



Rush University

Promoting Cognitive Research and Clinical Trial Engagement Through Collaborations Developed by a **Cardio** Cog Clinic

**Intentional Engagement for
Health and Research Equity:
Beyond Barbershops, Pulpits
and Health Fairs**

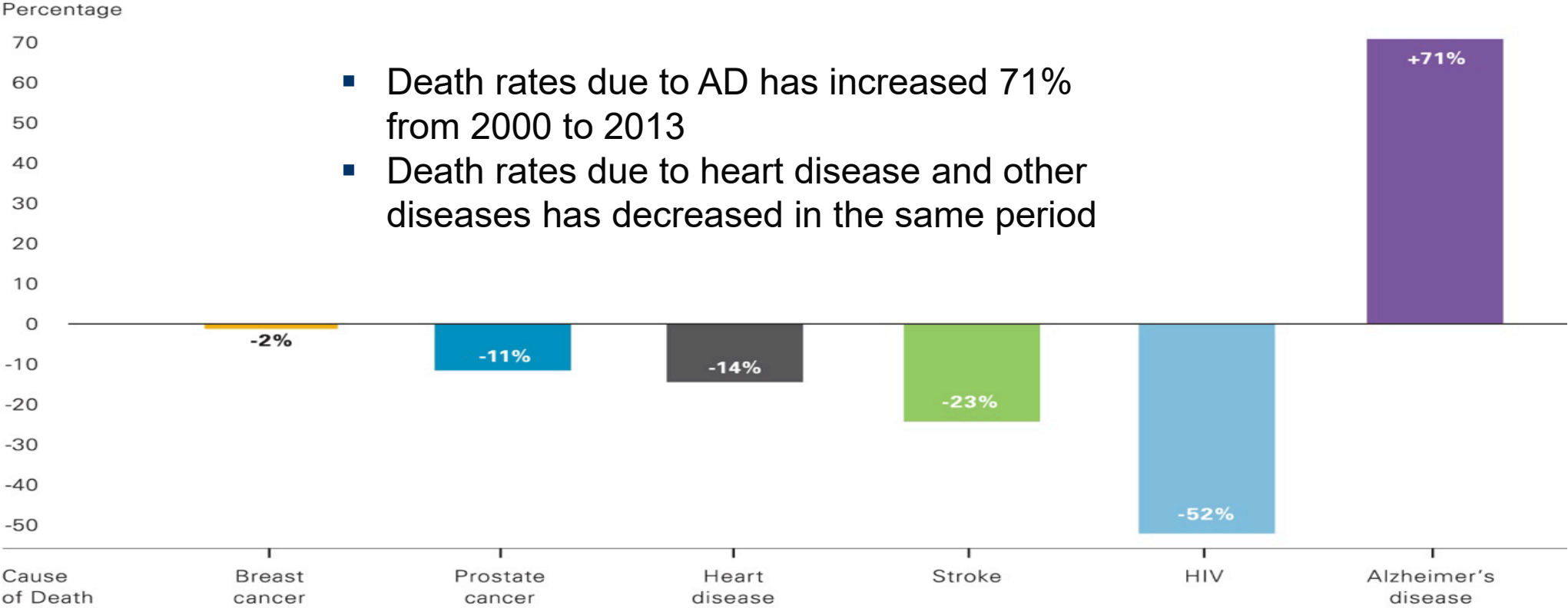
Neelum T. Aggarwal, MD
Rush Alzheimer's Disease Center



Fast Facts

Alzheimer's Disease, Heart Disease and other Diseases

Percentage Changes in Selected Causes of Death (All Ages) Between 2000 and 2013



- Death rates due to AD has increased 71% from 2000 to 2013
- Death rates due to heart disease and other diseases has decreased in the same period

Created from the National Center for Health Statistics data.

<http://www.alz.org/AD Facts>

- **Dementia results from cumulative burden of several brain pathologies with aging— including vascular disease**
- **Evidence during life that cardiovascular disease is closely involved in the development of dementia**
- **Can treatment/prevention of cardiovascular disease or its risk factors reduce the risk of dementia?**

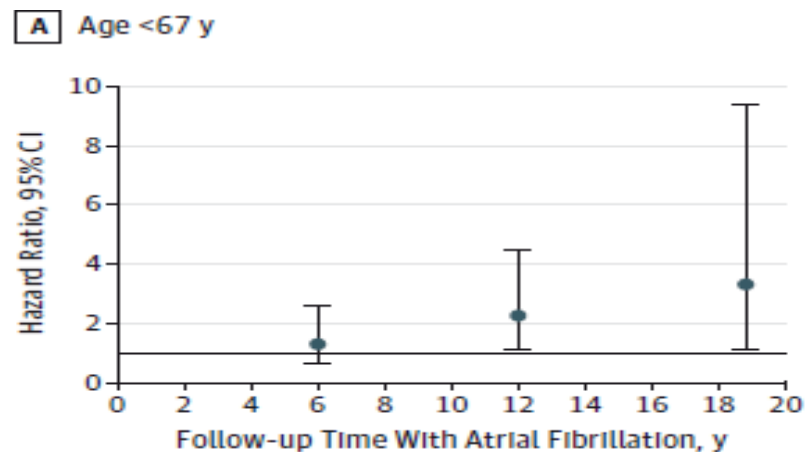


Atrial fibrillation

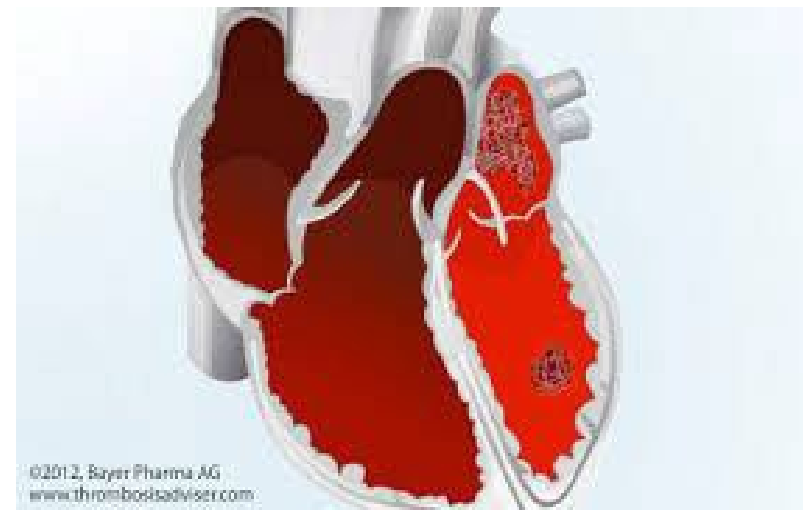
Original Investigation

Association Between Atrial Fibrillation and Dementia in the General Population

Renée F. A. G. de Bruijn, MD; Jan Heeringa, MD, PhD; Frank J. Wolters, MD; Oscar H. Franco, MD, PhD;
Bruno H. C. Stricker, MD, PhD; Albert Hofman, MD, PhD; Peter J. Koudstaal, MD, PhD; M. Arfan Ikram, MD, PhD



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Longer duration of AF conferred a greater risk of future dementia irrespective of the occurrence of clinical

Table 1. Estimated Annual US Patients With New Brain Lesions After Vascular Procedures

Procedures	No. of Annual US Patients	Incidence of New Brain Lesions, %	No. of Annual Patients With New Brain Lesions
Coronary angiography	1 072 000	11–17	118 000–182 000
Percutaneous coronary intervention	596 000	11–17	66 000–101 000
CABG	242 000	16–51	39 000–123 000
Surgical aortic valve replacement	90 000	38–47	34 000–42 000
AF ablation	72 000	8–18	6000–13 000
Transcatheter aortic valve implantation	10 000	68–91	7000–9000
Carotid endarterectomy	93 000	4–34	4000–32 000
Carotid artery stenting	70 000	15–67	11 000–47 000
Cerebral angiography	300 000	11–20	33 000–60 000
Endovascular aneurysm	30 000	10–64	3000–19 000
Total	2 600 000	13–24	321 000–628 000

AF indicates atrial fibrillation; CABG, coronary artery bypass graft.
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"I'm not losing my memory. I'm living in the now."



Our Experience

AD Diagnostic Challenges

Only 50% of pts receive formal dx

Diagnosis delayed on average by 6+ Years

By the time it is recognized- moderately impaired

Poorly Managed

Diagnosis misunderstood

AD Institutional / Systemic Challenges

Low priority

Few incentives

Lack of procedural support

Few specialists available (neurology, neuropsychology, geriatrics)

Lack of awareness of resources

Other Challenges

Lack of communication between patients / caregiver and physicians



Why Screen?

Cost effective

Reduction in healthcare costs and societal costs

For Cardiology

Improved medical adherence

Decrease clinic no show rate

Improved cardiac outcomes



Clinic Setting

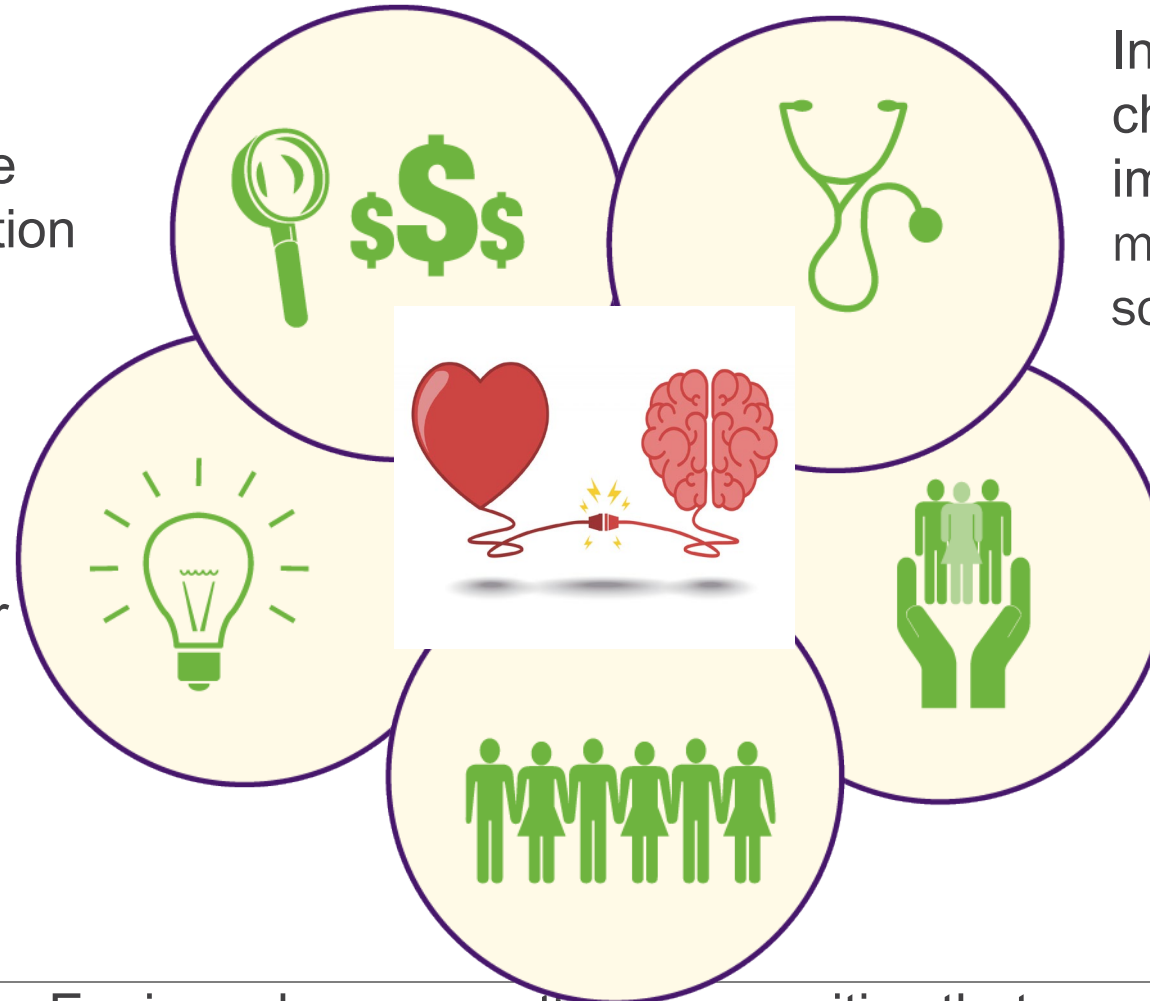
Rooming nurses or physician to administer screen

- -MoCA administered- more sensitive for MCI and early dementia
- Resources and referrals made based on exam / history
- Referring cardiologist and primary care MD receives outcome of visit
- Referral is made to a clinical trial conducted through RADC or Cardiology
- Encourage participation in a registry

Goals of the Cardio Cognitive Clinic

Identify and invest in promising approaches to delay or prevent cognitive decline through participation in cognitive trials

Raise awareness of the cognitive changes that occur with cardiovascular disease and treatment options to maintain and improve cognitive performance



Increase detection of cognitive changes in the clinic setting to improve overall care and maintain physical, cognitive and social engagement

Support and educate patients and their care providers about cognitive changes that can occur with cardiovascular disease

The Cardiology-Cognitive Clinic at the Rush Heart Center for Women

Shaista Noor Mohammad MBBS¹, Eric R. Silverman, MS², Scarlett Ellis³ Raj Shah, MD³, Annabelle S. Volgman, MD^{1,4}, Neelum T. Aggarwal, MD^{1,3}

¹Rush Heart Center for Women, ²Rush Medical College, ³Rush Alzheimer's Disease Center, ⁴Rush Internal Medicine, Division of Cardiology.

Background

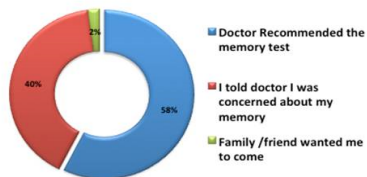
- The Rush Heart Center for Women (RHCW) is a multi-specialty clinic that collaborates with experts from preventive and onco-cardiology, dietary and nutrition and cognitive neurology to provide patient centered care in an outpatient setting. Although the mortality rates due to heart disease for women have decreased, women are living longer with heart disease and thus their risk for developing cognitive decline, dementia and stroke, are expected to increase. The Cardio-Cognitive Clinic within the RHCW was developed to provide cognitive health screenings in tandem with cardiac evaluations, emphasizing stroke prevention and improving quality of life with brain health and cardiac lifestyle management.

Methods

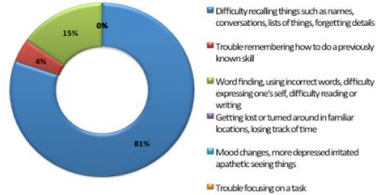
- We distributed a "Cardio-Cognitive Folder" to 150 patients coming to the Center. The folder included content on Heart and Brain health and a list of ongoing cognitive research studies at the Rush Alzheimer's Disease Center (RADC). Each patient was asked to fill out their willingness to participate in a RADC Data Repository, and/or have a cognitive evaluation at the Center. The brief cognitive evaluation included questions assessing short term memory, language, judgment, orientation, mood, a short cognitive screen to detect mild cognitive impairment (MCI) and a neurological examination.

Figures

Reason for Visit

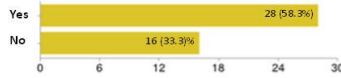


History of Memory/Thinking Changes

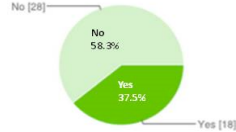


Charts

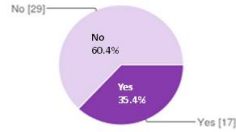
Do you have trouble sleeping?



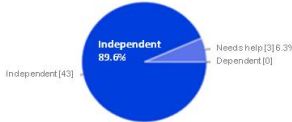
Have you had a change in your appetite?



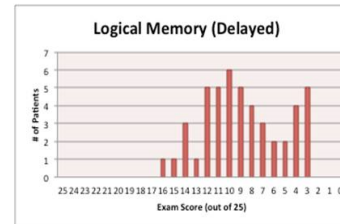
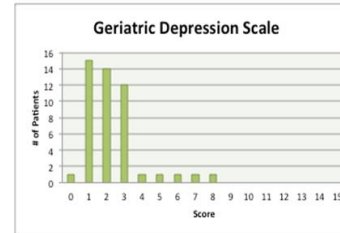
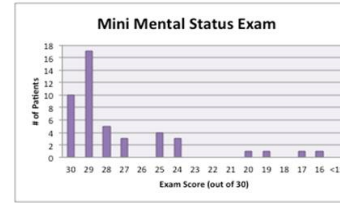
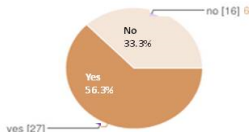
Do you often feel sad/ blue/ depressed?



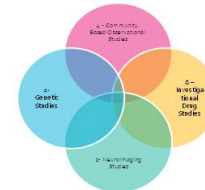
Daily Activities



Family history of dementia- AD, senility



RADC Cognitive Aging Studies recruiting from RHCW (Total-16 Studies)



Results

To date a total of 61 patients underwent a cognitive evaluation, and 25% of those evaluated had MCI.

A total of 120 patients (from 91 zip codes) turned in a completed Repository survey, and 83 patients (89% F; 56 Caucasian, 20 African American, 3 Asian/Pacific Islander, 4 non response) indicated they wanted to be contacted for research studies.

A total of 80 of the 83 patients had complete demographic data. (Table 1) In this group, 10% had history of stroke, 14% had a diagnosis of diabetes, 2% were smokers, 67% were diagnosed with HTN, and 36% had history of arrhythmias or palpitations.

Age Group	Frequency (n)	Percent	Cum%
Under 20 years	3,655	8.1%	8.1%
20-29 yrs	26,182	58.0%	66.1%
30-39 yrs	8,668	19.2%	85.3%
40 and over	5,996	13.3%	98.6%
Unknown	651	1.4%	100%

From this group, a total of 25 were contacted for participation in a study, completed a brief telephone survey, and were prescreened for 16 cognitive studies (4 community based observational, 8 investigational drug, 2 neuroimaging studies and 2 genetic studies). A total of 19 participants did not fulfill criteria for any study, however 5 are presently participating in a RADC study, with 1 patient referred to a study.

Conclusions

In this patient population, the prevalence of cognitive impairment was not negligible. Clinical screening coupled with the opportunity to participate in cognitive studies, has the potential to provide a comprehensive risk management process to preserve optimal brain health in women who have cardiovascular risk factors or disease.

Cardiology clinic patient attitudes toward and potential personal utility of genetic testing: Findings from a unique multiracial clinical sample

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Rush Heart Center for Women; National Institute on Aging–National Institutes of Health, Grant/Award Number: R01 AG054059, RF1 AG027161 and R01 AG062307

Leading the Way in Women's Cardio and Cognitive Health

Circulation

WHITE PAPER

Heart Centers for Women

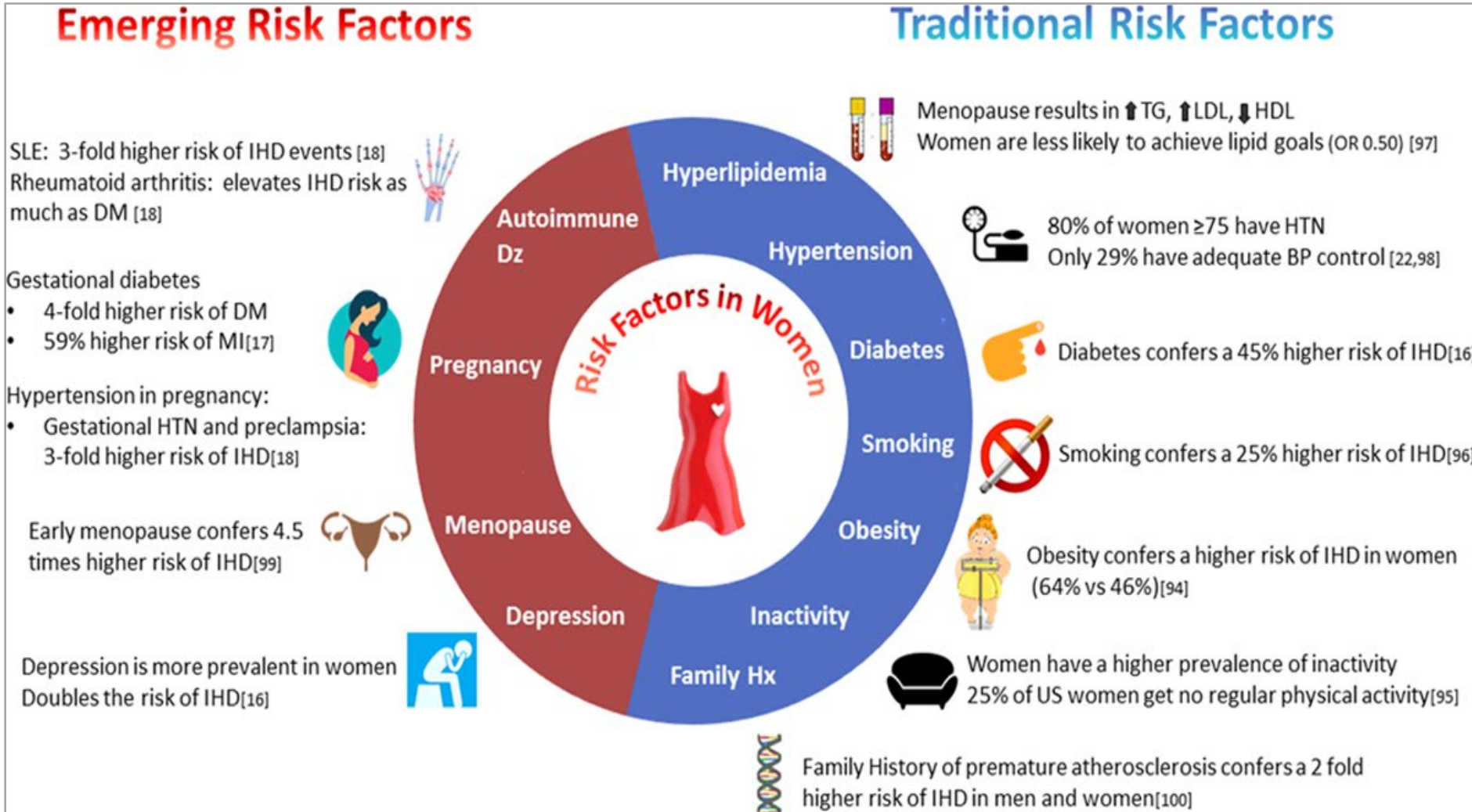
Historical Perspective on Formation and Future Strategies to Reduce Cardiovascular Disease

ABSTRACT: Heart Centers for Women (HCW) developed as a response to the need for improved outcomes for women with cardiovascular disease (CVD). From 1984 until 2012, more women died of CVD every single year in comparison with men. Initially, there was limited awareness and sex-specific research regarding mortality or outcomes in women. HCW played an active role in addressing these disparities, provided focused care for women, and contributed to improvements in these gaps. In 2014 and 2015, death from CVD in women had declined below the level of death from CVD in comparison with men. Even though awareness of CVD in women has increased among the public and healthcare providers and both sex- and gender-specific research is currently required in all research trials, not all women have benefitted equally in mortality reduction. New strategies for HCW need to be developed to address these disparities and expand the current HCW model. The HCW care team needs to direct academic curricula on sex- and gender-specific research and care; expand to include other healthcare professionals and other subspecialties; provide new care models; address diversity; and include more male providers.

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Malissa J. Wood, MD
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Annabelle S. Volgman, MD

Lundberg GP, Mehta LS, Sanghani RM, Patel HN, Aggarwal NR, Aggarwal NT, Braun LT, Lewis SJ, Mieres JH, Wood MJ, Harrington RA and Volgman AS. Heart Centers for Women: Historical Perspective on Formation and Future Strategies to Reduce Cardiovascular Disease. *Circulation*. 2018;138:1155-1165.

Ischemic heart disease



Aggarwal NR, Patel HN, Mehta LS, Sanghani RM, Lundberg GP, Lewis SJ, Mendelson MA, Wood MJ, Volgman AS and Mieres JH. Sex Differences in Ischemic Heart Disease: Advances, Obstacles, and Next Steps. *Circulation Cardiovascular quality and outcomes*. 2018;11:e004437.

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Mary Ann Liebert, Inc.
DOI: 10.1089/jwh.2019.7826

Microvascular Disease and Small-Vessel Disease: The Nexus of Multiple Diseases of Women

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Rupa M. Sanghani, MD,¹ Mary Byrnes, RN, MBA,⁴ Dinesh Kalra, MD,¹ Leigh Dairaghi, BA,³
Lynne Braun, PhD, CNP,⁵ Sherine Gabriel, MD, MSc,⁶ and Annabelle Santos Volgman, MD, FACC, FAHA¹

Women, heart disease and cognitive function

Sex Differences in Cardiovascular Disease and Cognitive Impairment: Another Health Disparity for Women?

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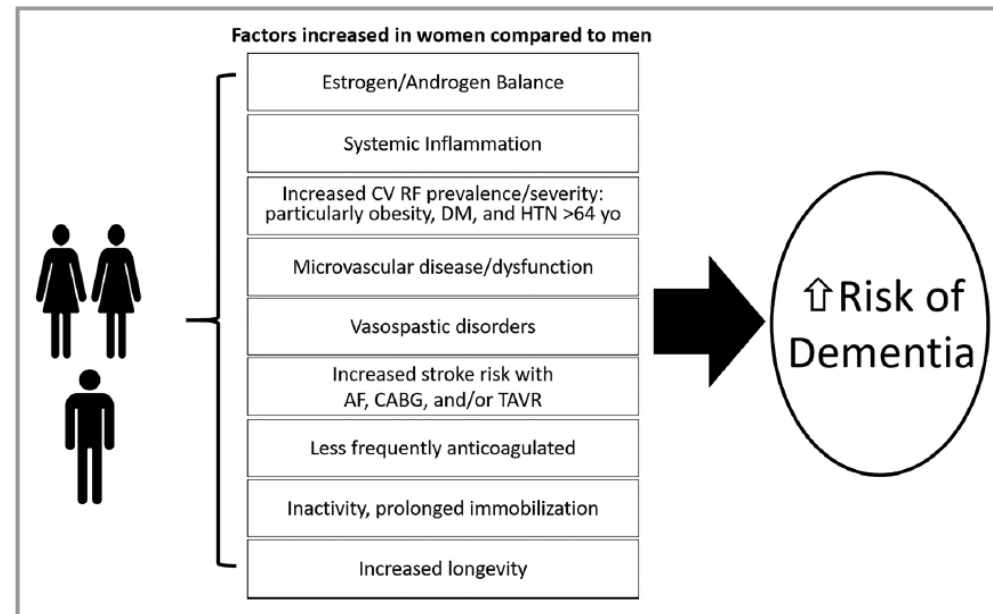


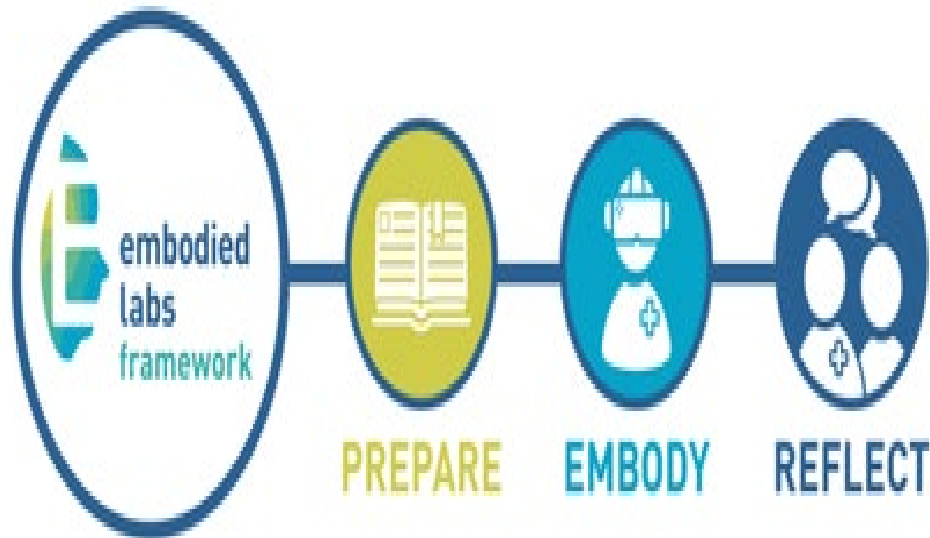
Figure 2. Factors that contribute to the findings that women have a higher proportion of the population with dementia. AD indicates Alzheimer disease; AF, atrial fibrillation; CABG, coronary artery bypass graft surgery; CV RF, cardiovascular risk factors; DM, diabetes mellitus; HTN, hypertension; TAVR, transcatheter aortic valve replacement.



Cardio Cog Clinic and Collaborations

Collaboration with Rush Medical College and Innovation

Optimizing a Virtual Reality Training Module to Teach Experiential Dementia, Challenge Ageism, and Build Empathy in Rush Medical Students



- Recognize cognitive, sensory, functional, and relational aspects of patient experience regarding dementia and age-related conditions,
- Exhibit higher empathy levels and show less bias regarding age after the simulation compared to before the simulation,
- Demonstrate awareness for responsive care techniques for persons with dementia and their families



Collaboration with Entrepreneurs focused on Digital Technologies for Cognitive Assessments



BrainFx

360° Assessment

You will answer questions in a variety of ways as shown below.
Read questions carefully to determine how to respond.



Touching



Sliding



Pinching



Keyboard



Drawing



Tracing



Stylus



Verbal
Response

Previous Page

Next Page



Prominently Displayed Materials in the Cardiology Waiting Room, Hallways and Exam Rooms

SUBJECTIVE COGNITIVE DECLINE

2015–2016 Behavioral Risk Factor Surveillance System (BRFSS) Data from 49 States*, Puerto Rico, and the District of Columbia: People Aged 45 Years and Older

1 in 9 people aged 45 years and older are experiencing Subjective Cognitive Decline

SCD is self-reported MEMORY PROBLEMS that have been GETTING WORSE over the past year.

40% of people with SCD had to give up day-to-day activities

81% of people with SCD have at least one chronic condition. SCD might make the condition more difficult to manage

over a third of people with SCD say it interfered with social activities, work, or volunteering

less than half of people with SCD have discussed their symptoms with a healthcare provider

41% of people with SCD need help with household tasks

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention

alzheimer's association

cdc.gov/aging



Collaboration with Rush Alzheimer's Disease Center

The APT Webstudy identifies people who may have an increased risk for developing Alzheimer's disease and uses technology to monitor their cognitive performance through regular online memory testing. Volunteers participate at their convenience, anywhere they have access to the internet.

APT Webstudy participants benefit by:

- Having their cognitive health assessed over time
- Being on the 'fast track' for relevant clinical trials to prevent Alzheimer's
- Making an invaluable contribution to advancing Alzheimer's research, perhaps helping those in the research field find the first Alzheimer's survivor
- Helping ensure that future generations do not experience Alzheimer's and its difficult challenges

aptwebstudy.org/ (858) 877-3135 • info@aptwebstudy.org

The **AHEAD Study** is comprised of two different clinical trials testing the same investigational drug (known as BAN2401 (lecanemab) in people who may be at risk for memory problems.

Who is eligible to participate?

Healthy individuals 55-80 years of age who are cognitively normal but at risk of developing symptoms of Alzheimer's disease as they get older.

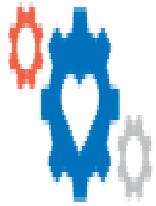
What is the benefit of participating in this study?

Use a personalized medicine approach, tailoring dose levels of the investigational treatment to study participants' brain amyloid levels.

Test a medication that has been shown to lower brain amyloid in people with symptoms of Alzheimer's.

Potential scientific breakthroughs

Help us understand how Alzheimer's disease develops in the brain before symptoms appear, and hopefully contribute to one day finding a treatment to prevent memory loss due to Alzheimer's disease.



PREVENTABLE

Pragmatic Evaluation of evENTs And Benefits of Lipid-lowering in older adults

JAMA | Original Investigation

Effect of Intensive vs Standard Blood Pressure Control on Probable Dementia A Randomized Clinical Trial

The SPRINT MIND Investigators for the SPRINT Research Group

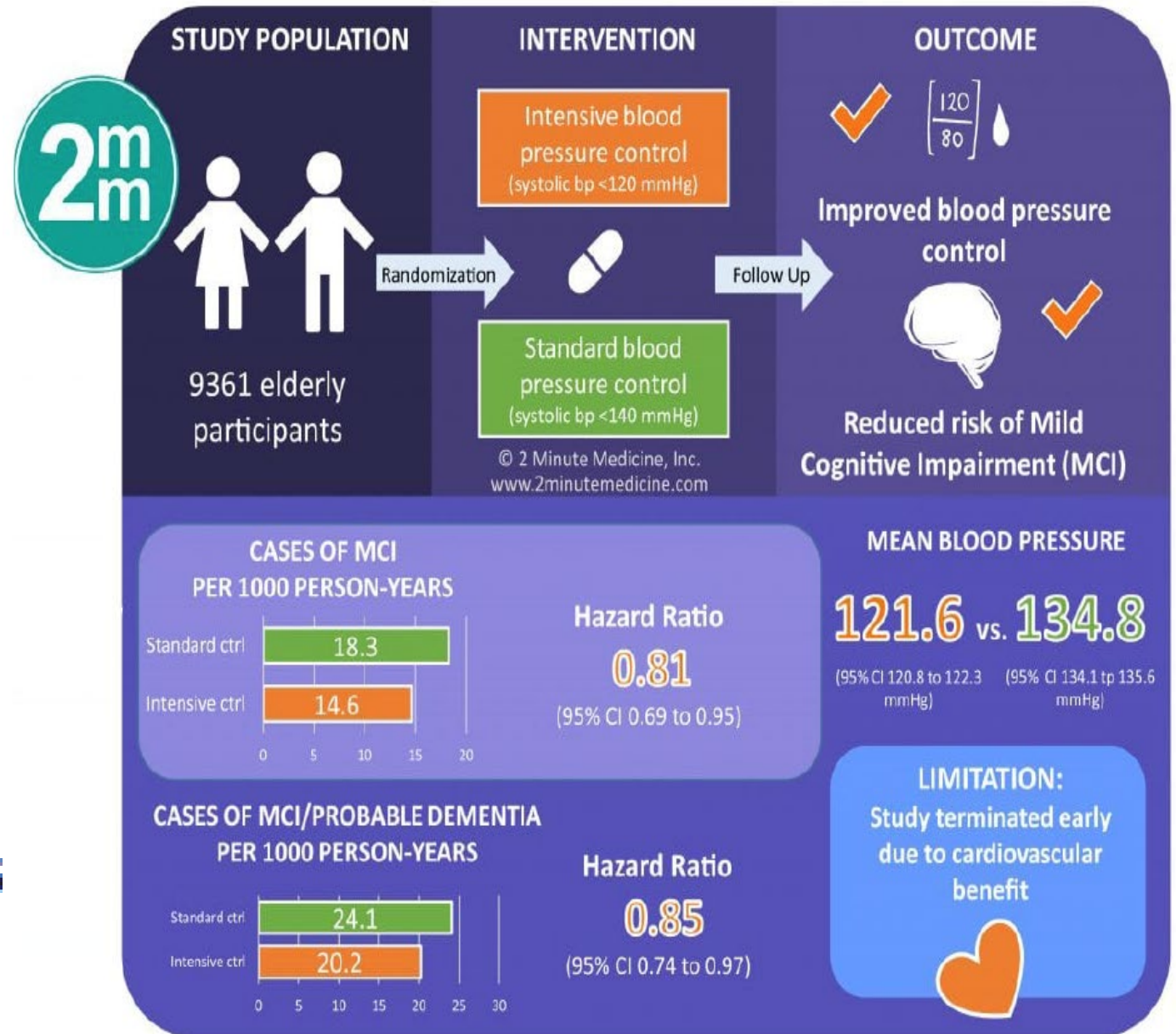
JAMA | Original Investigation

Association of Intensive vs Standard Blood Press With Cerebral White Matter Lesions

The SPRINT MIND Investigators for the SPRINT Research Group



Effect of Intensive vs Standard Blood Pressure Control on Probable Dementia



SPRINT research group. JAMA. January 2019.

Collaboration with Nutrition Department

Circulation




AHA PRESIDENTIAL ADVISORY

Life's Essential 8: Updating and Enhancing the American Heart Association's Construct of Cardiovascular Health: A Presidential Advisory From the American Heart Association

Donald M. Lloyd-Jones, MD, ScM, FAHA, Chair; Norrina B. Allen, PhD, MPH, FAHA; Cheryl A.M. Anderson, PhD, MPH, MS, FAHA; Terrie Black, DNP, MBA, CRRN, FAHA; LaPrincess C. Brewer, MD, MPH; Randi E. Foraker, PhD, MA, FAHA; Michael A. Grandner, PhD, MTR, FAHA; Helen Lavretsky, MD, MS; Amanda Marma Perak, MD, MS, FAHA; Garima Sharma, MD; Wayne Rosamond, PhD, MS, FAHA; on behalf of the American Heart Association

MEDITERRANEAN DIET

Evaluation of a dietary screener: the Mediterranean Eating Pattern for Americans tool

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MIND Diet Study



- Age 65+ years
- No memory impairment at entry
- Have a parent or sibling with history of memory loss

Recently completed: A Phase III randomized control trial to test the effects of a 3-year intervention of the MIND diet on cognitive decline and brain neurodegeneration among 600 persons, 65+ years with out cognitive impairment, who were overweight and had suboptimal diets.

- **Mediterranean Diet:**
 - High in fish, healthy fats, vegetables and whole grains
 - Has been found to reduce the risk of heart disease and cancer and stroke
- **DASH (Dietary Approaches to Stop Hypertension) Diet:**
 - Heavy in fruits, vegetables and low-fat dairy
 - Has been found to reduce the risk of hypertension, heart attack and stroke
- **Outcomes:**
 - Change in global cognitive function (composite score) based on a battery of 12 cognitive tests

- Age 60 to 79 years
- Does not regularly exercise
- No memory impairment
- Have a parent or sibling with memory loss
- Additional criteria evaluated at screening

A two-year U.S. Study to Protect Brain health through Lifestyle Intervention to Reduce Risk — or POINTER — is the first clinical trial to examine combined interventions for dementia in a large-scale, diverse population in the United States.

Participants will be invited to join:

POINTER Neuroimaging Study – MRI and PET Scans

POINTER Neurovascular Study – Cardiac monitoring and Vascular testing

POINTER Sleep – Monitoring Sleep and Movement

alz.org/us-pointer

(708) 660-6463 • pointer@rush.edu

Collaboration with RUSH College of Nursing

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Cardiovascular Risk in Midlife African American Women Participating in a Lifestyle Physical Activity Program

Lynne T. Braun, PhD, APN, FAHA, FAAN; JoEllen Wilbur, PhD, APN, FAAN; Susan W. Buchholz, PhD, APN; Michael E. Schoeny, PhD; Arlene M. Miller, PhD, RN, FAAN; Louis Fogg, PhD; Annabelle S. Volgman, MD, FACC; Judith McDevitt, PhD, RN

Background: Cardiovascular disease (CVD) is the largest contributor to disparate morbidity and mortality in African American women. **Objective:** The aims of this article are to describe in a cohort of sedentary, urban community-based midlife African American women eligible for a physical activity program their (1) CVD risk factors and (2) awareness, treatment, and control of hypertension and hypercholesterolemia. **Methods:** Cross-sectional baseline findings on 297 women were examined at baseline of a controlled physical activity clinical trial. Cardiovascular disease risks included hypertension, hypercholesterolemia, smoking, diabetes, and obesity. Among women with hypertension and hypercholesterolemia, rates of awareness, treatment, and control were calculated. **Results:** Our sample had significantly more hypertension and obesity than reported in other national samples of African American women. The women mirrored national samples of African American women: fewer than 60% had adequate control of hypertension. Versus national samples of African Americans (men/women combined), our study groups both showed significantly lower low-density-lipoprotein cholesterol level: treatment, 33% versus 63.8%, and control, 24.8% versus 45.3%. **Conclusions:** Because national samples are more heterogeneous, our sample provides important information about CVD risks in inactive, urban community-dwelling, midlife African American women. Given the opportunity, many such women at elevated risk for CVD are willing to participate in a physical activity intervention. They must be identified and offered pharmacological and lifestyle interventions.

KEY WORDS: African American women, cardiovascular disease risk factors, hypertension, physical activity



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Effectiveness, Efficiency, Durations, and Costs of Recruiting for an African American Women's Lifestyle Physical Activity Program

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We are looking for volunteers for a
RUSH Research Study!

You will learn how to get the physical activity and cognitive activity you need to keep your brain and mind healthy. You may use Fitbits and iPad tablets during this study, **and all participation can be completed from home**. Volunteers may participate in virtual group meetings from their home

You may be eligible if you:

- ✓ Are over the age of 65
- ✓ Are a woman
- ✓ Are not exercising regularly
- ✓ Not participating in cognitive training computer games (e.g., Luminosity)
- ✓ Have a Bluetooth-capable device

For more information or to see if you are eligible please contact the *MindMoves* office at **312-947-7370**.

Rush University College of Nursing
(312) 947-7370
Charlene_Gamboa@Rush.edu



Funded by National Institutes of Health: National Institute of Nursing Research (R01NR018443; PI: S. Halloway)
Lifestyle Physical Activity and Cognitive Training Interventions: Prevent Memory Loss in Older Women with Cardiovascular Disease
IRB: 18053104-1R001



Leading the Way in Women's Cardio and Cognitive Health

Research

- Patients coming to the RHCW are educated about opportunities for participating in cognitive trials
- The Rush Alzheimer's Disease Center is part of a large clinical trial consortium that include AD centers across the US
- National studies have a global and enduring impact

Awareness

- Transcending silos and educating people on the connection between the heart and the brain
- Encouraging other specialty doctors to consider these connections and publishing research that speaks to this fact

Assessment

- Developing innovative assessments that are relative to the heart and brain connection
- Utilizing digital methods for cognitive evaluations
- Developing different ways of assessing patients

Acknowledgments and Gratitude



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