

Systems and Obesity: Advances and Innovations for Equitable Health and Well-Being

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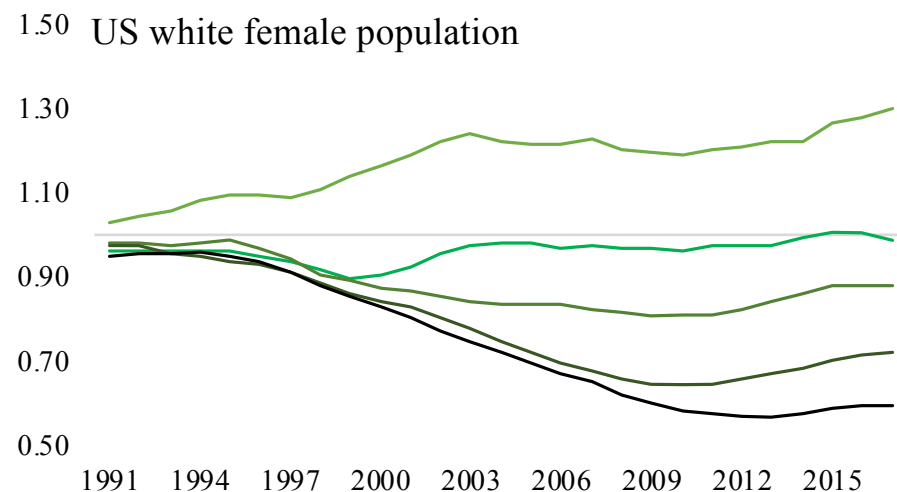
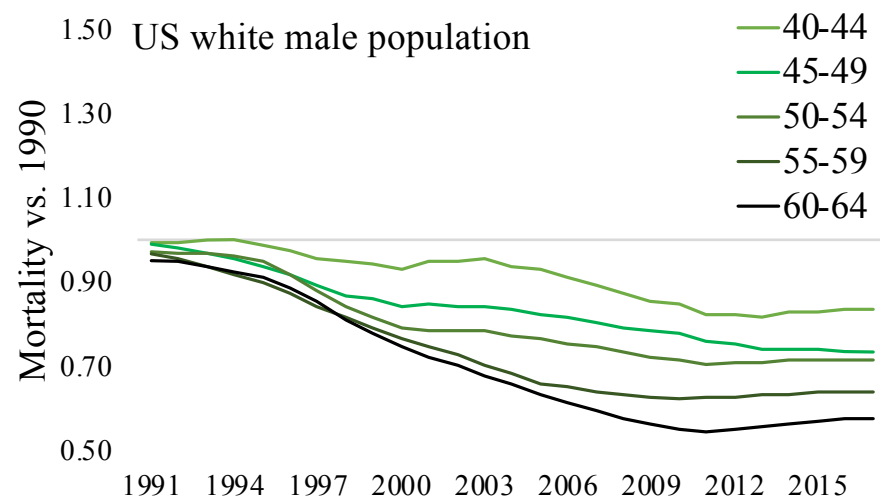

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Mortality Consequences of U.S. Obesogenic Environment?

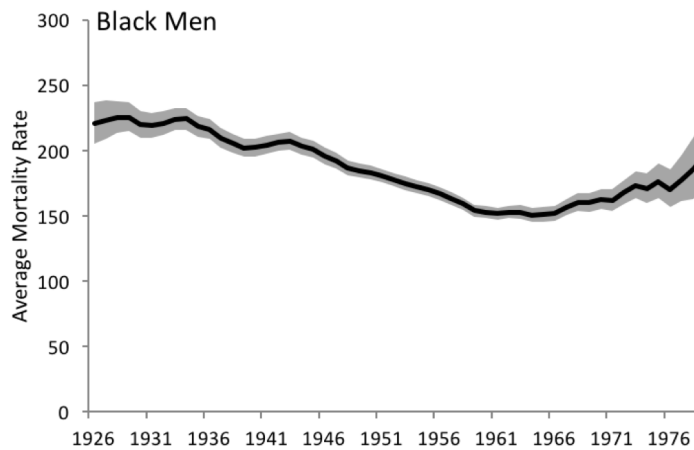
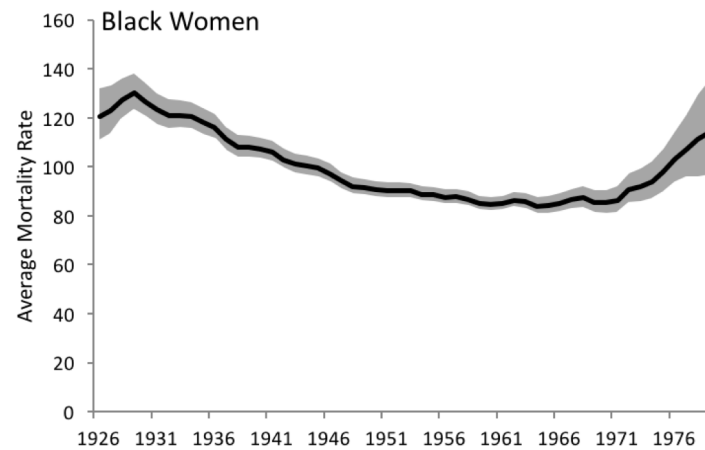
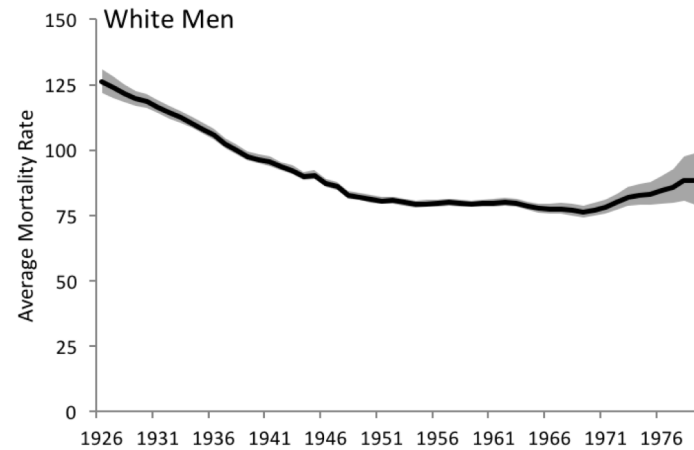
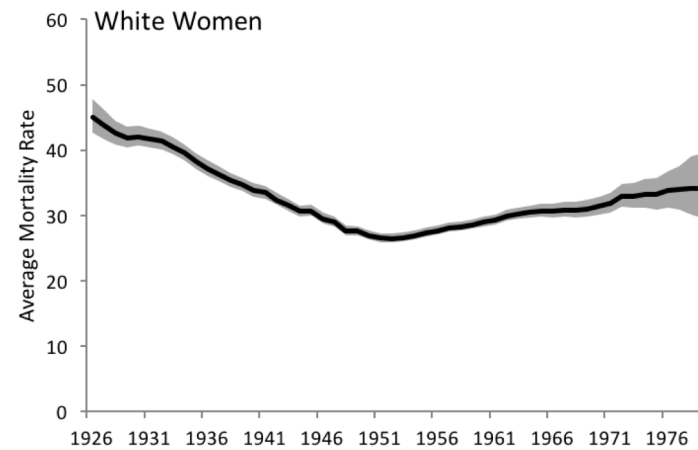
1. Population-level mortality trends in the United States.
2. Challenges to estimating associations with individual-level data.



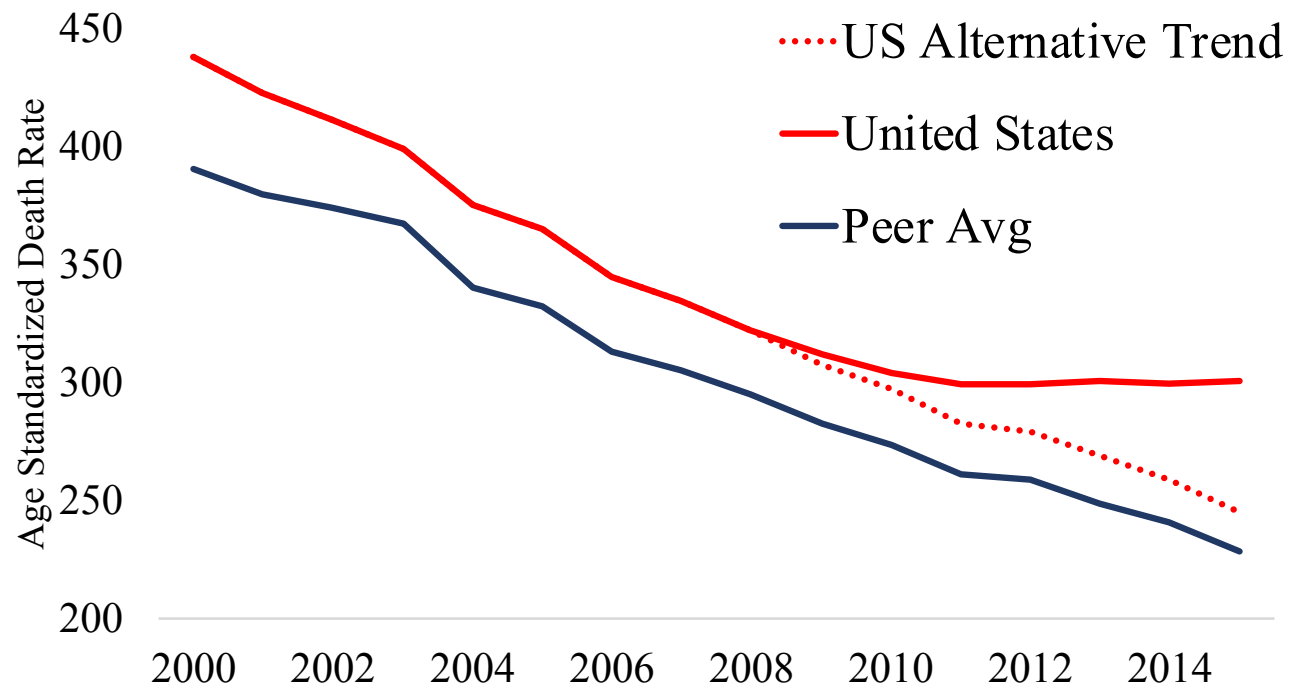
Death Rates from "Cardiometabolic" Diseases in Midlife: Relative to Death Rates in 1990



Cohort-based Trends in “Cardiometabolic” Disease Deaths



Recent Trends in “Cardiometabolic” Disease Deaths

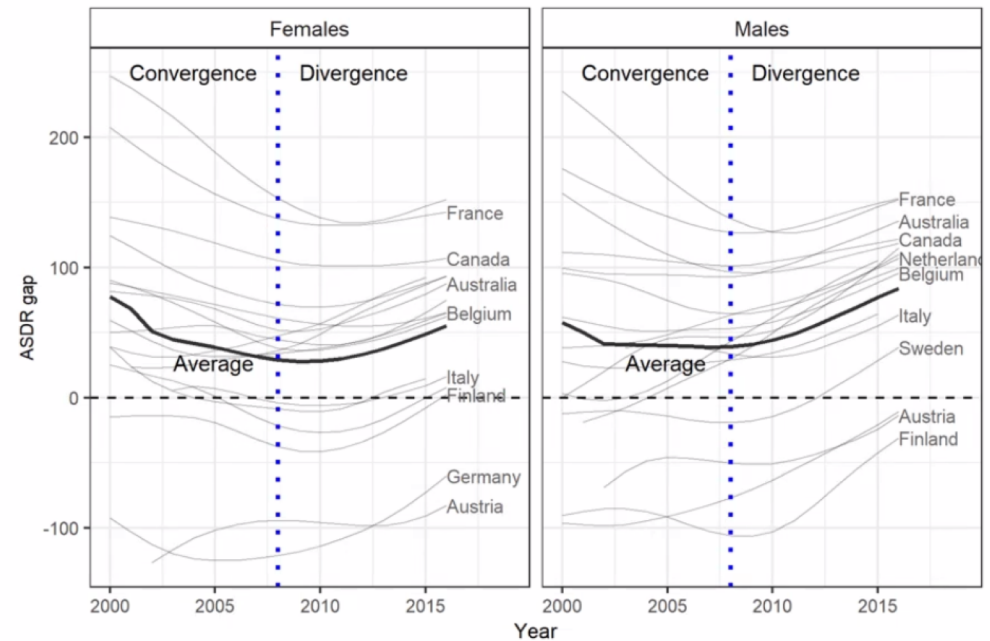


Recent Trends in Cardiovascular Disease Mortality Gap, US vs. Other High-income Countries (Acosta et al. 2021)

Hypotheses for the exceptional CVD stall in the US

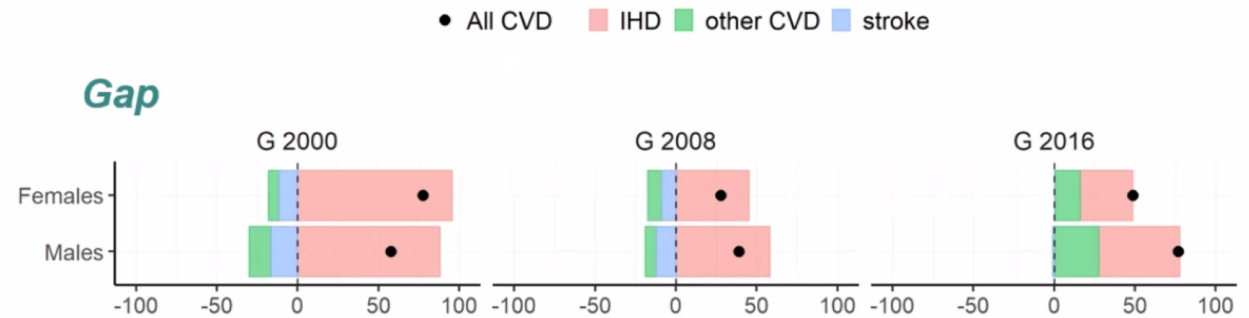
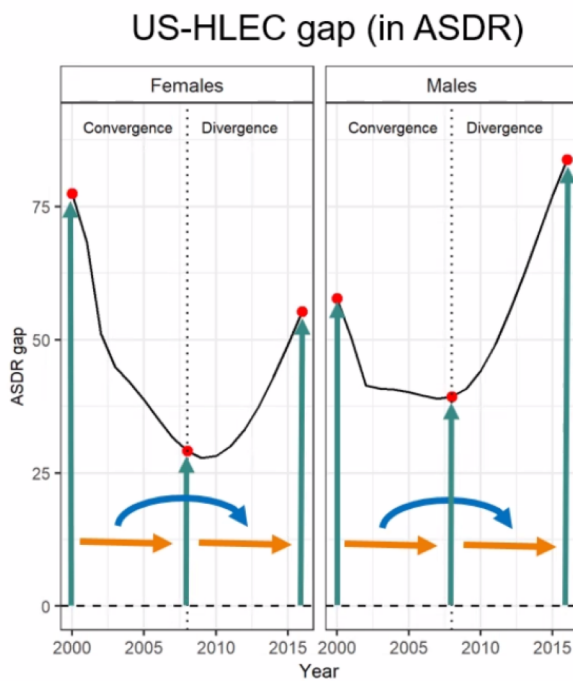
- Effect of changes in behavioral risk factors
 - Increase in obesity prevalence
 - Slowdown in smoking reduction
 - Indirect effect of the opioid abuse epidemic

US-HLEC gap

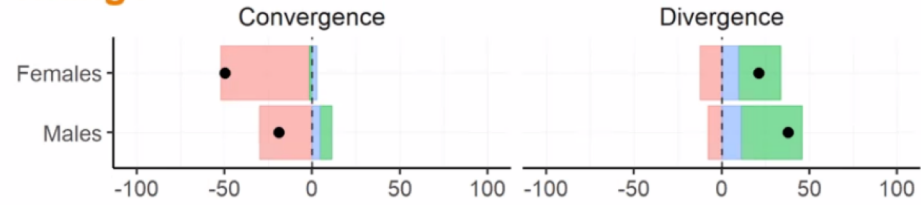


RESULTS

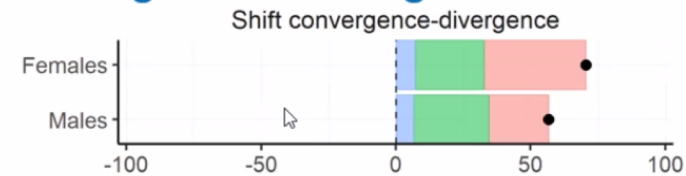
Gap shift decomposition



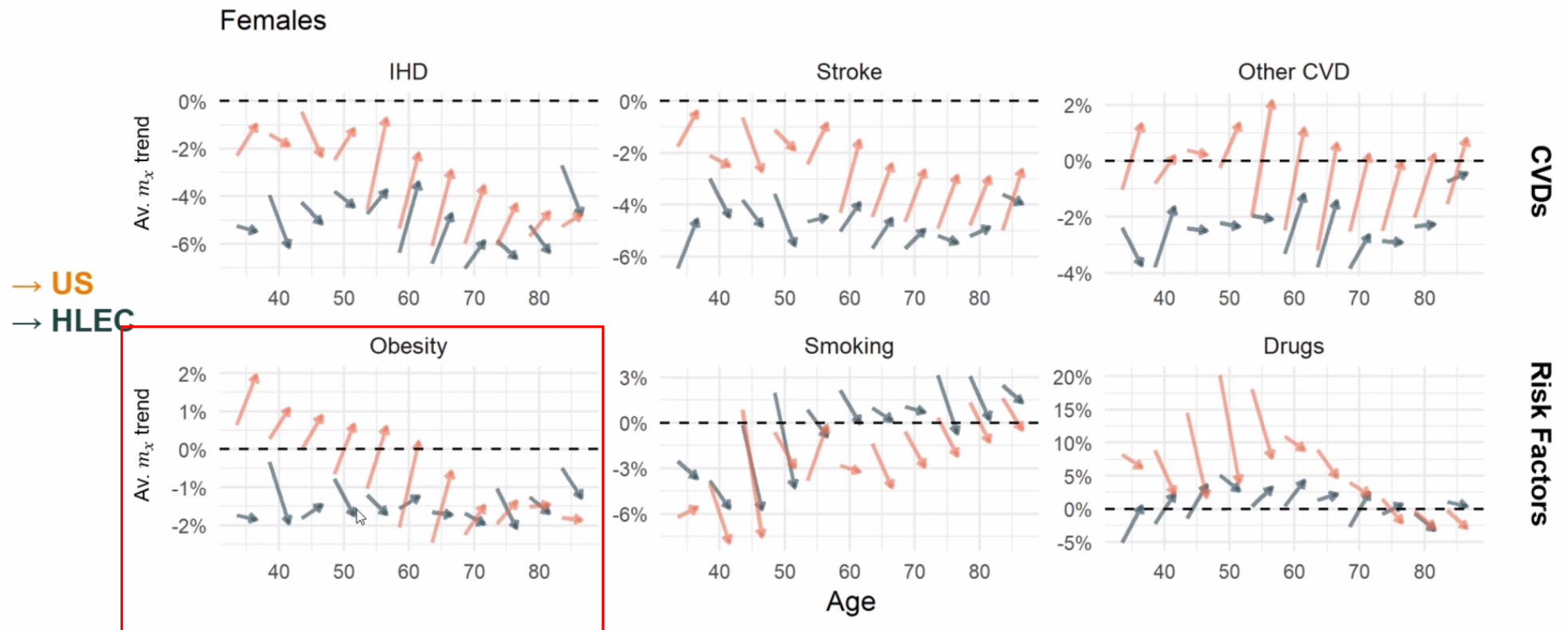
Gap change



Shift from convergence to divergence



DIFFERENCE IN AVERAGE MORTALITY TRENDS BY CAUSE BETWEEN CONVERGENCE AND DIVERGENCE PERIODS



“all CVD causes and **obesity-related mortality** showed either a **slowdown of improvements or acceleration of preexisting deteriorations**, while smoking-related mortality improvements accelerated and drug-related mortality deteriorations decelerated”

- Acosta et al. 2021

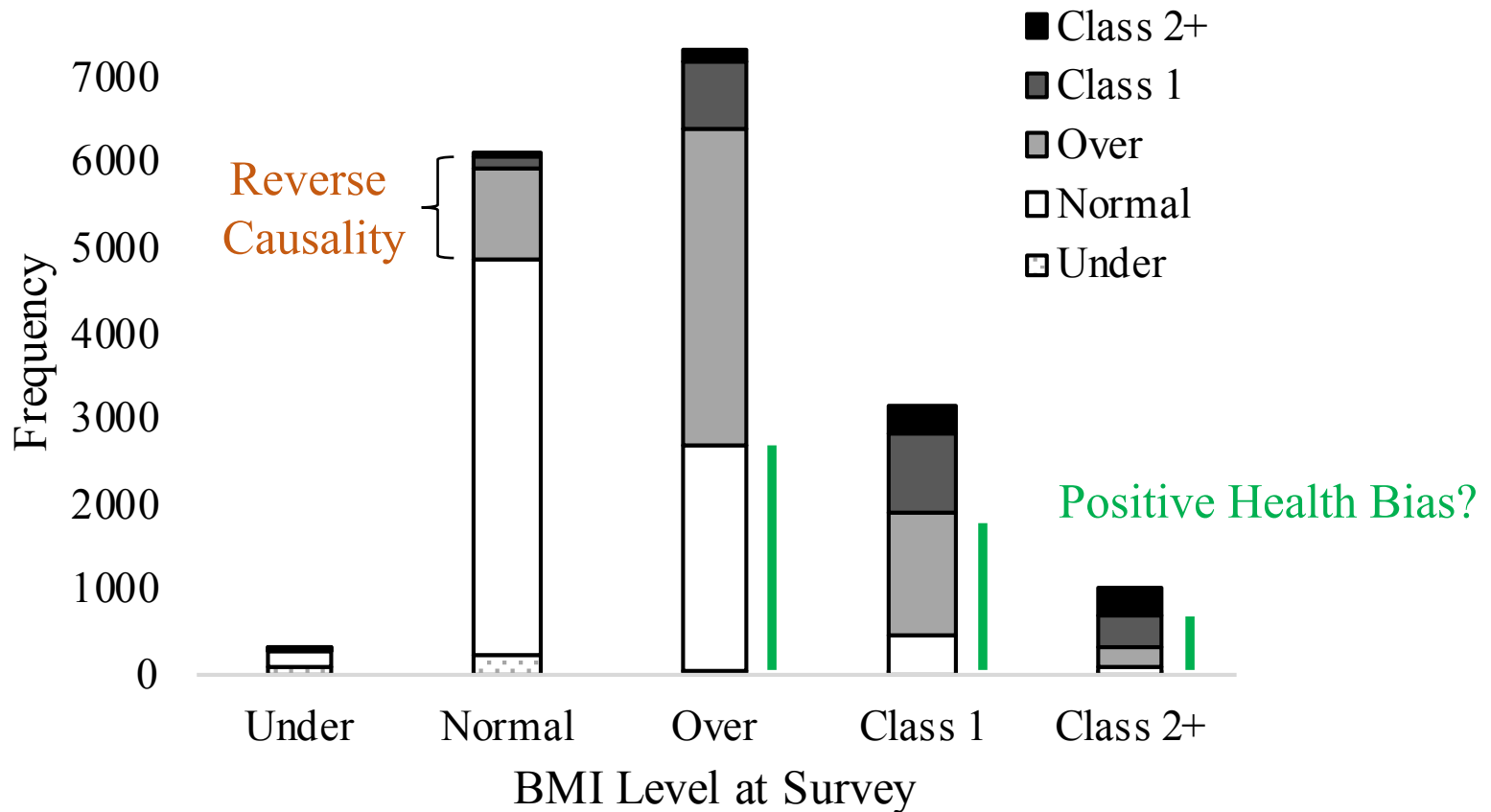
The Health Risk of Obesity— Better Metrics Imperative

Rexford S. Ahima and Mitchell A. Lazar

The impact of a high BMI on mortality is in question, calling for a rethinking of how metabolic health is assessed.

Mortality Risk			
Low BMI		Obese BMI	
Metabolically Healthy		Metabolically Healthy	
Low fat		Subcutaneous fat > visceral fat	
Increased muscle		Increased muscle	
Increased fitness		Increased fitness	
Normal Insulin		Normal Insulin	
Normal blood sugar		Normal blood sugar	
Low cardiovascular risk		Mild cardiovascular risk	
Low BMI		High BMI	
Unhealthy		Unhealthy	
		Chronic Illness	
		Sarcopenia	
		Excess visceral fat	
		Reduced fitness	
		Diabetes	
		Inflammation	
		High Cardiovascular Risk	

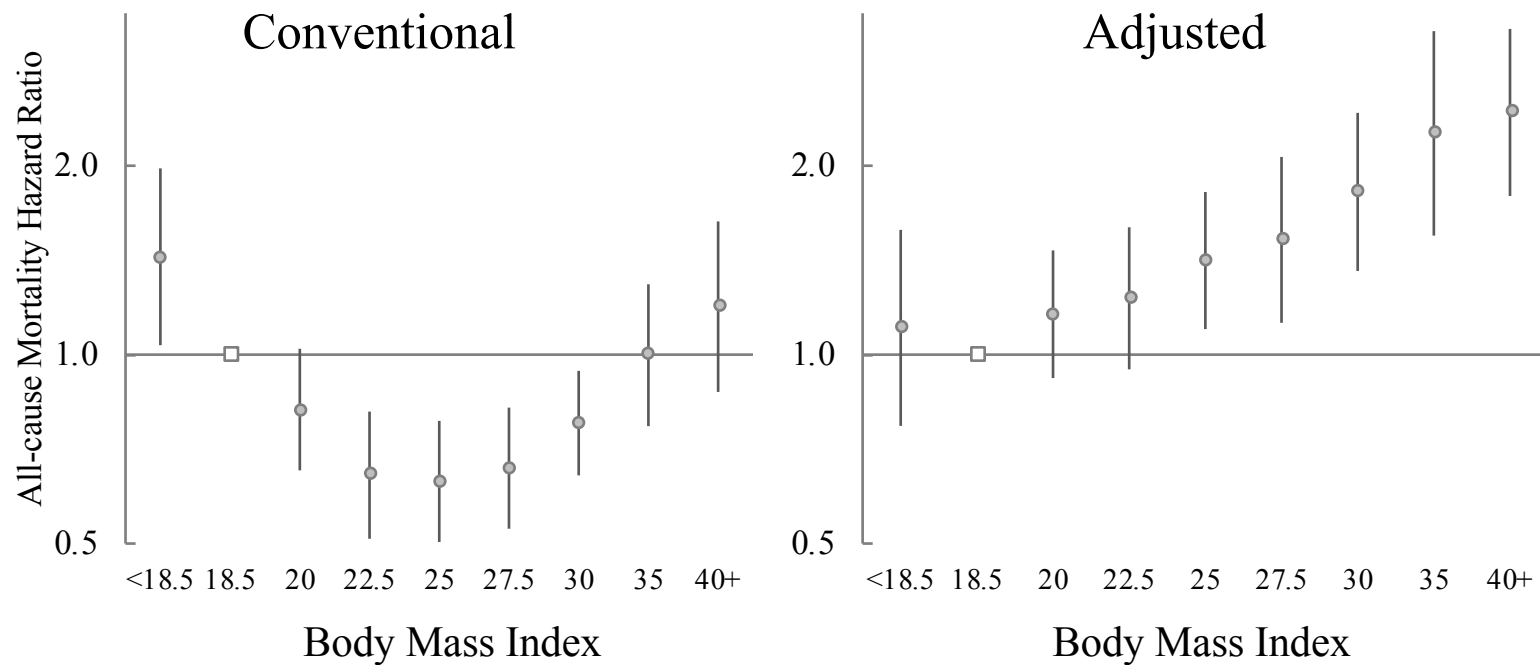
Compositions of NHANES Samples at Survey: BMI 10 Years Prior?



Implications for Estimating Health Differences?

	<u>BMI 18.5-24.9</u>		<u>BMI 25.0-29.9</u>		<u>BMI 30.0+</u>	
	Stable	Drop	Stable	Gain	Stable	Gain
Poor Health	0.18	0.37	0.23	0.22	0.34	0.28
Excellent Health	0.50	0.32	0.44	0.44	0.29	0.34
Not Active	0.46	0.58	0.48	0.48	0.58	0.53
Hypertension	0.34	0.47	0.50	0.37	0.60	0.53
Diabetes	0.07	0.20	0.14	0.07	0.27	0.14
Hyperlipidemia	0.29	0.38	0.50	0.44	0.52	0.51
C-reactive Protein	0.36	0.54	0.44	0.42	0.64	0.56
CMS	0.02	0.06	0.06	0.03	0.10	0.06
n	4668	1202	3736	2682	1289	2574

Implications for Estimating Mortality Differences?



“Better Metrics Imperative” or Better Designs?

Insights from better research designs > better individual-level metrics.