Cardiometabolic Disease among South Asians:

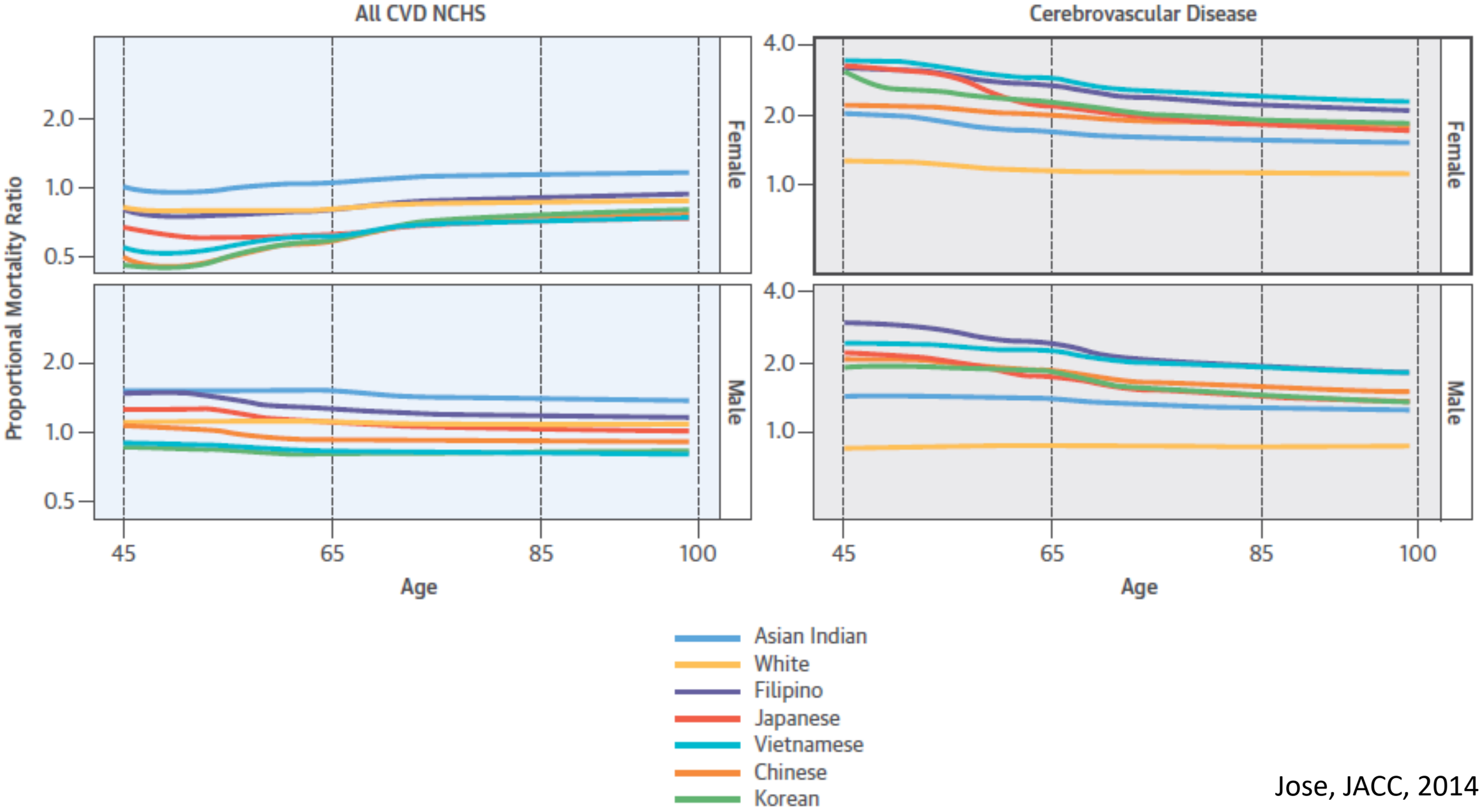
Findings from the MASALA Study

ALKA KANAYA, M.D.

PROFESSOR OF MEDICINE, EPIDEMIOLOGY & BIOSTATISTICS

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

CVD and Stroke in Asians from 34 states



Jose, JACC, 2014

MASALA Study Aims

Establish a prospective community-based cohort of South Asians in the Unites States to:

1. Determine the traditional, socio-cultural, behavioral, and novel risk factors associated with subclinical atherosclerosis and type 2 diabetes.
2. Compare the adjusted prevalence of CVD risk factors to the four race/ethnic groups in MESA.
3. Investigate factors associated with incident CVD.

Study Design

- Ages 40-84 years
- N = 900, no existing CVD
- Only South Asians
- Two sites (UCSF and NWU)
- Pilot study (n=150; 2006-2007)
- Baseline exam: 2010-2013
- Exam 2 completed in 2018

MESA

- Ages 45-84 years
- N = 6,500, no existing CVD
- 4 race/ethnic groups
- 6 sites (Columbia, Hopkins, NWU, Minnesota, UCLA, Wake Forest Univ.)
- Started in 2000; Exam 5 2010-2012
- Exam 6 completed in 2018

MASALA Study Timeline

Exam 1 (2010 – 2013)	Social Network (2014 – 2016)	Exam 2 (2016 – 2018)	Exam 1 A (2017 – 2018)	Exam 3 2021-2023?
Blood tests Glucose Tolerance Test Coronary Calcium CT Carotid Ultrasound EKG	Personal Social Networks	Blood tests Glucose Tolerance Test Coronary Calcium CT	Blood Tests Glucose Tolerance Test Coronary Calcium CT	Blood tests Echocardiogram Vascular stiffness Endothelial function
906 participants	**770**	**749**	**258 new participants**	

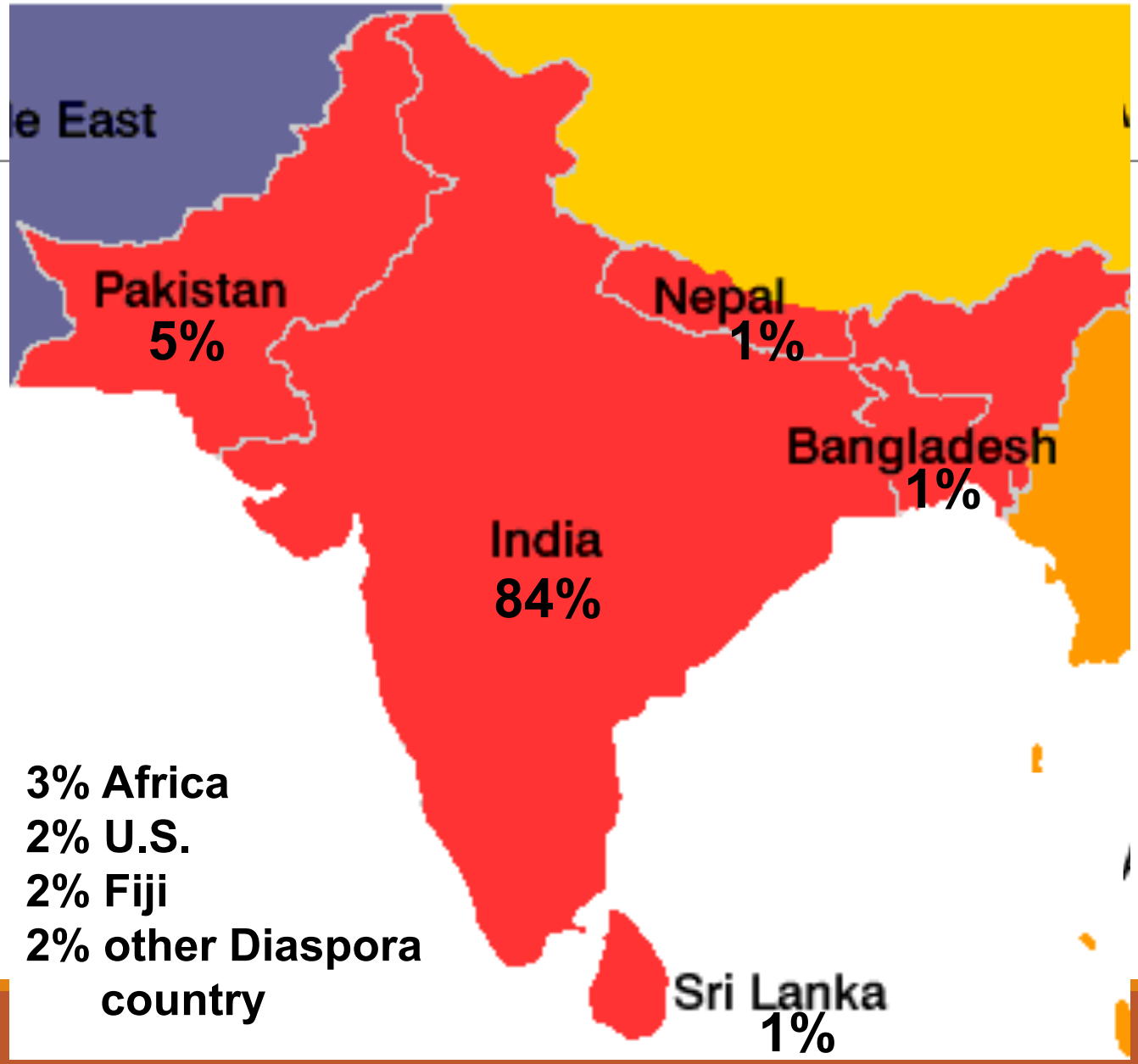
1,007 participants were seen during 2016-2018!

This is the largest South Asian cohort in the U.S. with follow-up

Roadmap

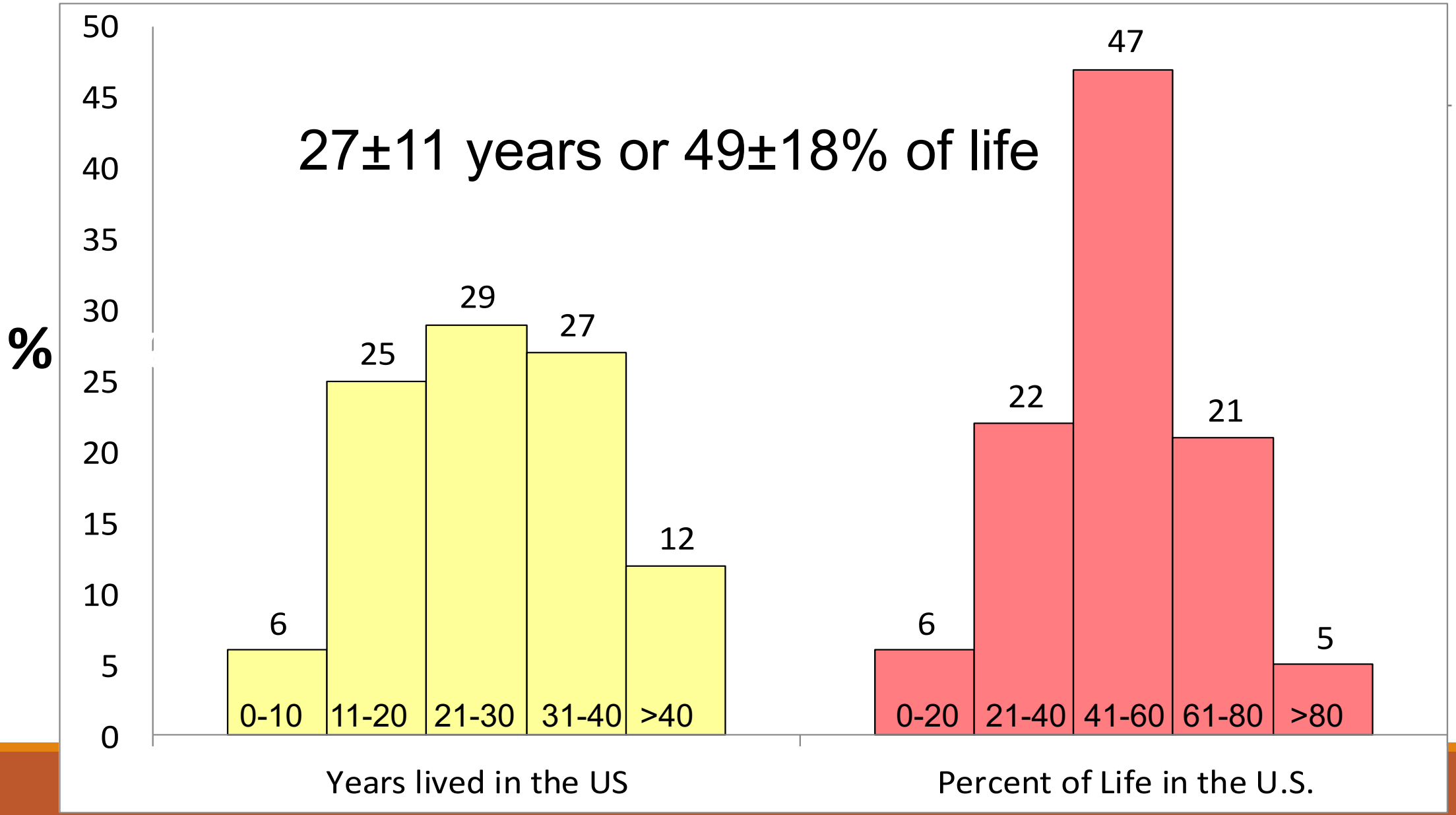
1. MASALA participant characteristics
2. Type 2 Diabetes
3. Subclinical Atherosclerosis: CAC
4. Health Policy Implications

Birth Country: 98% are immigrants to the U.S.

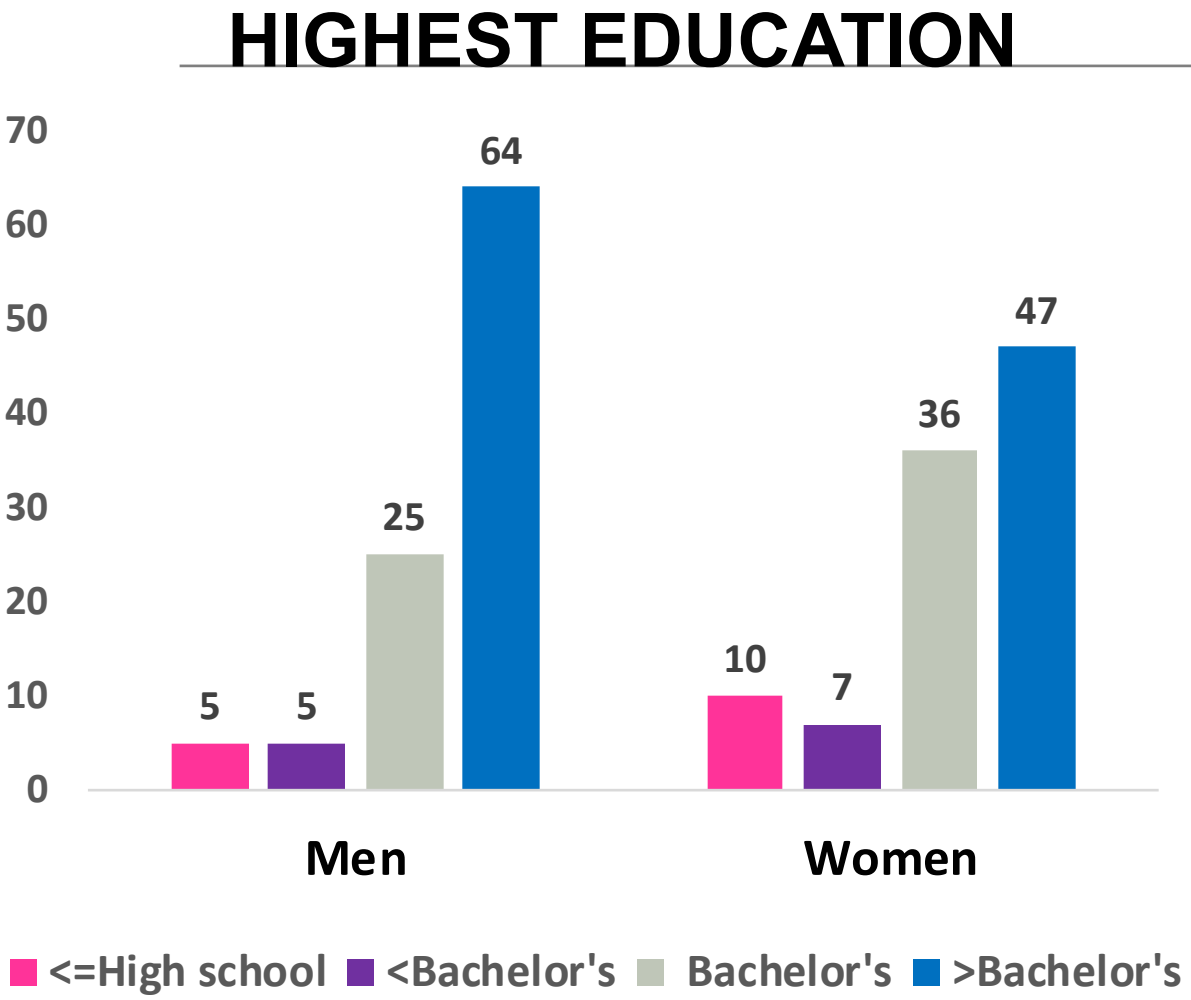


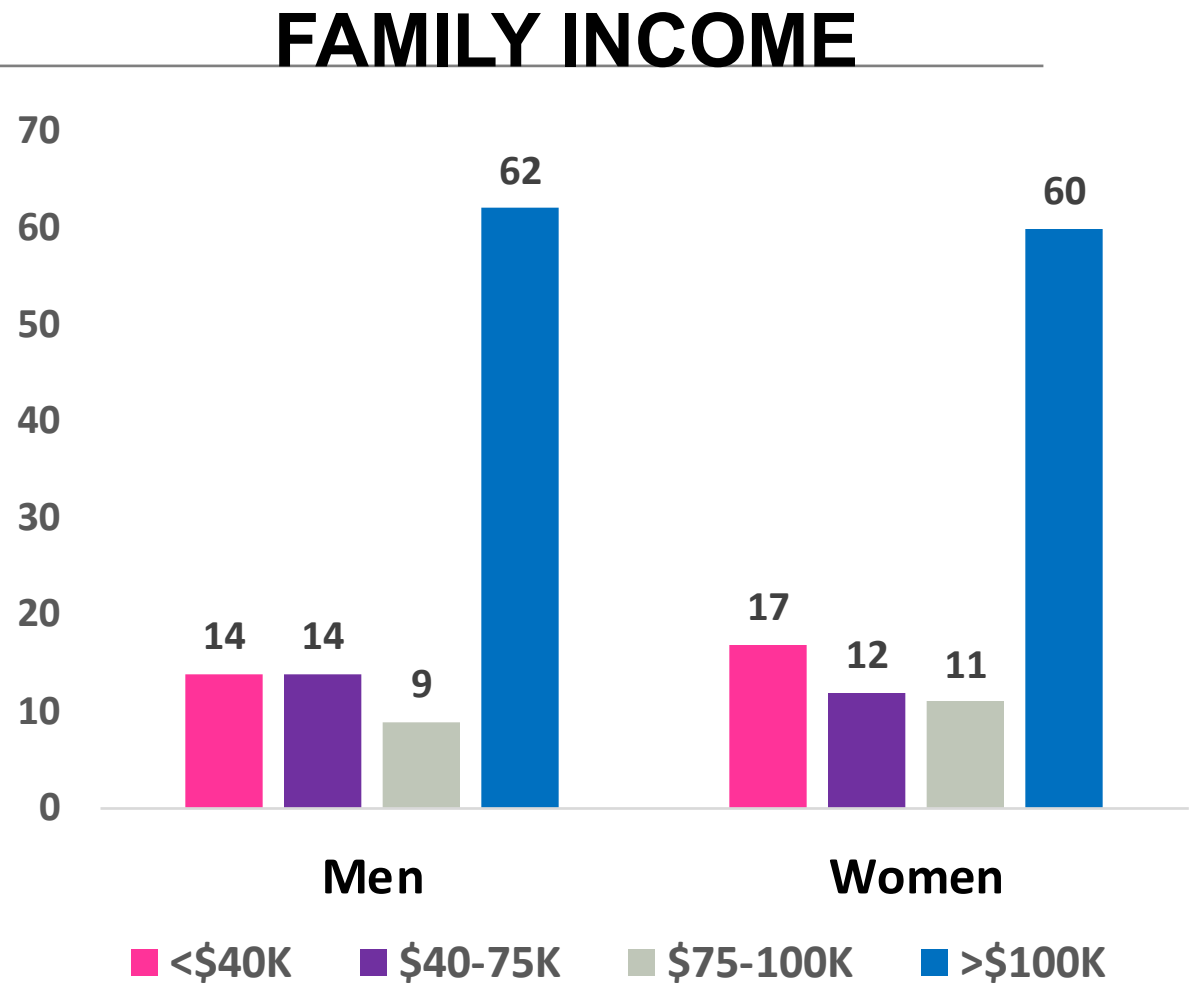
3% Africa
2% U.S.
2% Fiji
2% other Diaspora country

Years and Percent Time in U.S.



Socioeconomic Status





Lifestyle/Behavioral Factors

	SA N=906	White n=2622	Black n=1893	Latino n=1496	Chin. n=803
Current Smoker	3%	12%*	18%*	14%*	6%
Alcohol 1+ drinks/week	33%	64%*	51%*	47%*	21%*
Exercise MET-min/week	945	1852*	1654*	1200*	1230*
TV watching Hours/week	7	14*	14*	14*	12*

* p<0.001 in comparison to South Asians, adjusted by sex and age

South Asian foods

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

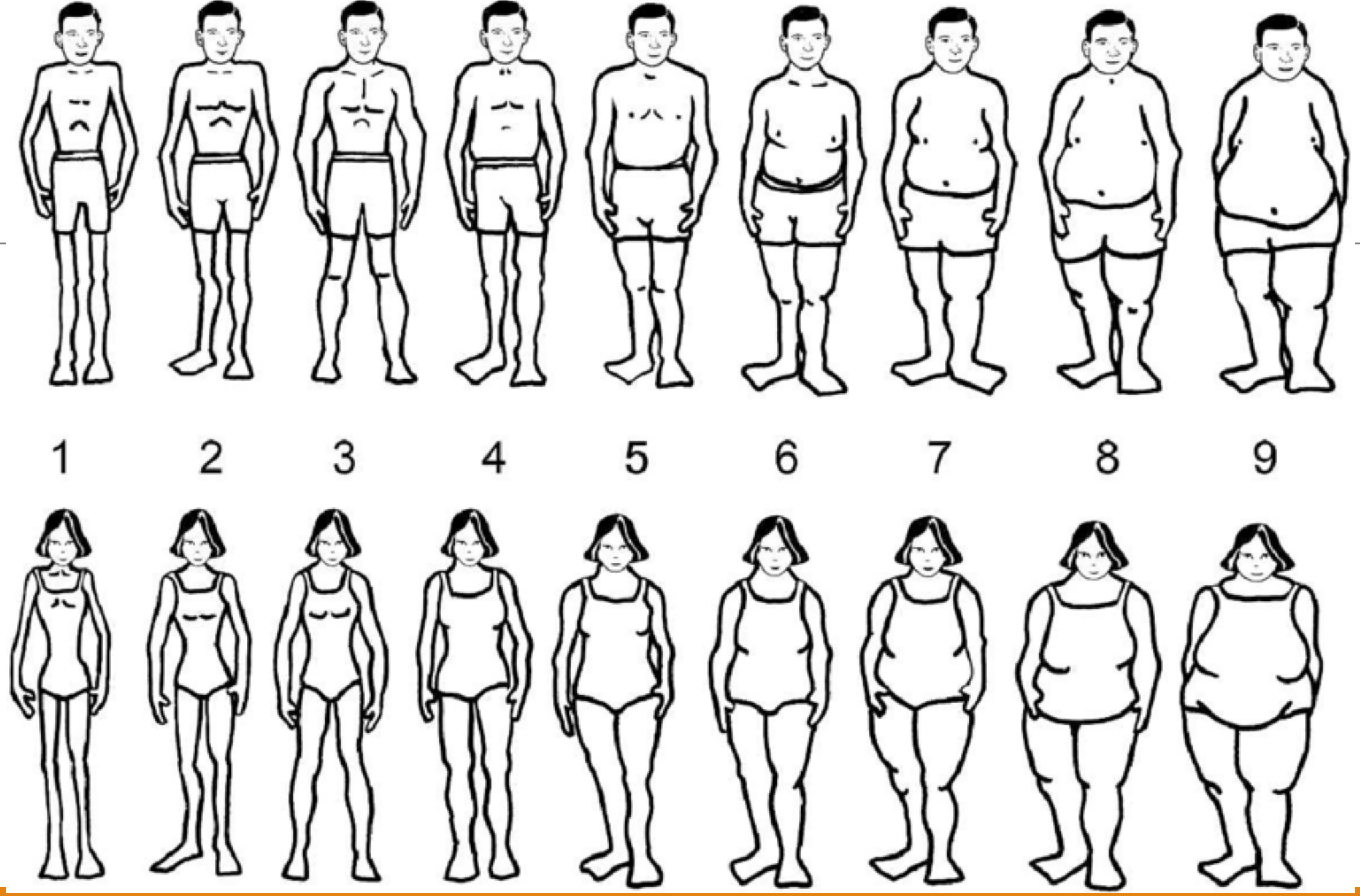
Higher BP, lower HDL

Animal protein

Fried snacks, sweets, and high fat dairy

Fruits, vegetables, nuts, and legumes

Gadgil, *J Nutrition*, 2015

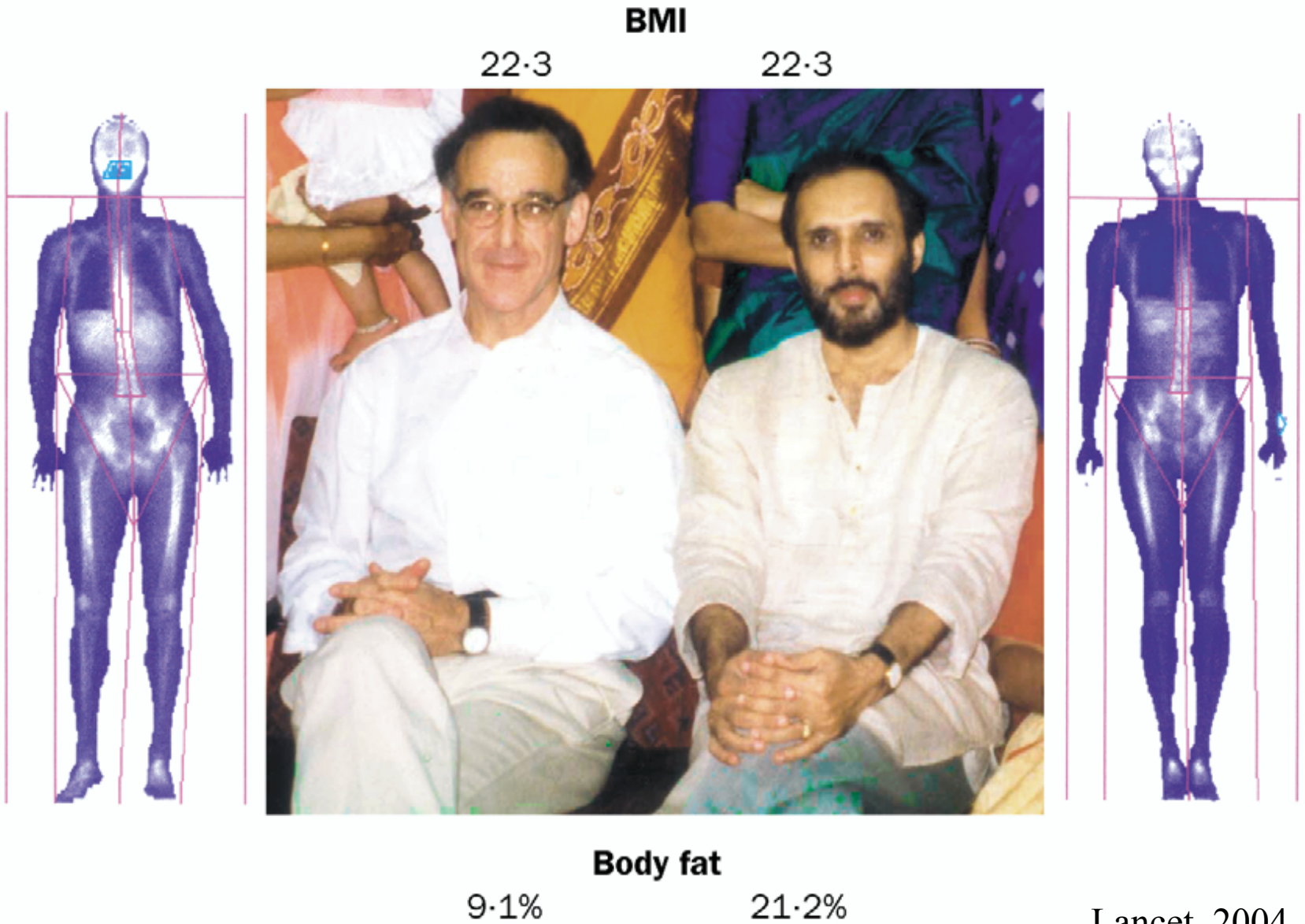

1
2
3
4
5
6
7
8
9

Definitions for Overweight/Obesity

	WHO-general	WHO-Asian
Underweight	<18.5	<18.5
Normal weight	18.5 – 24.9	18.5 – 22.9
Overweight	25.0 – 29.9	23.0 – 27.5
Obese	≥30.0	≥27.5

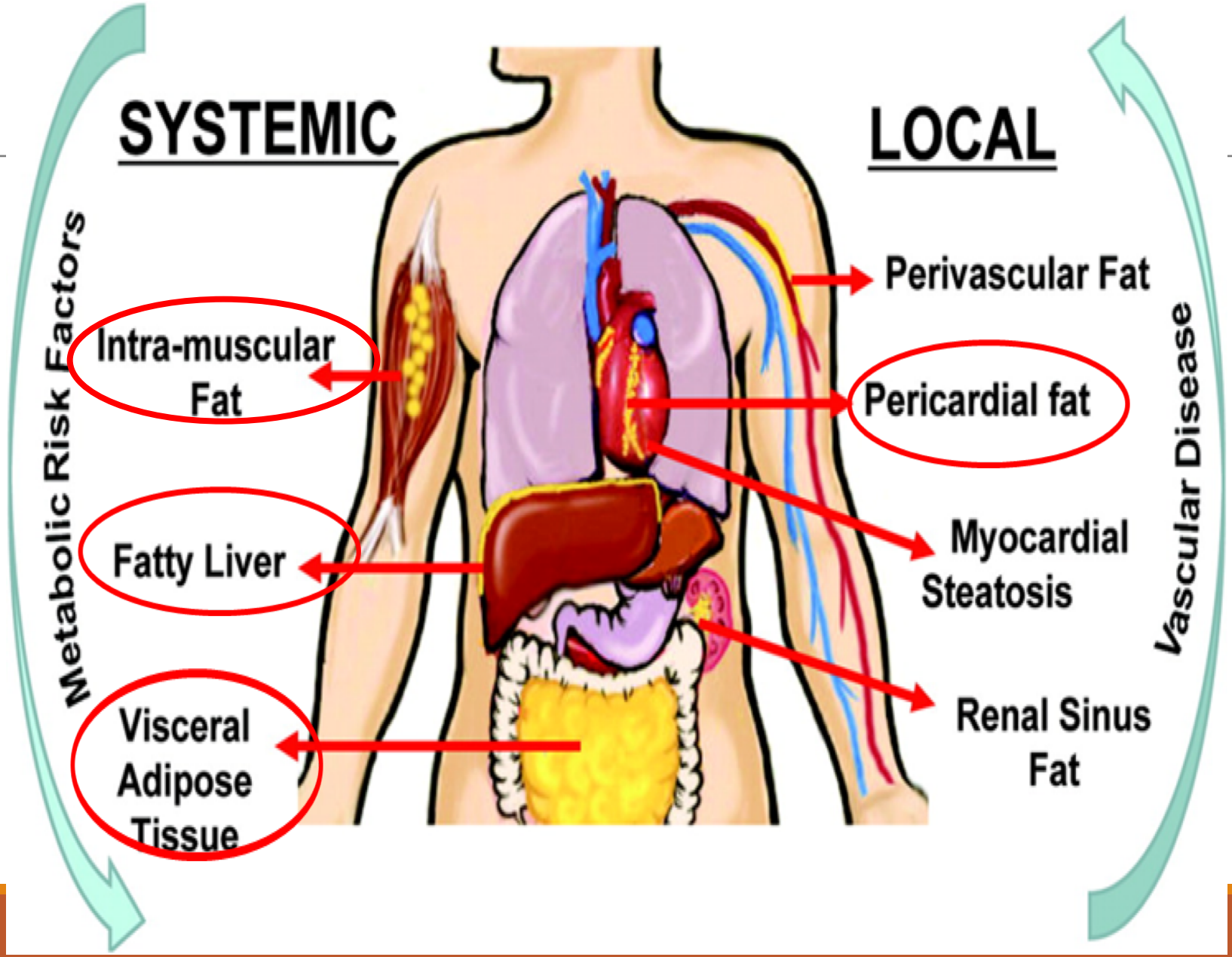
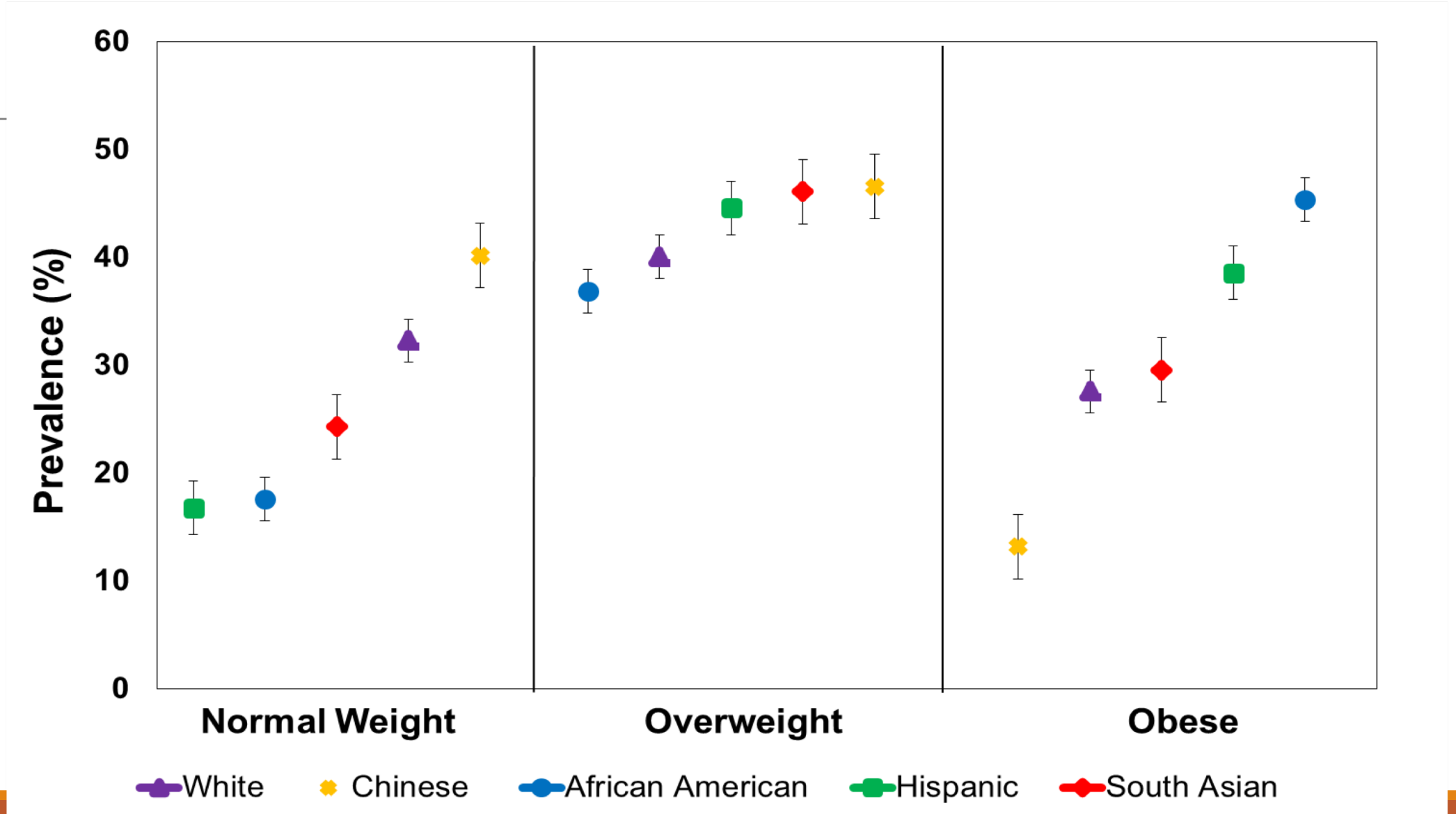
WHO expert panel, *Lancet*, 2004

Yudkin-Yajnik Paradox



Lancet, 2004

Hidden Fat Stores



BMI Category by Race/Ethnicity