



Health and Health Care Challenges with Population Aging

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Strengthening the Scientific Foundation for Policymaking to Meet the
Challenges of Aging in Latin America and the Caribbean
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New Challenges in Health and Health Care



- Aging population strongly linked to health and health care
- Switch to chronic conditions
- Increased life expectancy at older ages
- Changes in health related behaviors and life circumstances
- Population which has lived with both the burden of infection and chronic disease
- Switch to prevention and care for chronic conditions
- Long term treatment and increasing survival with disease

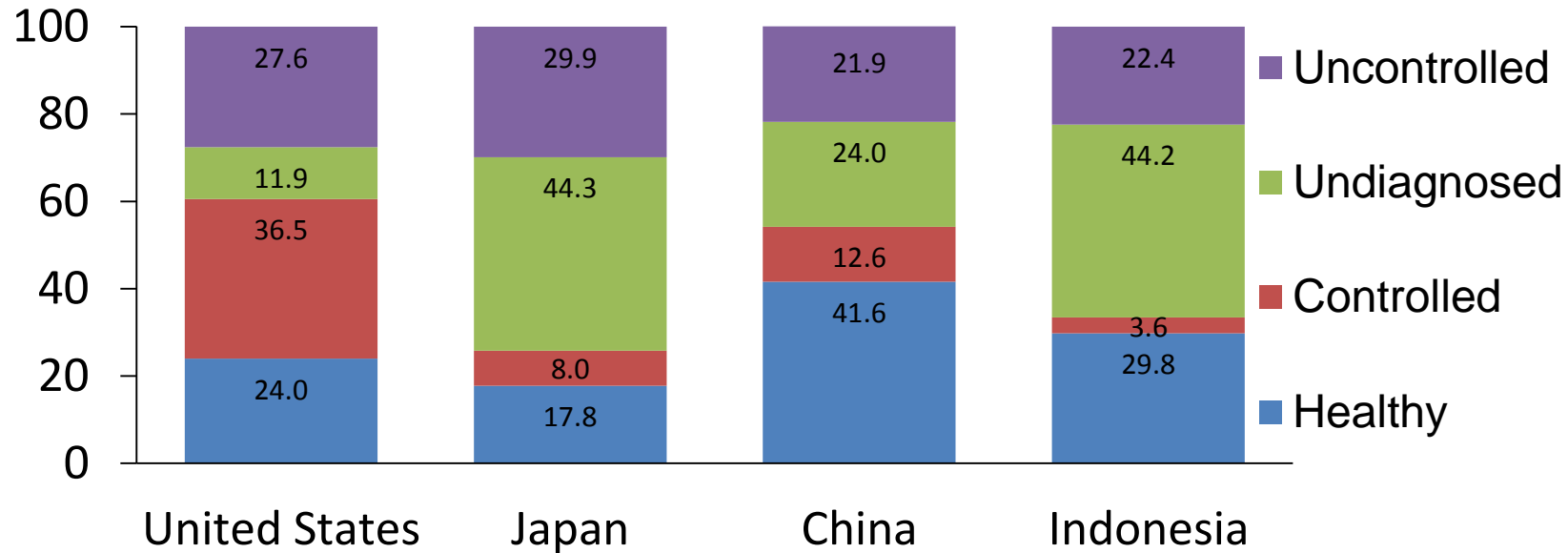
The Morbidity Process in an Aging Population has multiple dimensions and times for intervention



Crimmins et al. 2010. Biodemography: New Approaches to Understanding Trends and Differences in Population Health and Mortality. Demography, 47S: S41-S64.

Understanding the process is possible through survey questions and Measurement

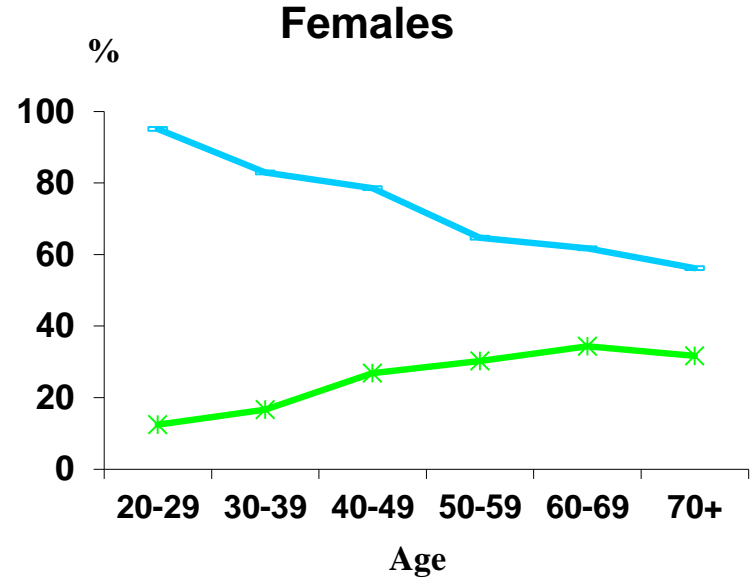
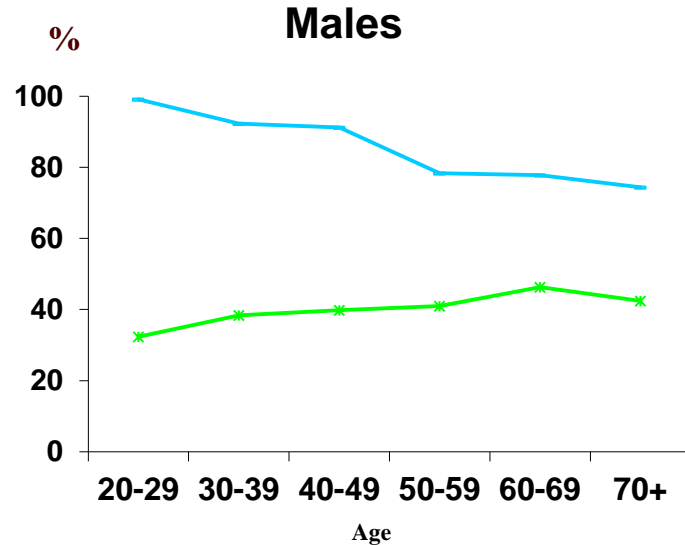
Hypertension States in 4 Countries: Age 68+



Source: Health and Retirement Study, Nihon University Japanese Longitudinal Study of Aging, China Health and Retirement Longitudinal Study, Indonesia Family Life Study.



Mexico's problem of Undiagnosed Hypertension: Mexican Family Life Study



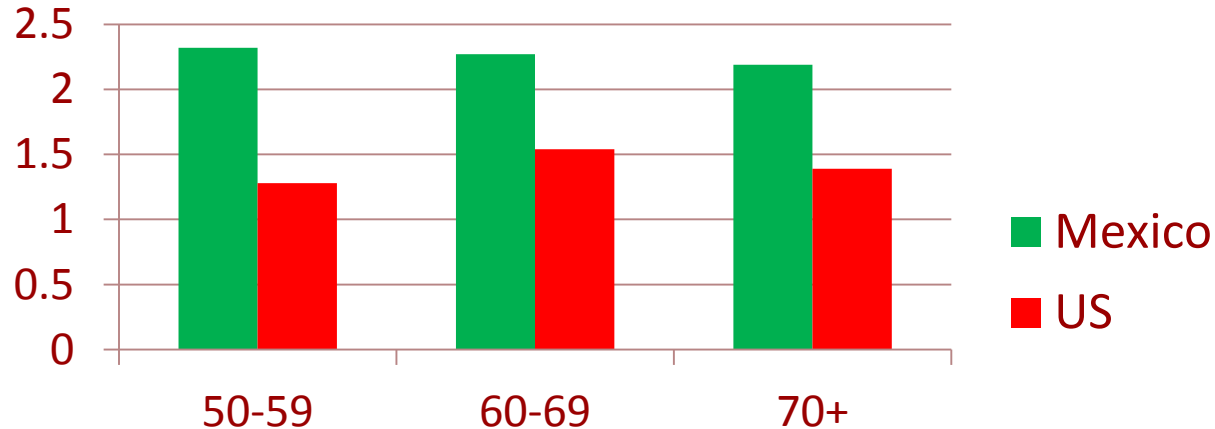
* among Total Pop
— among Those with Measured High or Med

Source: Beltrán-Sánchez H, Crimmins EM, Teruel GM, Thomas D. Links between childhood and adult social circumstances and obesity and hypertension in the Mexican population. J Aging Health. 2011(7):1141-65

Mexico has undergone a physiological revolution: Mexico has worse cardiovascular risk than the U.S.



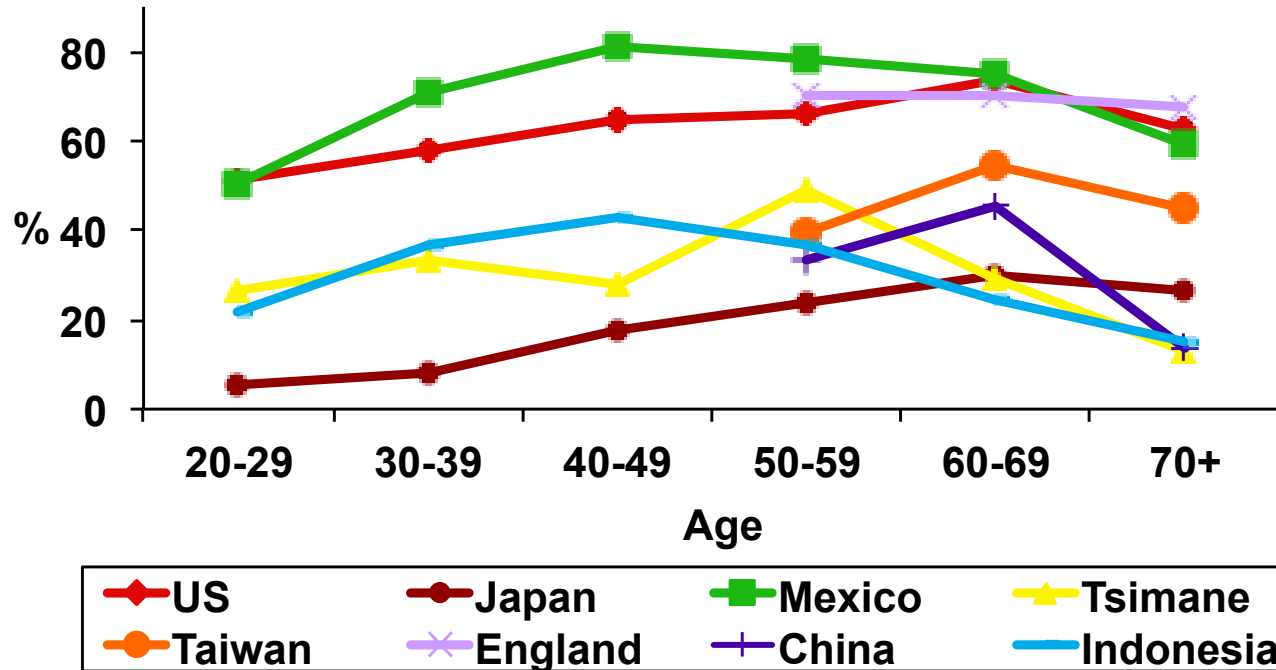
Physiological Dysregulation Summary Risk Score 1 Point for Each Indicator in risk range (Range 0- 6); High Systolic Blood Pressure, High Diastolic Blood Pressure, High Total Cholesterol, Low HDL cholesterol, Plasma Glucose, Obesity: Mexican National Health and Nutrition Survey 2006 (ENSANUT 2006).



Source: H. Beltran-Sanchez and Eileen Crimmins. 2013. Biological Risk in the Mexican Population at the Turn of the 21st Century, Journal of Cross-Cultural Gerontology, 28:299-316.

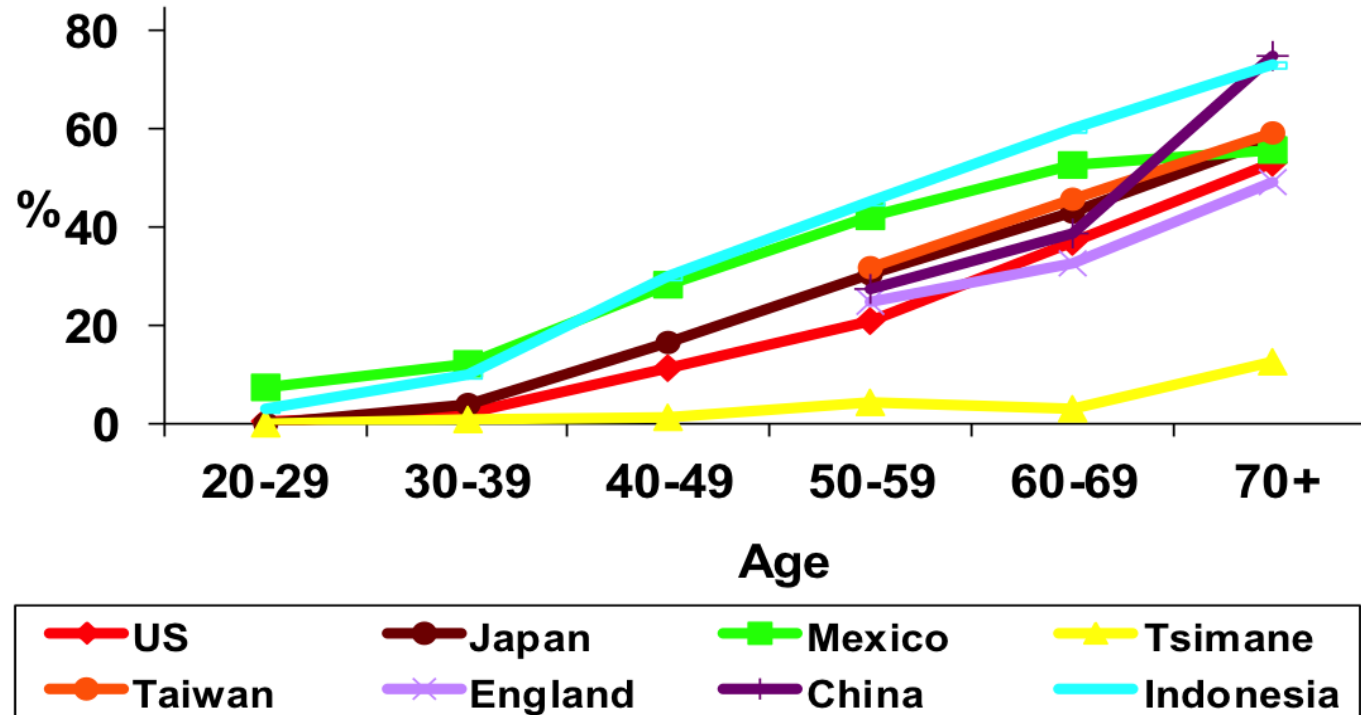


Prevalence of Overweight (BMI ≥ 25): Females



Crimmins et al. 2013. A Global Perspective on Physiological Change with Age.. In McDaniel S.A. and Zimmer Z, editors, *Global Ageing in the Twenty-First Century: Challenges, Opportunities and Implications*. Ashgate Publishing Ltd: England, pp. 79-103.

Measured High Systolic Blood Pressure: Females

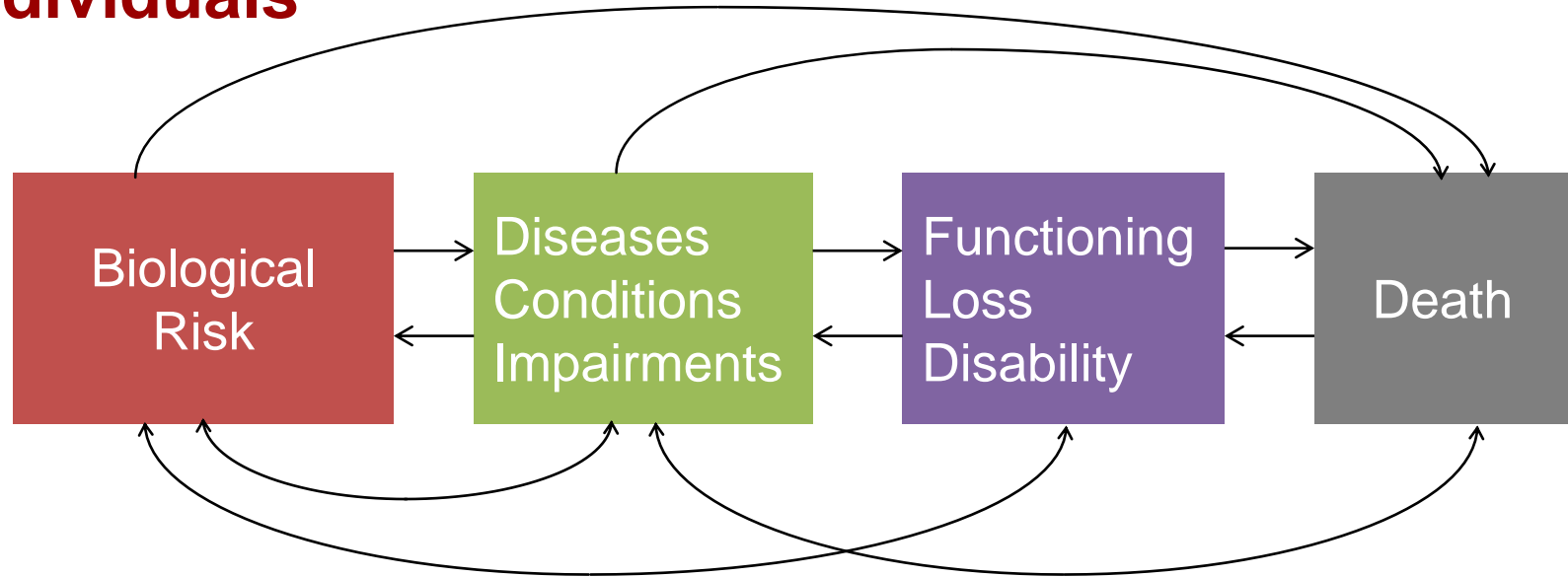


Value of longitudinal studies



- Cross sectional studies provide the prevalence of health problems which could have occurred at any time in someone's life. They do not necessarily reflect current conditions.
- Understanding the meaning of the prevalence of a condition requires knowing changes in the process, e.g. heart disease prevalence can increase because the risk has increased or because people have been treated and survived longer
- Incidence rates are the basis of planning models, e.g. FEM model, which has been used to project future with assumptions about socioeconomic, demographic, health, treatment changes

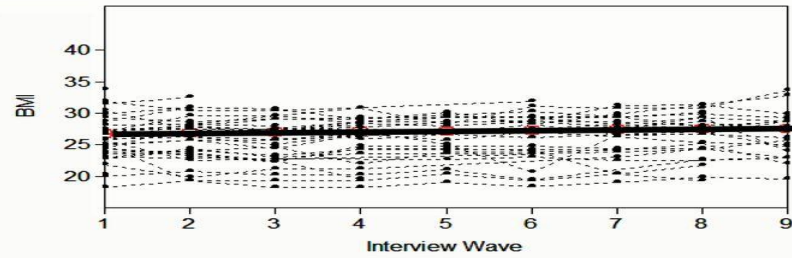
Morbidity Processes that Change Health for Individuals



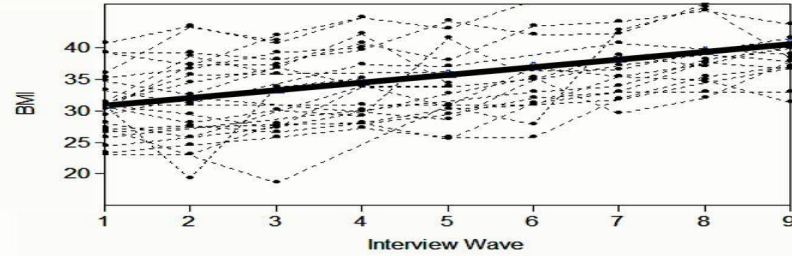
Three classes of BMI trajectories over 9 waves for American men: HRS



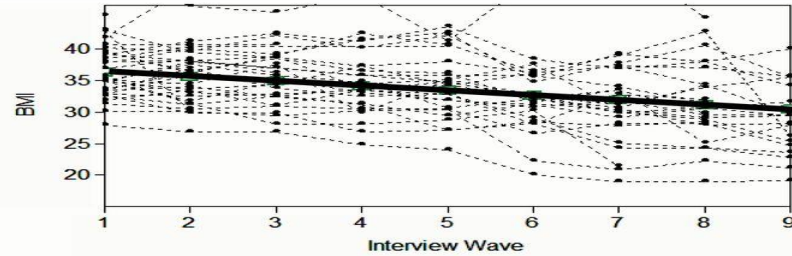
Panel A. Stable overweight class (92.9%)



Panel B. Obese gaining class (2.8%)

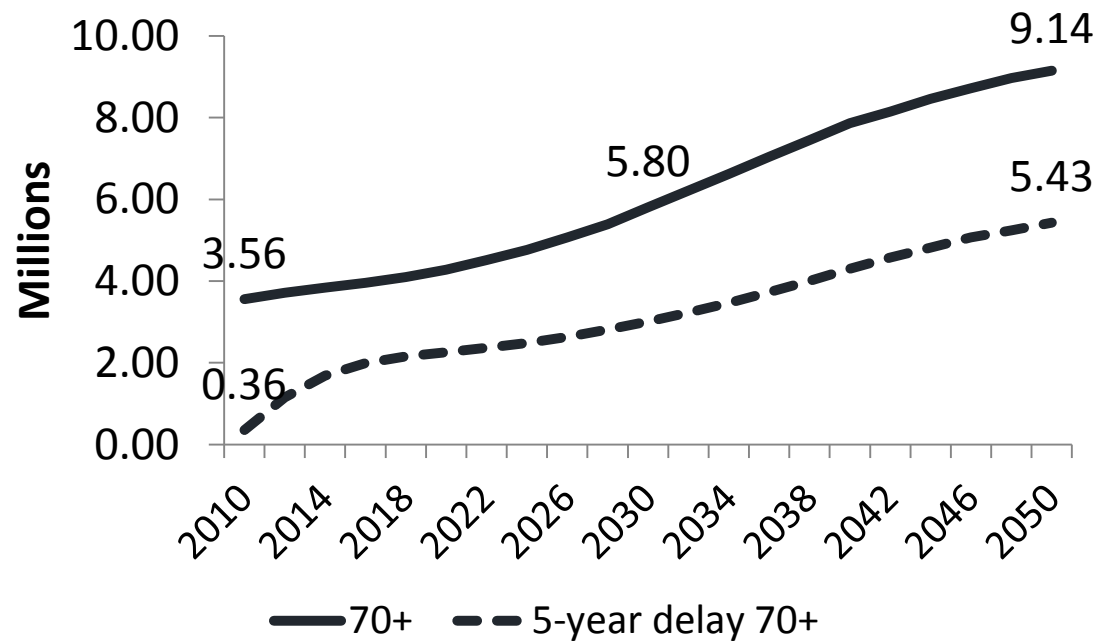


Panel C. Obese losing class (4.3%)



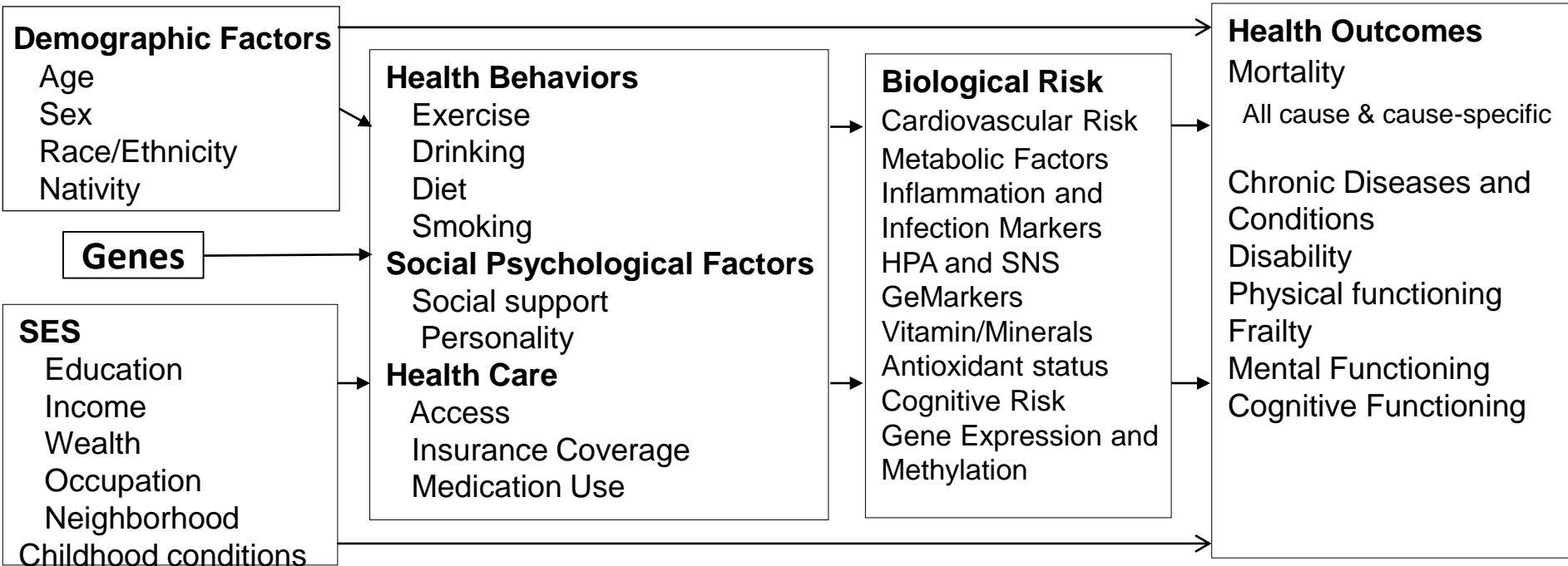
Source: A. Zajacova, J. Ailshire, 2014,
The Gerontologist 54: 221-231.

Effect of a 5-Year Delay in onset of Alzheimer's Reduces Population with AD in 2050 by 41%



Source: Zissimopoulos, Crimmins, St. Claire. Forum for Health Policy and Economics, DOI 10-1515/fhep-2013-2014. The Value of Delaying Alzheimer's Disease Onset.

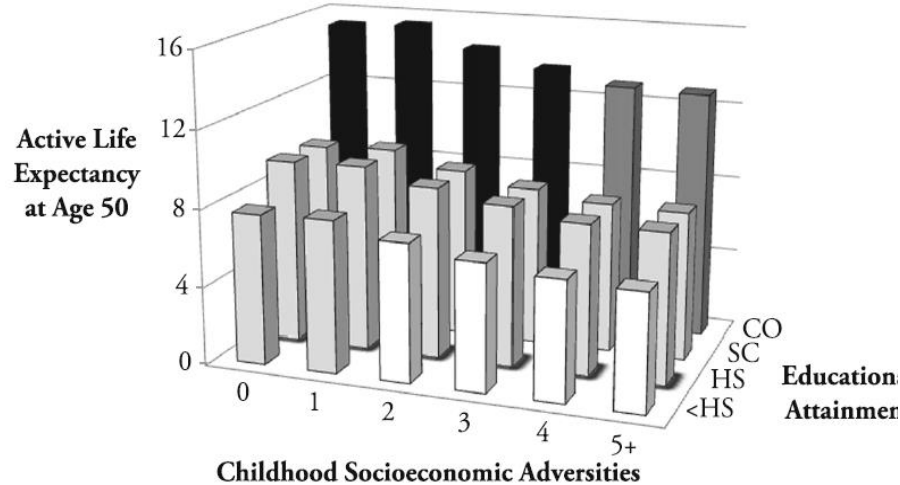
Model of Demographic, Socioeconomic, Behavioral and Biological Influences on Health Outcomes



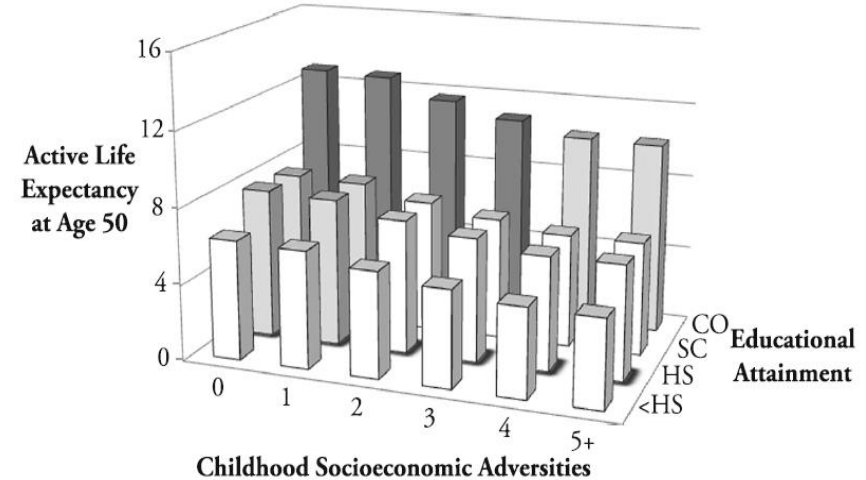
Active Life Expectancy by Childhood Health and Childhood and Adult SES



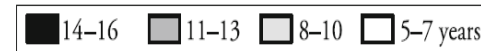
Men Who Reported Good or Better Childhood Health



Men Who Reported Fair or Poor Childhood Health



Source : Montez and Hayward, [Demography](#). 2014
Apr;51(2):413-35



Value of Longitudinal studies with Social, Economic, Biological, Family, Environment, Health, Health Care



- Allow investigation of the process of health change within individuals
- Basis for projection of future health and health care needs/costs
- Allow linking of many different influences on health outcomes
 - Life time social and economic circumstances
 - Psychological factors
 - Medical interventions – value of interventions
- Differences within subgroups within the country – geographic, demographic or social
- Differences across countries provide valuable insights