



The Black Women's Health Study (BWHS)

A Follow-up Study of African-American Women

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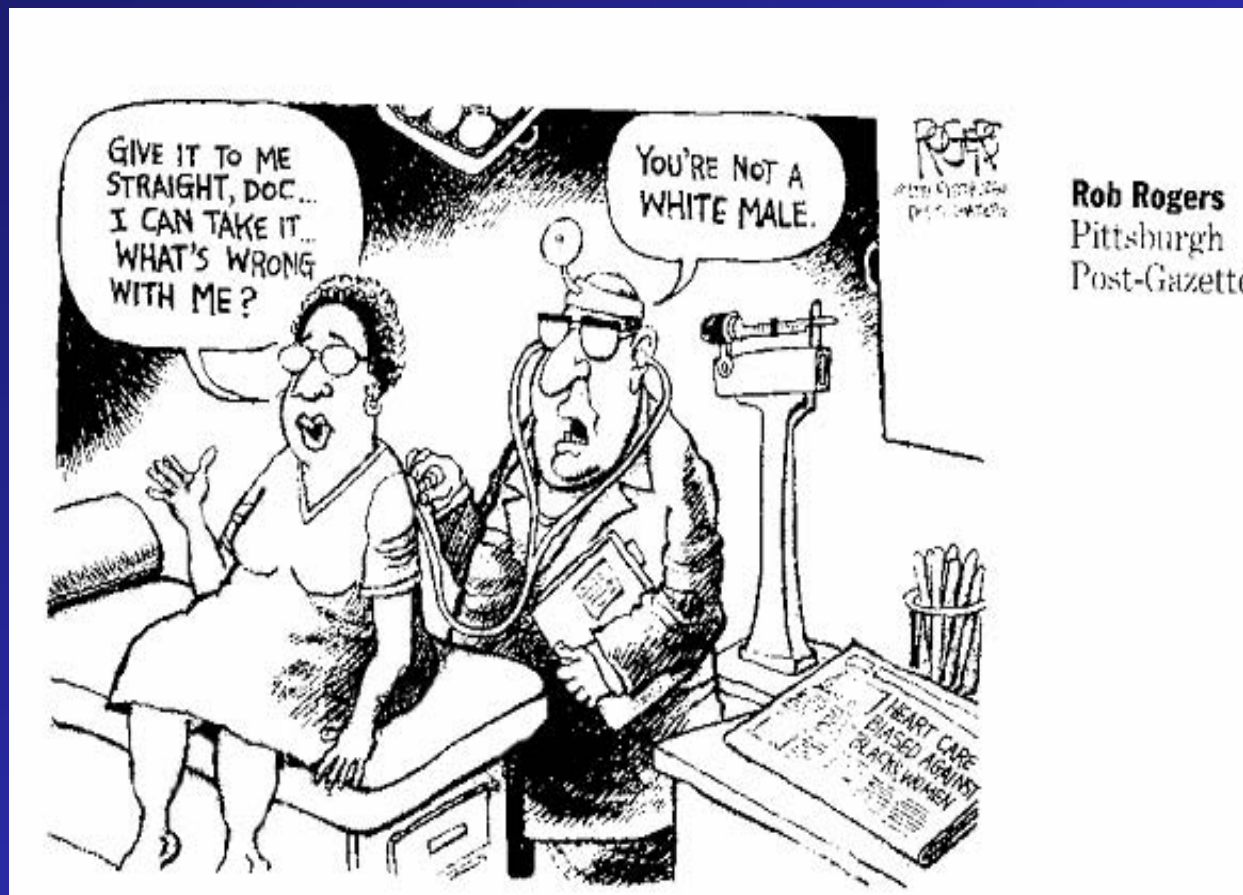
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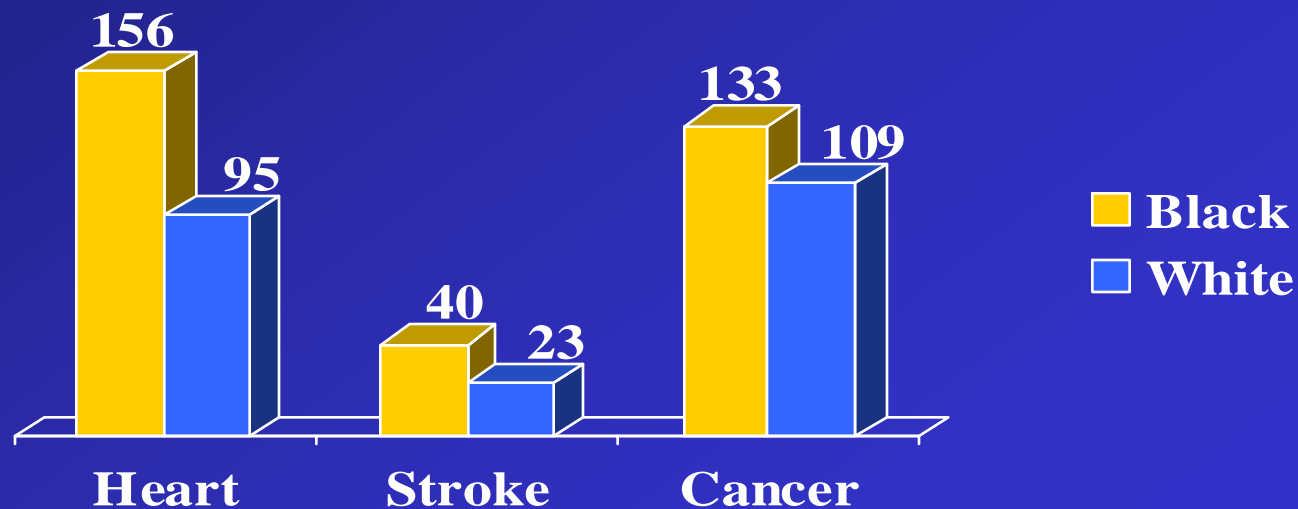
Why Is The BWHS Needed?



Why Is The BWHS Needed?

- Rates of illness and death from many diseases are higher in African-American women
- Lack of health research studies involving African-American women, particularly large studies

Death rate per 100,000 women



Aims and Methods

- **Establishment of a cohort of U.S. black women**
 - **To establish prevalence and incidence rates of disease among black women**
 - **To identify and quantify risk factors for breast cancer and other illnesses**
 - **Follow-up for exposure and outcome information every 2 years**
 - » **Biennial postal questionnaires**
 - » **Self-report**
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Recruitment



Methods

February 1995:

400,000+ Questionnaires Sent to
Essence Magazine Subscribers
Black National Education Association Members
Black Nurses' Association Members
Friends, Relatives of Early Respondents

59,000 Completed Questionnaires Returned by Women 21-69
Years of Age

Characteristics of BWHS Participants - 1995 Data

N=59,000

Age

<30	23%
30-39	33%
40-49	27%
50-69	17%

Region

Northeast	26%
South	28%
Midwest	25%
West	20%

Education (yr.)

≤12	18%
13-15	36%
16+	43%

1995 Questionnaire Data: Baseline

- Age
 - Weight
 - Height
 - Waist, hip circumference
 - Use of medical care
 - Occupation
 - Education
 - **Medical history (prevalent disease)**
 - Reproductive history
 - Drugs (OCs, HRT, vitamins, medications)
 - Cigarette smoking
 - Alcohol use
 - Diet (60 item Block-NCI questionnaire)
 - Physical activity
 - Family care responsibilities
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1997-2007 Follow-up Questionnaires

- Update “exposures” for previous 2-year period:
(e.g., OC use, weight, alcohol use, cigarette smoking, physical activity, etc.)
- Record “outcomes” for previous 2-year period: Incident disease, Births, Deaths

Additional Questions:

Ancestry

(race, where subject & parents born)

Experiences and perceptions of racism

Lupus symptom list

Satisfaction with healthcare

Individual health/belief system

Socioeconomic status

Religions/spirituality

Education

Sleep apnea

Diet

Hair straightener use

Family history

Use of herbal remedies

Depression scale (CESD)

Exposure to violence

Perceived stress/coping

Dental health/tooth loss



Genomic Studies

- **Collection of cheek samples (for extraction of DNA) from BWHS**
 - **January 2004 – December 2007**
 - **Samples sent to National Human Genome Center at Howard University**
 - **Goal: to understand the role of genes in the cause and prevention of common illnesses in black women**
 - **Explore gene-environment interactions**
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1995 – 2007 Questionnaire Data Outcomes Studied to Date

Breast cancer

Stroke

Hypertension

Multiple Sclerosis

Coronary heart disease

Hysterectomy

Lupus (SLE)

Large bowel cancer

Rheumatoid arthritis

Preterm birth

Uterine Fibroids

Diabetes Mellitus

Thromboemboli/DVTs

Sarcoidosis

Mortality

Other BWHS Studies

Diabetes

Lupus

Smoking Cessation

Urban form and Physical Activity

Exposure-Outcome Associations

www.bu.edu/bwhs/publications

- **Strenuous physical activity with breast cancer (inverse)**
- **Pre-term birth and racism (lower education)**
- **Neighborhood socioeconomic status and Hypertension (positive)**
- **Racism and Breast Cancer (positive)**
- **Racism and Uterine Fibroids (positive)**
- **Hair Relaxers and Breast Cancer (no association)**
- **Diagnostic Accuracy of the Gail Model (poor prediction)**
- **Central Obesity and Type II Diabetes (positive)**
- **Body Size (BMI) and Breast Cancer Risk (complicated)**

Perceptions and Experiences of Racism

How Often ...

- **Have You Received Poorer Service Than Others?**
- **Have People Acted As If You Are Not Intelligent?**
- **Have People Acted Afraid of You?**
- **Have People Acted As If You Are Dishonest?**
- **Have People Acted As If They Are Better Than You?**

Never

A Few Times a Year

Monthly

Weekly

Daily

Constantly

- **Summary variable I: score, quartiles**

Perceptions and Experiences of Racism

- **Have you been treated unfairly due to your race? (Yes/No)**
 - **On the job**
 - **In housing**
 - **By the police**

- **Summary variable II:**

No to all three

yes to one

yes to two

yes to all three

Racism and Preterm Birth

- Overall associations were null
- Some associations observed within subgroups
- 422 cases of pre-term birth compared to 4,544 full-term births (1997-2001):

<12 years of education:

Poorer service (weekly) 3.5 (1.6-7.6)

Afraid (weekly) 3.4 (1.5-7.7)

Not intelligent (weekly) 2.0 (1.0-4.1)

Racism and Uterine Fibroids

- Increased exposure to cortisol, a stress hormone produced in response to racism, may increase UL risk
- Overall associations were null
- 3,440 cases of uterine fibroids over 107,127 person-years of follow-up (1997-2003):

Summary variable I

quartile 2	1.16 (1.04-1.29)
quartile 3	1.19 (1.06-1.32)
quartile 4	1.27 (1.14-1.42)

Summary variable II

yes to one	1.04 (0.96-1.13)
yes to two	1.17 (1.07-1.28)
yes to all	1.24 (1.10-1.39)

Racism and Breast Cancer

- **Stress related plasma catecholamines ; impaired immune function**
- **593 incident cases of breast cancer over 259,613 person-years of follow-up (1997-2003):**

Not intelligent (weekly) 1.35 (0.97-1.88)

Afraid (daily) 1.30 (0.87-1.92)

Unfair treatment at work 1.20 (1.01-1.42)

Summary variable II: Yes to all 1.33 (1.00-1.73)

Associations were stronger among the younger women

Residential Neighborhoods

- **Have positive and negative effects on lifestyle and health**
 - Physical environment
 - Social environment
 - Available resources/services
 - Health care seeking behavior
- **Differ by racial composition**
- **Hypothesis:**
 - Residential neighborhood characteristics are associated with health outcomes in BWHS participants after personal risk factors have been taken into account

2000 US Census Measures of Neighborhood SES

- **Block group variables:**
 - **Median housing value (\$)**
 - **Median household income (\$)**
 - **% white collar employed**
 - **% households with assets**
 - **% of adults who graduated college**
 - **% of adults who graduated high school only**
 - **% single female parent households**
 - **% African-Americans**

Association of Neighborhood SES With Incidence of Hypertension

3,780 cases of hypertension over 180,294 person-years of observation

Neighborhood Score (quintiles)	RR* (95%CI)		
	Overall†	BMI <25*	Age <35 years*
Low:	1.29 (1.14-1.45)	1.76 (1.33-2.34)	1.58 (1.19-2.08)
Low-Middle:	1.29 (1.15-1.45)	1.55 (1.18-2.05)	1.78 (1.35-2.33)
Middle:	1.23 (1.09-1.38)	1.25 (0.94-1.66)	1.50 (1.13-1.99)
Upper-Middle:	0.99 (0.87-1.12)	1.22 (0.93-1.61)	1.27 (0.95-1.71)
High:	Reference	Reference	Reference

*Adjusted for age, bmi, education, smoking status, vigorous activity, alcohol consumption, questionnaire cycle, family income, and clustering within block groups.

† P for trend <0.0001

Summary

- **The BWHS is a valuable resource for understanding causes of illness in black women**
 - **Can address a wide range of risk factors**
 - **Traditional**
 - **Psychosocial**
 - **Genetic**
 - **Can lead to more effective prevention programs**
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