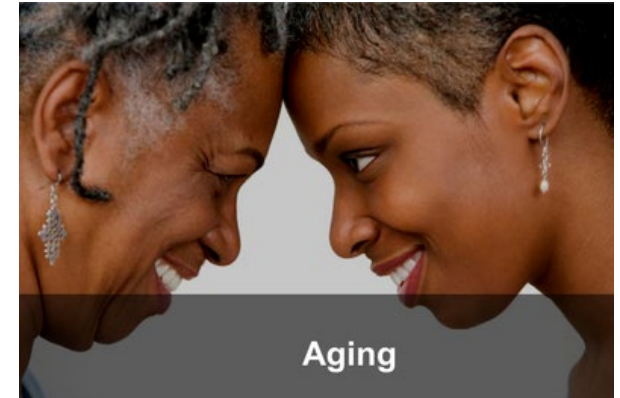
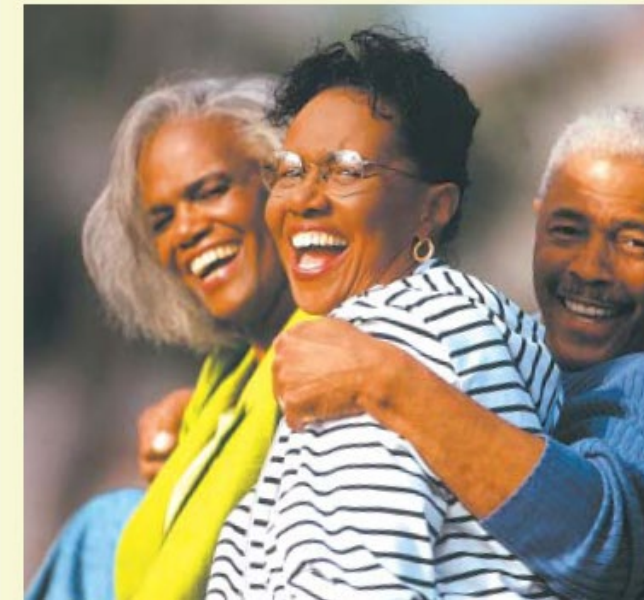


Fig. 2. Dementia incidence rates per 1000 person-years by age and race-ethnicity, 2000–2013.

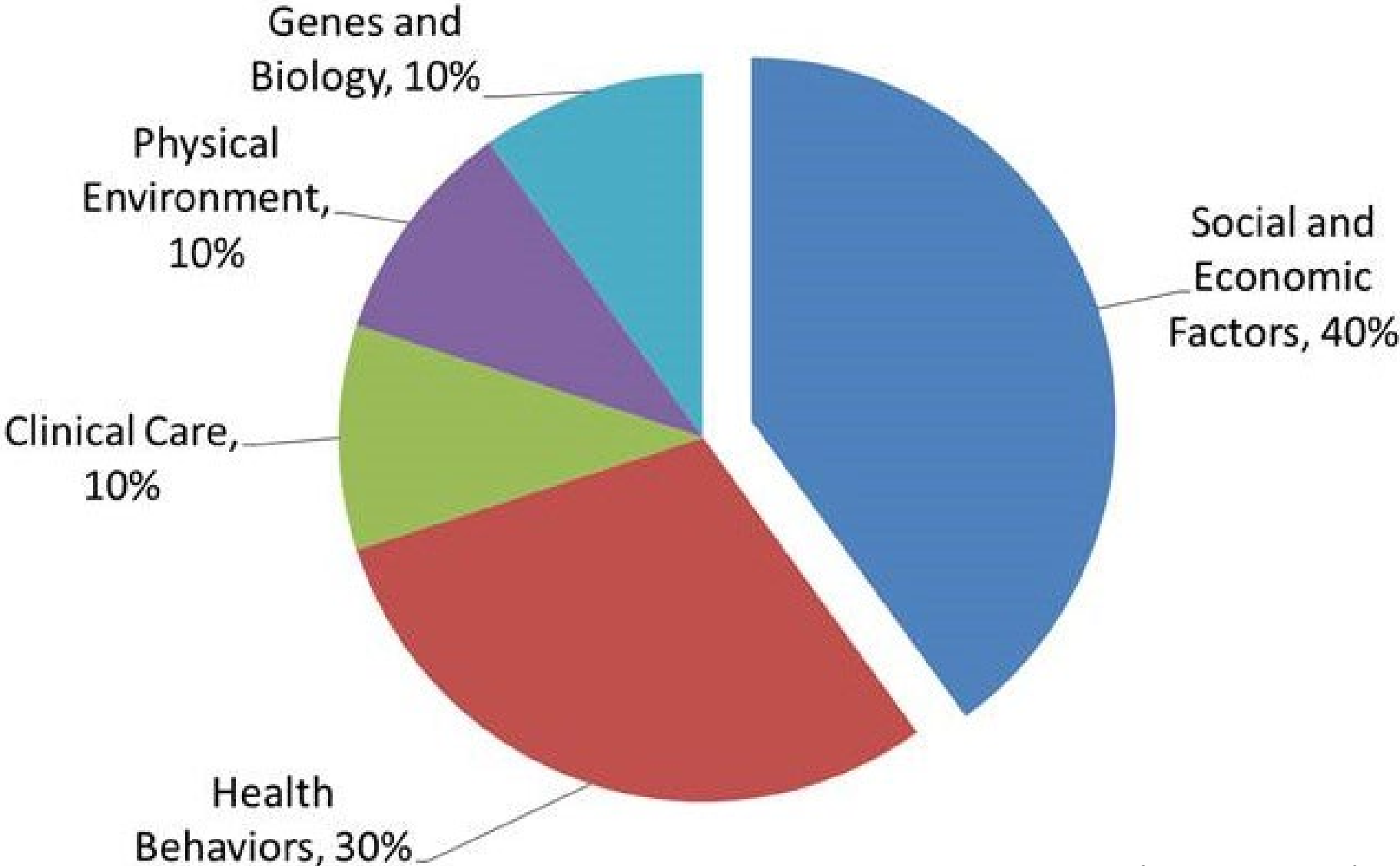


- African Americans 2x as likely as White Americans to have AD or another dementia
- Reasons not well understood
- Higher rates of cardiovascular disease are thought to play a role



**But what else could be the reason??**

# Most of our health is influenced by factors outside the walls of a hospital

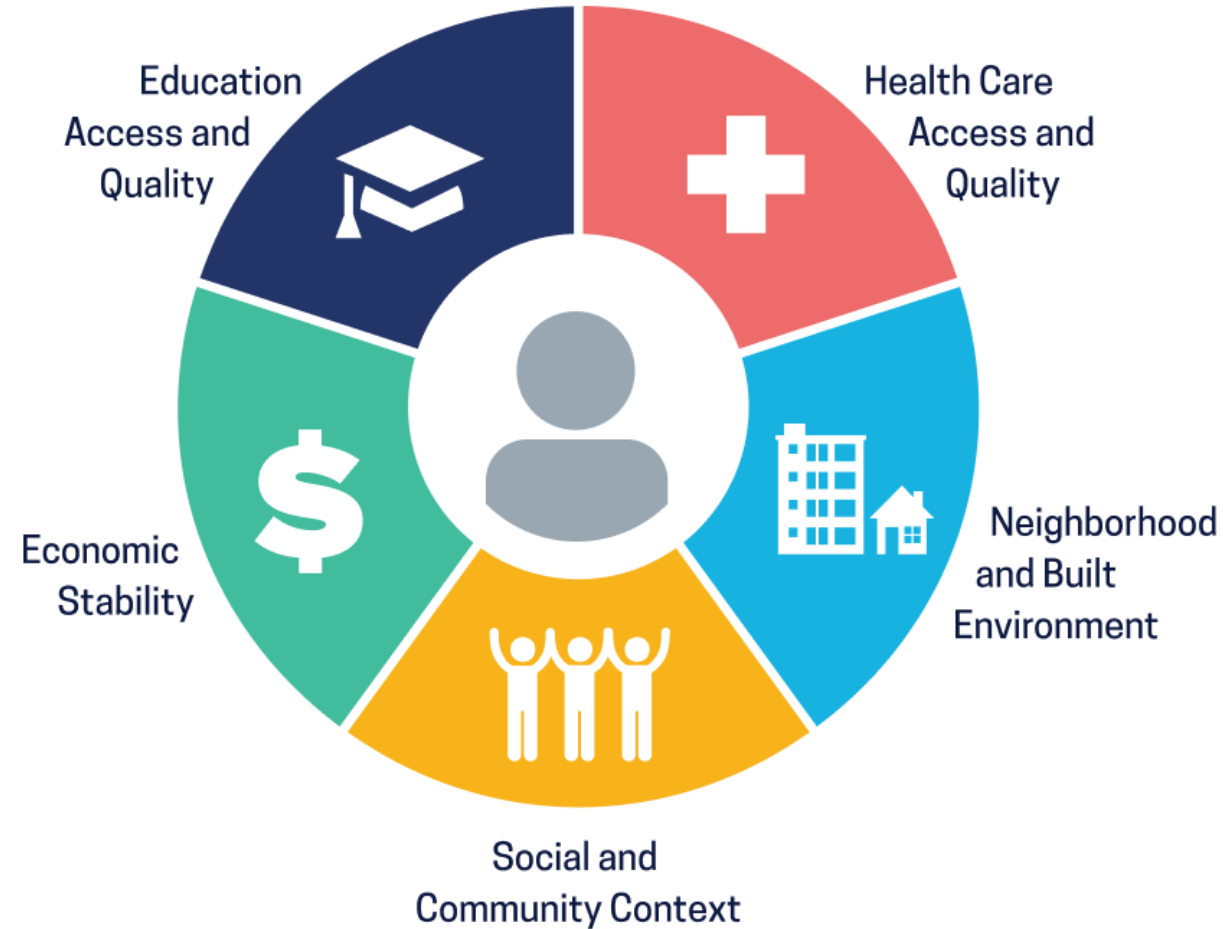


**Race is a social construct, rooted in cultural identity, and shaped by historic events**

**Conditions in which people are born, grow, work, live and age**

Systematic and unjust distribution of economic, social, and environmental conditions needed for health

## Social Determinants of Health



# Early-life experience attending segregated schools

## School Segregation Outlawed

### Chief Justice Reads Historic Decision; Vote Was Unanimous

**Ruling Does Not End Segregation At Once; Further Hearings Set To Decide How to Halt Practice**

By HERB ALTSCHULL

WASHINGTON, May 17 (AP)—The Supreme Court ruled today that the states of the nation do not have the right to separate Negro and white pupils in different public schools.

By a unanimous 9-0 vote, the high court held that such segregation of the races is unconstitutional.

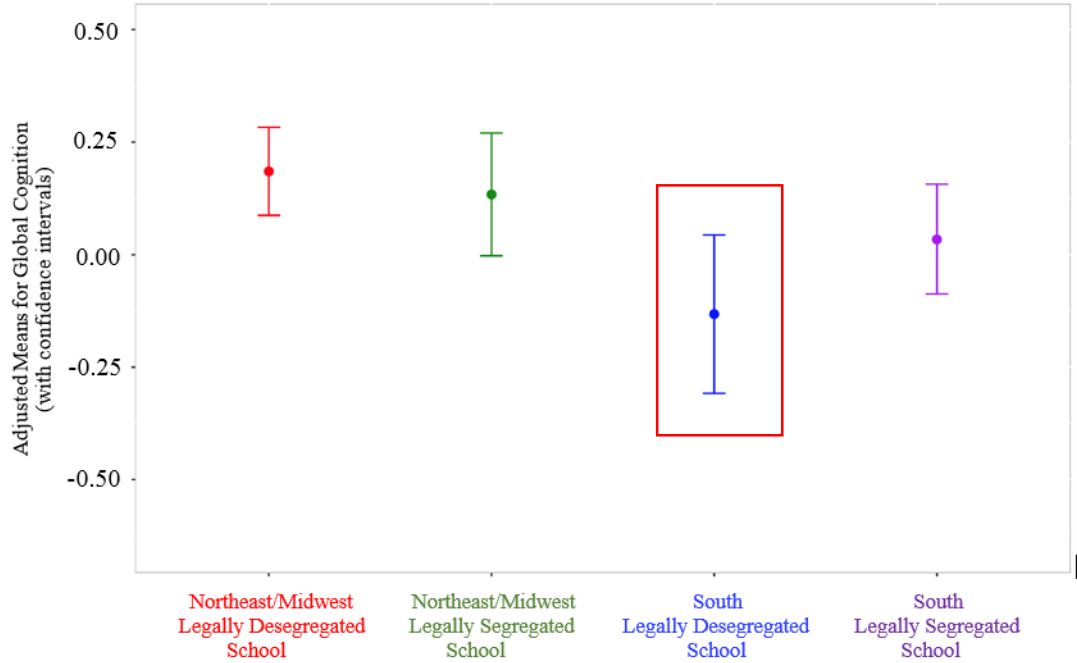
Chief Justice Warren read the historic decision to a packed but hushed gallery of spectators nearly two years after Negro residents of four states and the District of Columbia went before the court to challenge the principle of segregation.

The ruling does not end segregation at once. Further hearings were set for this fall to decide how and when to end the practice of segregation. Thus a lengthy delay is likely before the decision is carried out.

Dean Acheson, secretary of state under Former President Harry Truman, was in the courtroom to hear the ruling. He called it "great and statesmanlike."

Atty. Gen. Brownell was also present. He declined comment. Does segregation of children in public schools solely on the basis of race, even though the physical facilities and other tangible factors may be equal, "border" states have imposed

STATES AFFECTED BY COURT RULING ON SEGREGATION—Dark area of map includes states requiring segregation of pupils, while shaded portion includes three states where segregation is permissive. The Supreme Court in Washington yesterday voted unanimously against segregation. The court ruled separate educational facilities are inherently unequal and do not provide privileges guaranteed under 14th amendment.—AP wirephoto.

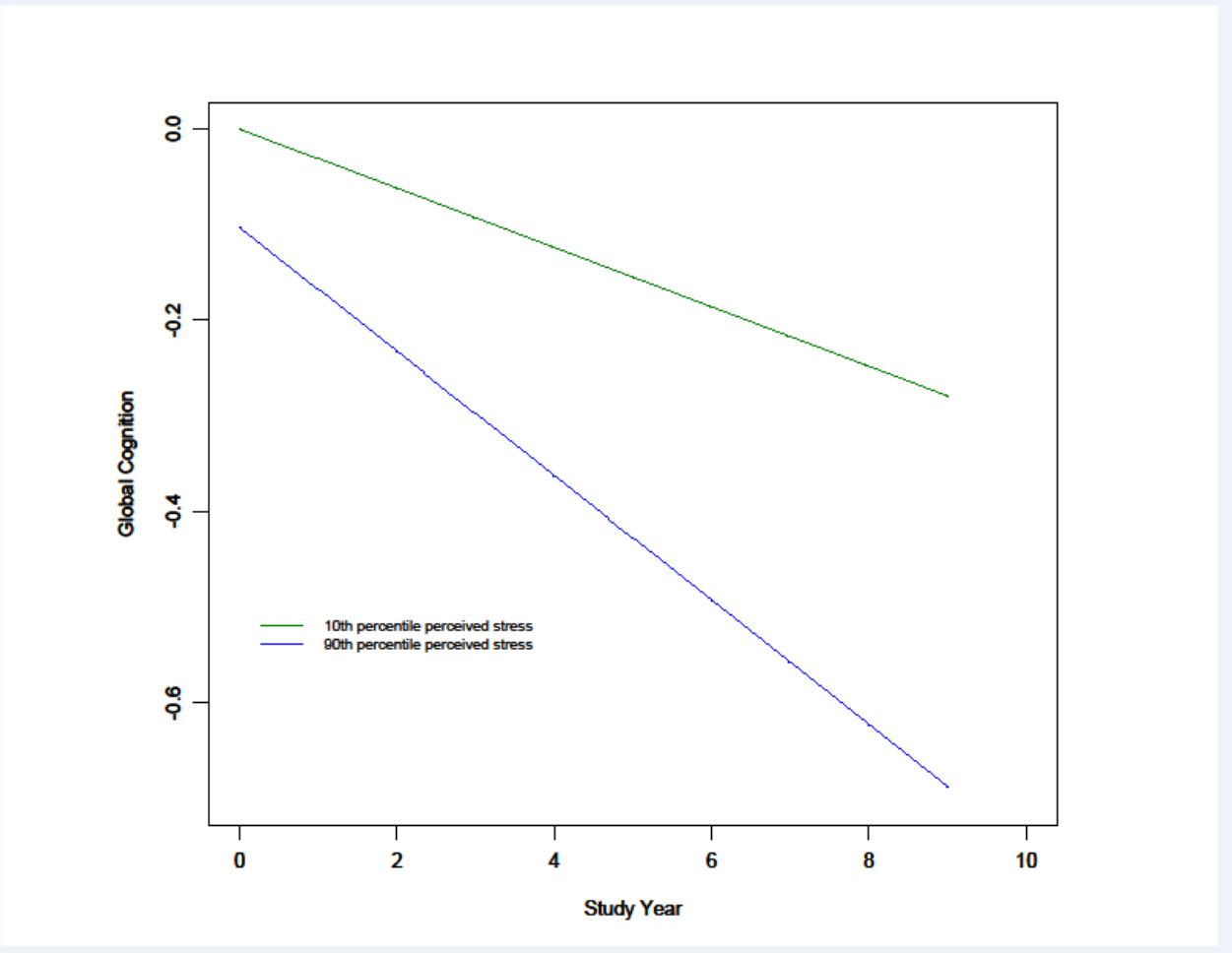


Lamar et al., JGPS, 2019



African Americans who attended legally desegregated schools in the South, performed worse on cognitive tests

# African Americans who report more perceived stress have faster rates of cognitive decline



Turner, et al., *Am J Geriatr Psychiatry*, 2017

## Experiences of racism and subjective cognitive function in African American women

Patricia Coogan<sup>1</sup> | Karin Schon<sup>2</sup> | Shanshan Li<sup>1</sup> | Yvette Cozier<sup>1</sup> | Traci Bethea<sup>3</sup> | Lynn Rosenberg<sup>1</sup>

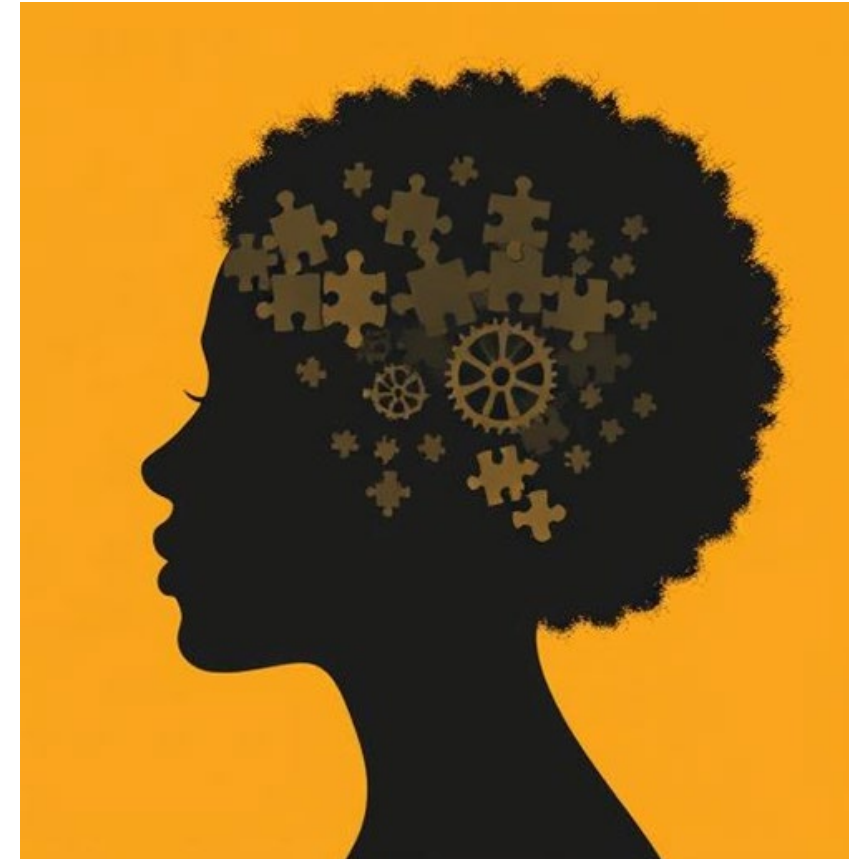


- Utilized questions from the Structured Telephone Interview for Dementia Assessment (STIDA)
- Experiences of daily and institutional racism (2009) were associated with lower cognitive function in 17,320 women aged 55 and older
- Women who reported the highest levels of daily or institutional racism were estimated to have  $\geq 2.5$  times the risk of poor cognitive function as women who reported the lowest levels

# What is the BWHS Cognitive Health Study?

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- A sub-study in 2500 BWHS participants
  - Age 55+
  - Donated blood samples
  - Agreed to be tested over the phone annually for up to 5 years
- 4 goals of the study
  - Measure cognition with a brief battery of neuropsychological tests (via telephone)
  - Measure brain proteins (biomarkers) in stored blood and examine their relationship with cognition
  - Assess the relationship between stress measures and cognition
  - Determine the genetic profile of participants & combine genetics with biomarker data to see what predicts cognitive decline



# BWHS Cognitive Health Participants to date:

- Interviews completed:
- 1 interview – 2554
- 2 interviews – 1822

AGES AT START OF STUDY	
55-64	34%
65-74	43%
75-84	20%
85+	3%

GEOGRAPHIC AREAS WITH MORE THAN 5 PARTICIPANTS:	
Northeast US	21%
Southern US	39%
Midwest US	23%
Western US	17%

**Thank you to all the women who are participating!!**



# The 2026 BWHS Questionnaire

- **June 2026 – Web version available**
- **August/September – Paper version mailed**
- **Themes:**
  - **Lifestyle (weight, smoking, exercise)**
  - **Preventive health services (screening, vaccines)**
  - **Medical history (physical and mental health)**
  - **Medication use (over-the-counter, prescriptions)**
  - **Reproductive health (menopause, symptoms)**
  - **Sleep quality**
  - **Aging, Cognitive function**
  - **Access to medical care, Trust in the health care system**



# For the Next Generation



- Goal: to enroll a large number of Black women between the ages of 25 and 55.
- If you know anyone (daughter, sister, cousin, friend) who might be interested in taking part in this research, they can learn more at this website: <https://voices.cancer.org>.
- VOICES is not affiliated with BWHS or Boston University, but we share a commitment to advancing Black women's health research



Lauren E. McCullough,  
PhD, MSPH  
Associate Professor  
Emory University

BWHS Advisory Board  
Member

**Dr. Lynn Rosenberg,  
Founding BWHS Investigator**



*Lynn Rosenberg, ScD  
Professor, Boston University School of Medicine*

*Thank you, Dr. Rosenberg!*

# Staying in Touch

Black Women's Health Study 2026

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1. Please write in your age and date of birth.   /   /

Age Month Day Year

SPRING 2026 NEWSLETTER



**BLACK WOMEN'S  
HEALTH STUDY**

- If you've moved recently, please contact BWHS with your current address, email, and telephone number.
- If possible, add the main BWHS telephone number to your contacts to recognize our number on your caller ID.
  - Otherwise, will appear as "Boston University School of Medicine" or a "617" area code
- Could your voicemail box be full? Please check. So that BWHS will be able to leave a message.

<b>Contact Us:</b>			
Telephone	Email	Website	Facebook
800-786-0814	<a href="mailto:bwhs@bu.edu">bwhs@bu.edu</a>	<a href="http://www.bu.edu/bwhs/">www.bu.edu/bwhs/</a>	<a href="http://www.facebook.com/TheBWHS">www.facebook.com/TheBWHS</a>

*Thank you, BWHS Participants!!*