

Findings from the **MASALA** study

Mediators of **A**therosclerosis in **S**outh **A**sians **L**iving in **A**merica



Alka M. Kanaya, M.D. and Namratha Kandula, M.D., MPH
MASALA Community Forum, 2018

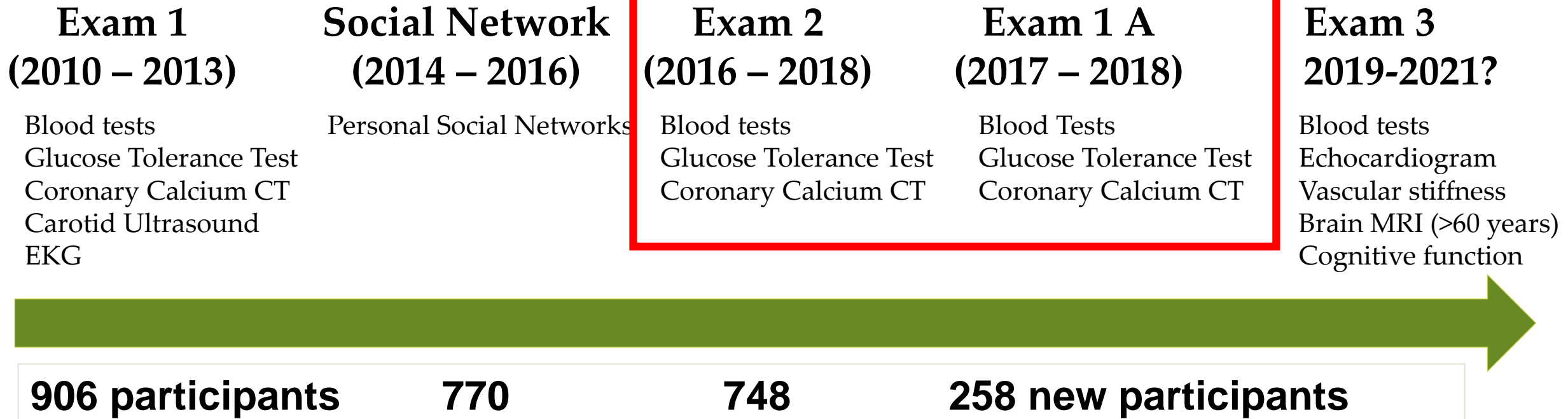
Why do We Need a Study Like MASALA?



What are the Goals of MASALA?

- **Generate new knowledge:**
 - Do South Asians in the U.S. have higher cardiovascular disease risk than other racial/ethnic groups?
 - Are there unique factors contributing to cardiovascular risk in South Asians?
- **Use knowledge:**
 - Develop the best strategies to improve health and reduce cardiovascular disease risk in South Asians.

MASALA Study Timeline



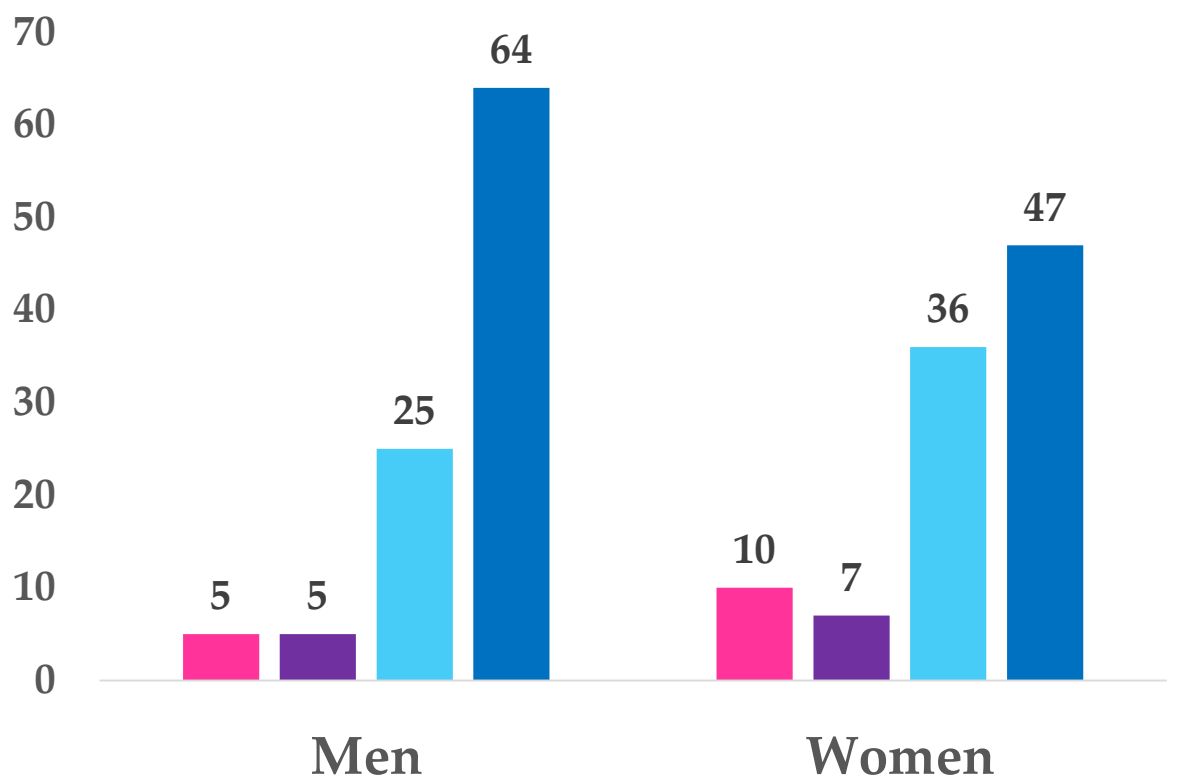
1,006 participants were seen during 2016-2018!
This is the largest South Asian cohort in the U.S. with follow-up

Characteristics of MASALA Participants

	Exam 2 N=748	New Participants N=258
Years lived in the U.S.	32 ± 11	29 ± 14
Country of birth:		
India	630 (84)	208 (81)
Pakistan	24 (3)	26 (10)
Sri Lanka	9 (1)	10 (4)
Bangladesh	3 (0.4)	1 (0.4)
U.S.	19 (2)	2 (1)
Other	63 (8)	11 (4)
Religious affiliation:		
Hindu	518 (69)	171 (66)
Muslim	38 (5)	44 (17)
Sikh	59 (8)	7 (3)
Jain	49 (7)	18 (7)
Other	36 (8)	22 (9)
None	48 (6)	6 (2)

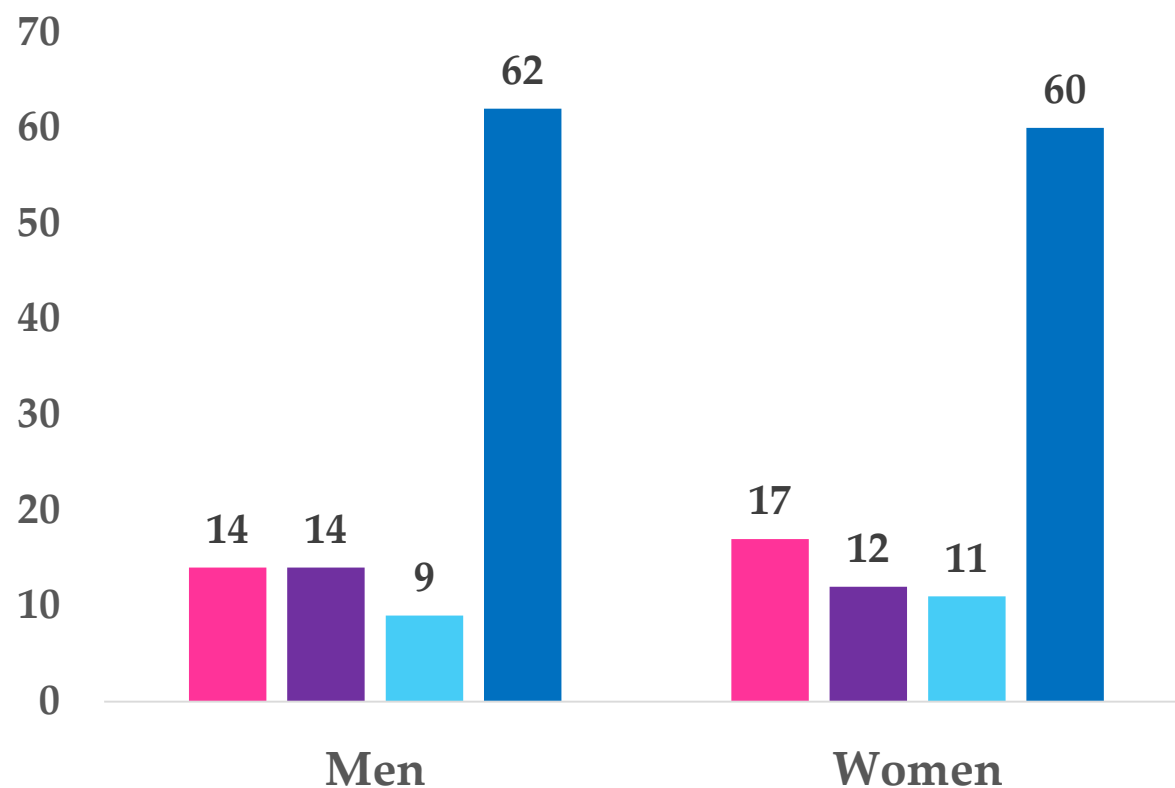
Socioeconomic Status

Highest Education



■ <=High school ■ <Bachelor's ■ Bachelor's ■ >Bachelor's

Family Income



■ <\$40K ■ \$40-75K ■ \$75-100K ■ >\$100K

What have we learned?



South Asians have some distinct characteristics



S.P. 40 year old Indian man

Weights 159 lbs (BMI 25)

Vegetarian, non-smoker

Works in an IT job, fairly sedentary

Immigrated to the U.S. in 2008



M.A. 76 year old Pakistani woman

Weights 123 lbs (BMI 23)

Non-vegetarian, non-smoker

Retired, walks daily

Immigrated to the U.S. in 1970

Cardiometabolic Abnormalities Among Normal-Weight Persons From Five Racial/Ethnic Groups in the United States

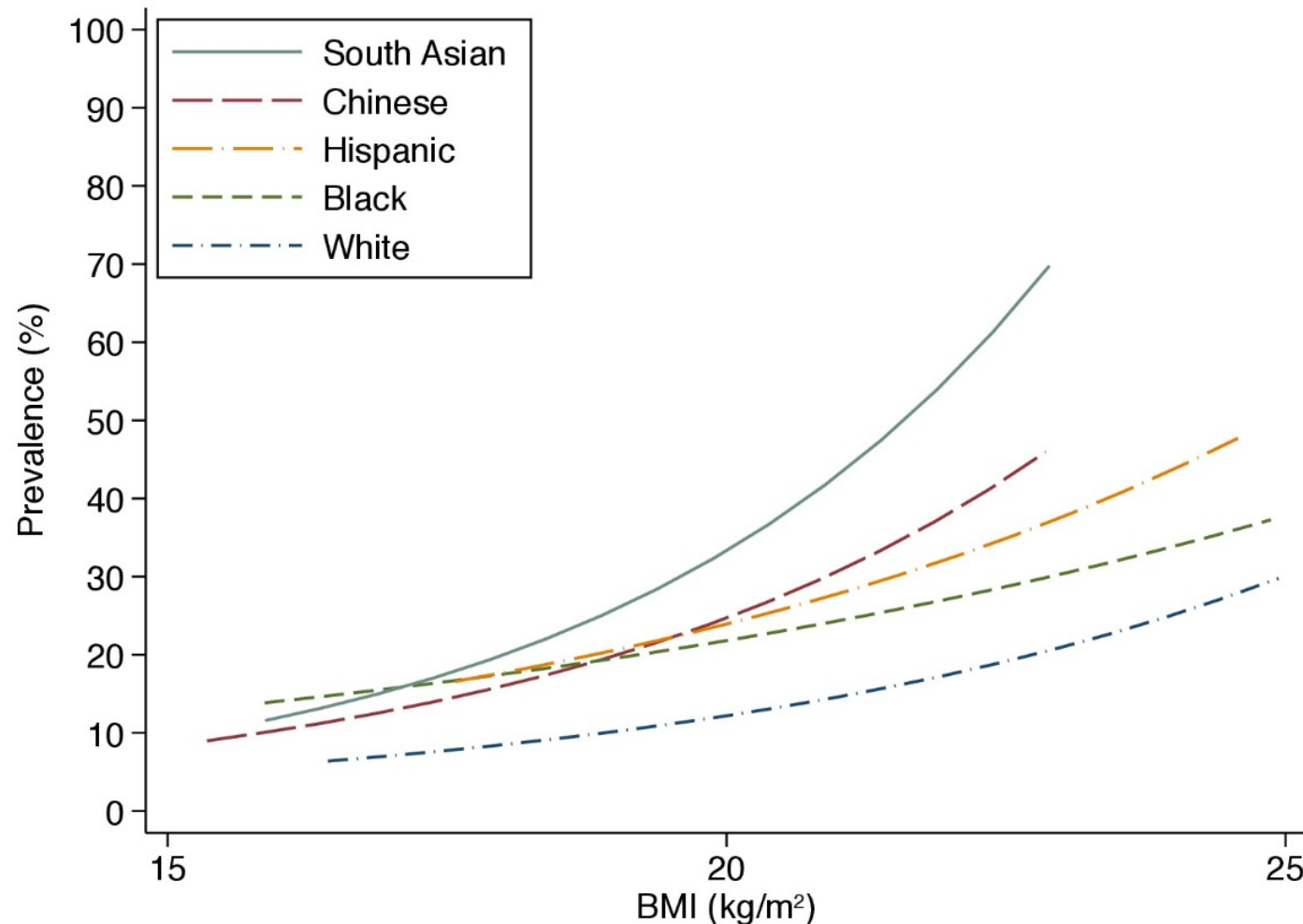
A Cross-sectional Analysis of Two Cohort Studies

Unjali P. Gujral, PhD; Eric Vittinghoff, PhD; Morgana Mongraw-Chaffin, PhD; Dhananjay Vaidya, PhD; Namratha R. Kandula, MD, MPH; Matthew Allison, MD, MPH; Jeffrey Carr, MD; Kiang Liu, PhD; K.M. Venkat Narayan, MD; and Alka M. Kanaya, MD

South Asians with a **normal weight** are 2.5 x more likely to have high blood glucose, high triglycerides, low HDL-cholesterol, or high blood pressure compared to Whites.

Cardiometabolic Abnormalities Among Normal-Weight Persons From Five Racial/Ethnic Groups in the United States

A Cross-sectional Analysis of Two Cohort Studies



Take home point:

- South Asians should have their blood pressure, cholesterol, and glucose levels checked even if their weight is normal.

American Heart Association's Definition of Cardiovascular Health: Seven Factors

1



Tobacco

2



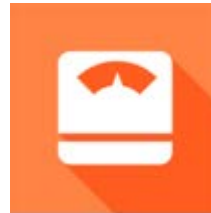
Eat Right

3



Maintain
Healthy
Weight

4



Regular
Exercise

5



Blood
Pressure

6



Cholesterol

7



Blood
Glucose

Each factor can be characterized as ideal, intermediate or poor

Discussion

Cardiovascular health metrics among South Asian adults in the United States: Prevalence and associations with subclinical atherosclerosis

Sameera A. Talegawkar^{a,*}, Yichen Jin^b, Namratha R. Kandula^c, Alka M. Kanaya^d



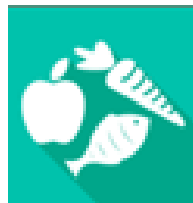
12/16/2017

1



Tobacco

2



Eat Right

3



Maintain
Healthy
Weight

4



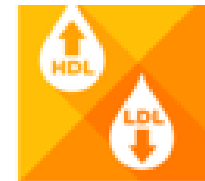
Regular
Exercise

5



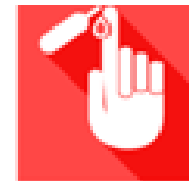
Blood
Pressure

6



Cholesterol

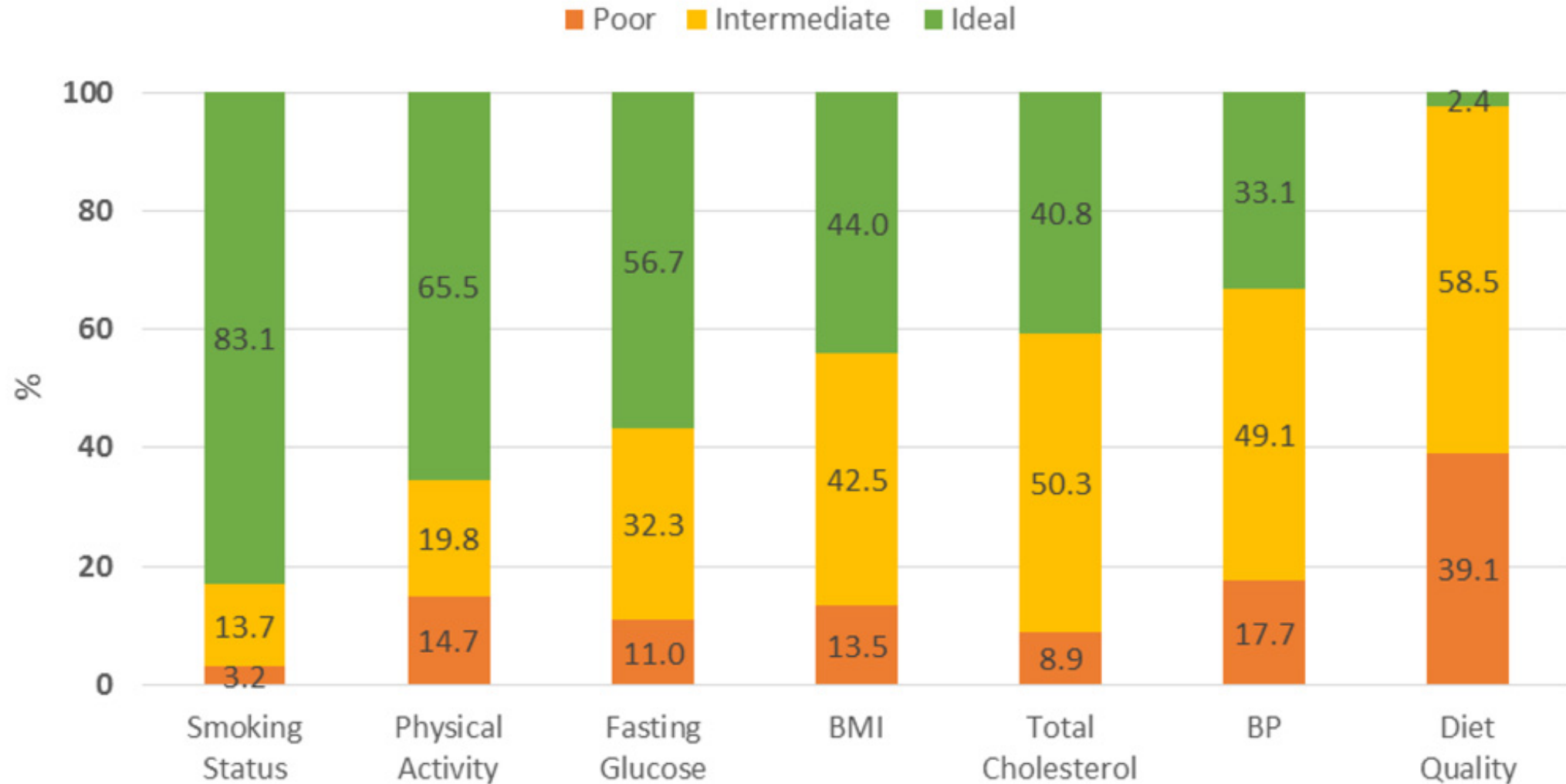
7



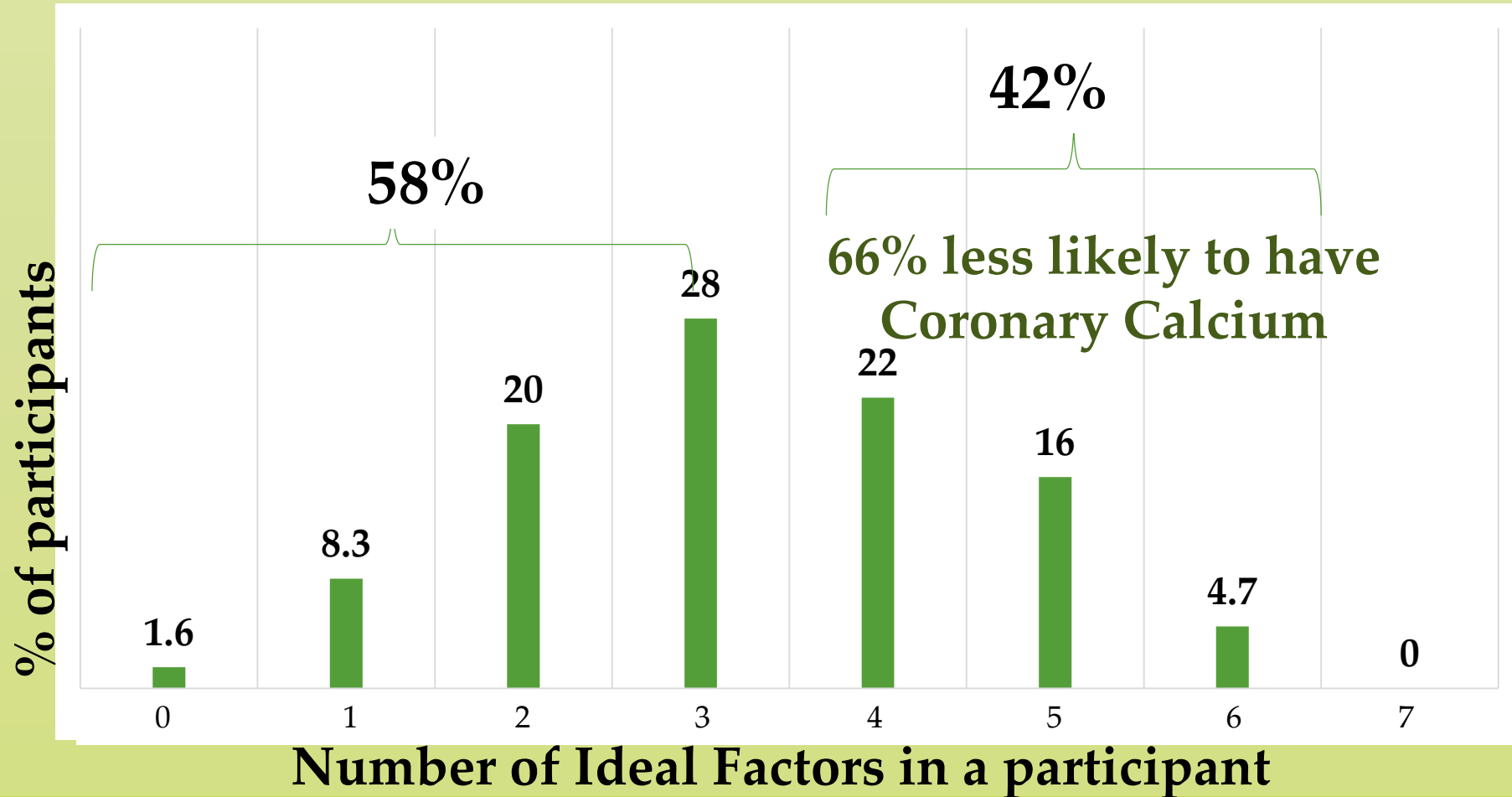
Blood
Glucose

Cardiovascular Health in MASALA

Components of Life's Simple 7



How many ideal factors do MASALA Participants have?



What types of diet do participants eat?

- Three major dietary patterns (33% each):
 - Animal protein/western diet
 - Fried snacks, sweets, high-fat dairy
 - Fruits, vegetable, nuts, legumes
- Higher weight, bigger waist
Higher BP, lower HDL

Gadgil, J Nutrition, 2015



Animal protein



Fried snacks, sweets, and high fat dairy



Fruits, vegetables, nuts, and legumes

What about a Vegetarian diet?

- 38% were vegetarian (most consume dairy, some eat eggs)
- More women, less calorie intake, less alcohol use
- Lower BMI
- Lower glucose
- Lower cholesterol levels
- Less fatty liver
- Lower CAC in men



Diet quality matters

- High in fresh vegetables, fruits, and whole grains
- Low in refined grains and starches
- High in beans & legumes/daal
- Less sugar, salt, & processing
- Healthy oils and fats





Associations Between Television Viewing and Adiposity Among South Asians

Yichen Jin¹ • Loretta DiPietro¹ • Namratha R. Kandula² • Alka M. Kanaya³ • Sameera A. Talegawkar^{1,4}

Key Findings:

- More TV viewing was associated with higher weight, more fat around the waist, in the liver, and around the heart, even after accounting for exercise.
- Take home point: “Limit time spent sitting”



Focused Issue: CAC Imaging

Letter to the Editor

Family History of CHD Is Associated With Severe CAC in South Asians: Comparing the MASALA and MESA Studies





JACC: Cardiovascular Imaging
Volume 10, Issue 8, August 2017, Pages
958-960



Focused Issue: CAC Imaging

Letter to the Editor

Family History of CHD Is Associated With Severe CAC in South Asians: Comparing the MASALA and MESA Studies

Key Finding:

Having a family history of heart disease in a first degree relative was associated with more severe coronary artery calcium (CAC >300) in South Asians, independent of conventional risk factors.

Take home point: If you have a family history of heart disease, talk with your doctor about prevention, control your risk factors aggressively, and if additional testing could help guide decisions about medicine.

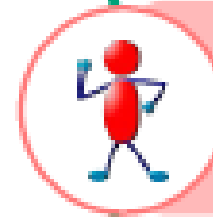
How do our social networks influence our health?



Definitions



EGO – MASALA study participant



ALTER – the network member named by the MASALA study participant



EXERCISE PARTNER – the network member who exercised with the MASALA study participant

RESEARCH ARTICLE

Open Access



Personal social networks and organizational affiliation of South Asians in the United States

Namratha R. Kandula^{1,2,9*}, Andrew J. Cooper¹, John A. Schneider³, Kayo Fujimoto⁴, Alka M. Kanaya⁵, Linda Van Horn², Lawrence deKoning^{6,7,8} and Juned Siddique²

- South Asians have large social networks (mostly family and other South Asians).
- People who felt emotional closeness with network, reported better overall health.
- Having more family members in the network was linked to more health discussions.
- Children provided a lot of social support and role-modeled healthy behaviors.
- Belonging to religious/spiritual organizations was perceived as beneficial to health.

Social Networks And Physical Activity

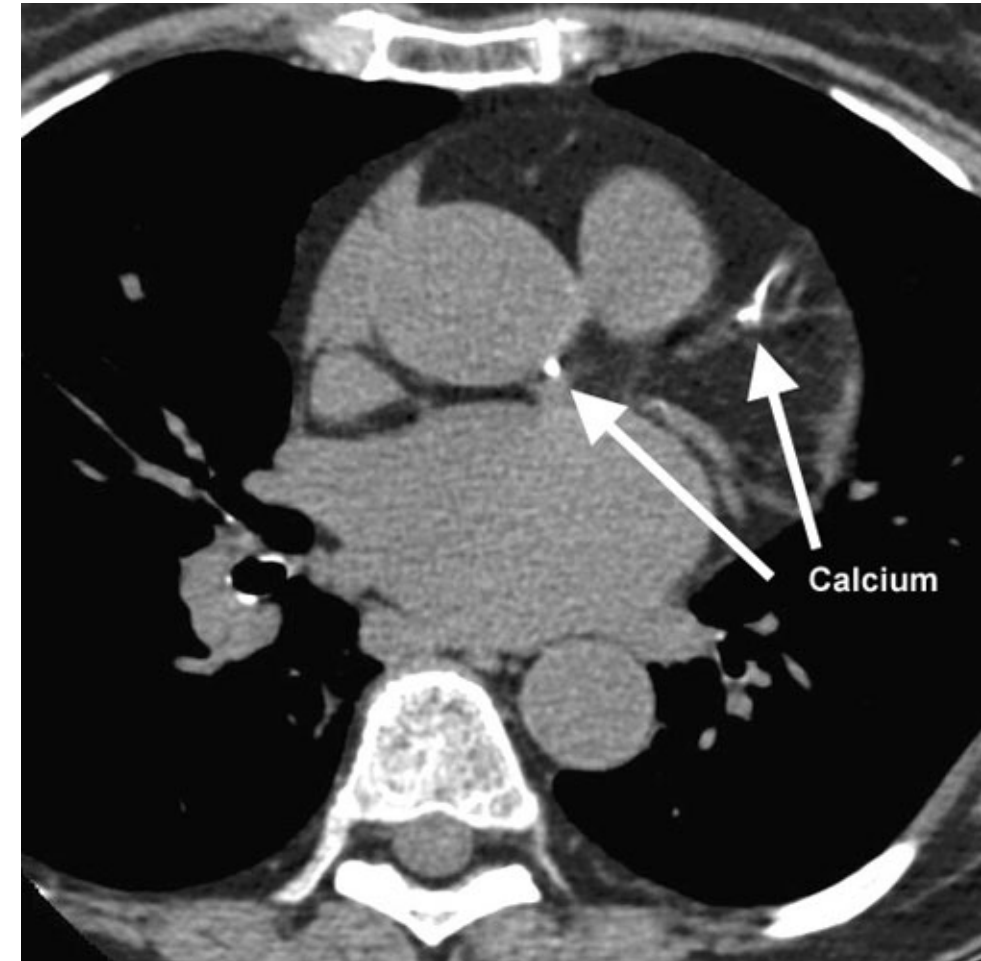


Table 2: Gender Difference Among MASALA Participants and Their Exercise Partners*

Parameter	Men			Women		
	Estimate	(LCL, UCL)	P Value	Estimate	(LCL, UCL)	P Value
Intercept	1331	(593 to 2069)	<.0001	620	(-252 to 1492)	0.163
Number of alters who are non-spouse exercise partners	566	(344 to 788)	<.0001	54	(-169 to 278)	0.633
Spouse exercise partner	289	(-54 to 632)	0.099	466	(83 to 849)	0.017
Number of alters who exercise without ego	250	(73 to 428)	0.006	19	(-195 to 234)	0.860

*Model adjusted for ego age, study site, education, marital status, income, Sum of Cultural Traditions, self-rated health, and network size. Statistical significance at $p < 0.05$.

Ongoing Analyses



CAC definition:

- Coronary artery calcium: measures amount of calcium in walls of arteries in the heart = hardening of arteries.
- Higher calcium score may indicate higher risk for a future heart attack.
- Most helpful in people who have an 'intermediate risk' and may not be sure whether or not to start medicines (e.g. statins, aspirin)

Linking coronary calcium and other risk factors to CVD events

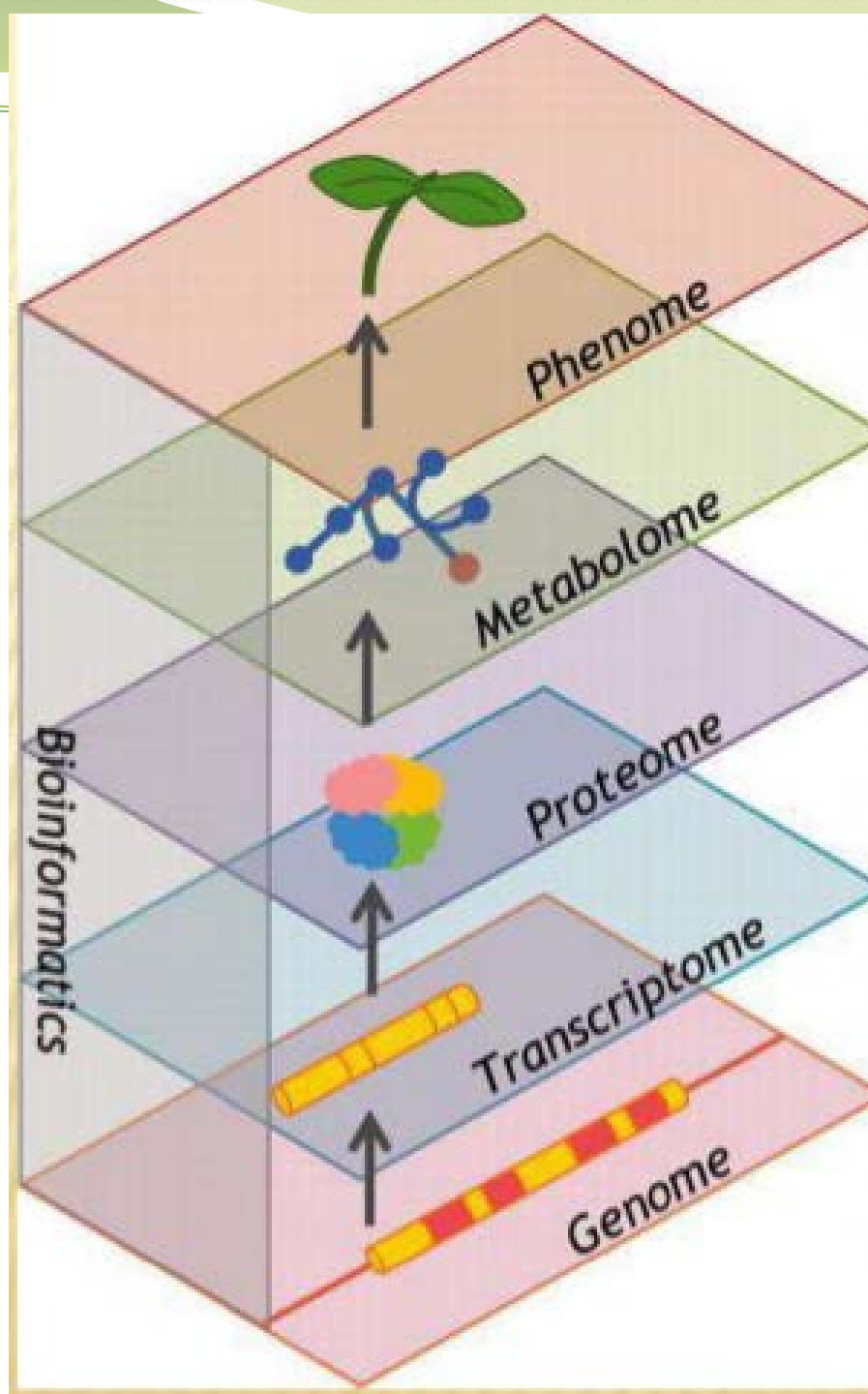
- This is an important goal and it is in progress.
- We are collecting information on cardiac events (heart attack, stroke, angina, heart failure, procedures) and deaths.
- We will be able to report these findings in another few years.

Collaborating with other Cohort Studies



South Asian Cardiometabolic Health Initiative (SACHI)

Started 'Omics Analyses:



American Heart Association is Paying Attention

Circulation



AHA SCIENTIFIC STATEMENT

Atherosclerotic Cardiovascular Disease in South Asians in the United States: Epidemiology, Risk Factors, and Treatments

A Scientific Statement From the American Heart Association

© July 2018 American Heart Association, Inc.

ASIAN AMERICA

New Bill Targets Higher South Asian American Heart Health Risks

by Agnes Constante / Aug.08.2017 / 2:34 PM ET

H.R.3592 - South Asian Heart Health Awareness and Research Act of 2017

115th Congress (2017-2018) | [Get alerts](#)

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Sponsor: [Rep. Jayapal, Pramila \[D-WA-7\]](#) (Introduced 07/28/2017)

Committees: House - Energy and Commerce; Agriculture

Latest Action: House - 09/01/2017 Referred to the Subcommittee on Biotechnology, Horticulture, and Research. ([All Actions](#))

Tracker:

Introduced

Passed House

Passed Senate

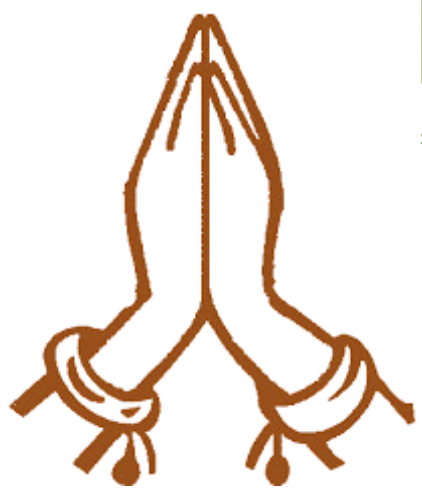
To President

Became Law

How can you help us?

Stay involved with the study

- Annual phone and email follow up of participants to document changes in health and any cardiac events.
- Please notify us if you have any new medical diagnoses or any procedures on your heart or arteries or are hospitalized for any reason.
- Send us medical records as soon as you can. **Your information is kept completely confidential.**
- Exam 3 plans: Use echo and other non-invasive tests to understand changes in the structure of the heart and blood vessels and early signs of heart failure. In older participants: do brain MRI and cognitive testing.



Thank You for Your Continued Support



You can learn more about our research at www.masalastudy.org
email: masalastudy@ucsf.edu

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National Heart, Lung, and Blood Institute [1R01HL093009 & 2R01HL093009 & K24HL112827 (PI: Kanaya) and 1R01-HL 120725-01] (PI: Kandula)]

Thank You for Your Continued Support



**You can learn more about our research at www.masalastudy.org
or email: masalastudy@northwestern.edu**

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