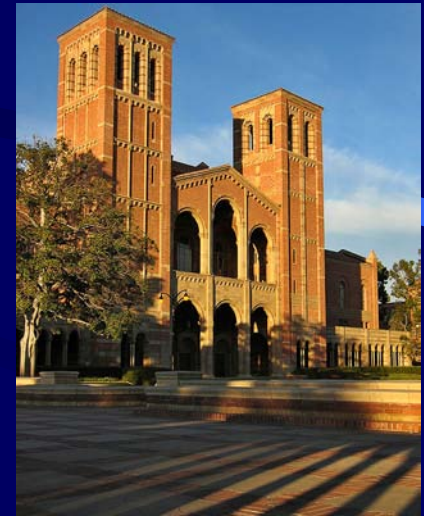


# Psychosocial Influences on Chronic Diseases and Aging



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*Associate Professor of Medicine*

*Division of Geriatrics*

*David Geffen School of Medicine at UCLA*

# What is Healthy Aging?

Two key components:

Longevity: Living longer

Compression of morbidity:

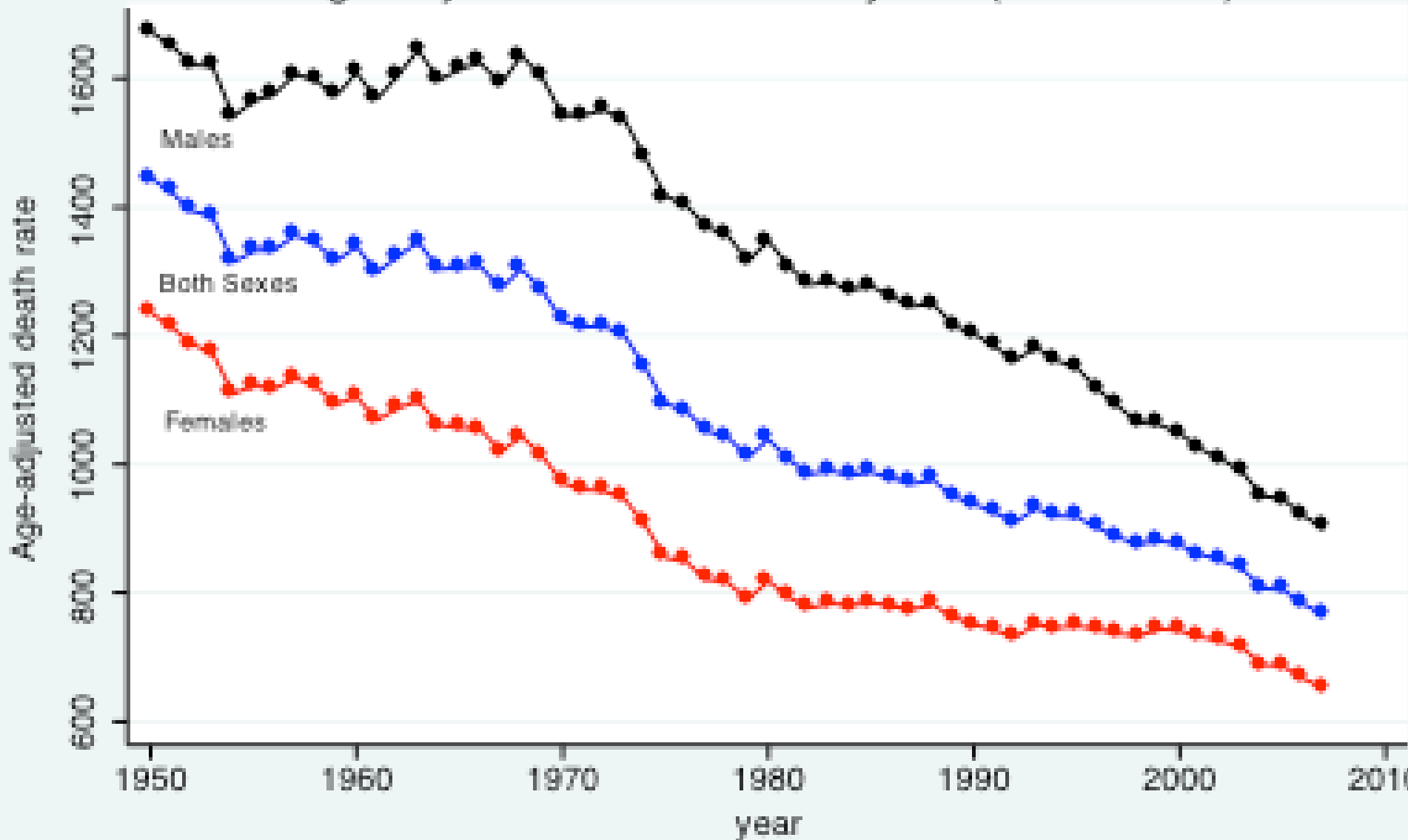
Avoiding sequelae of chronic diseases

Preserving independence, and quality of life

Avoiding physical disability

Minimizing cognitive decline

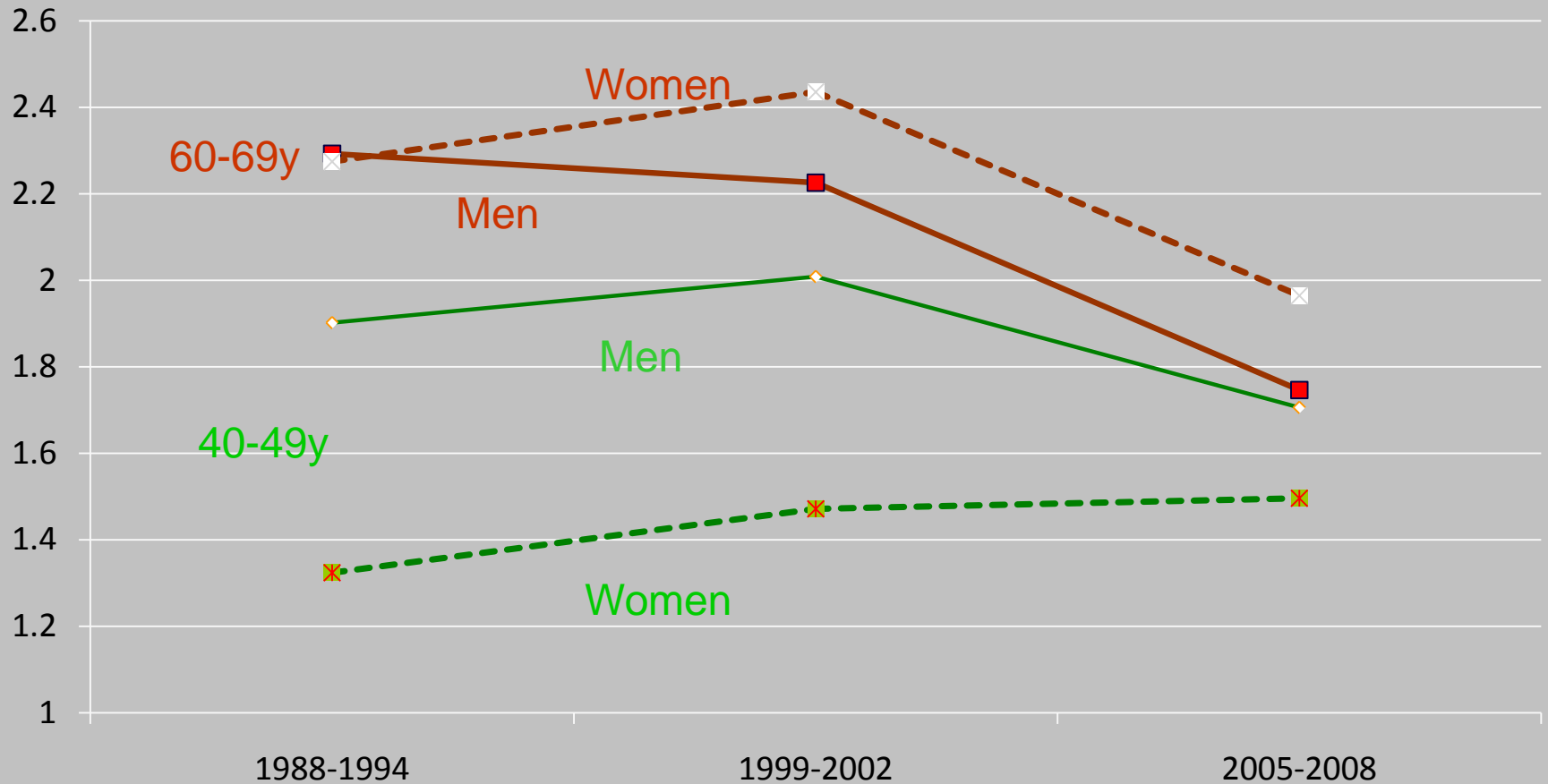
## Age-adjusted Death Rates by Sex (1950-2007)



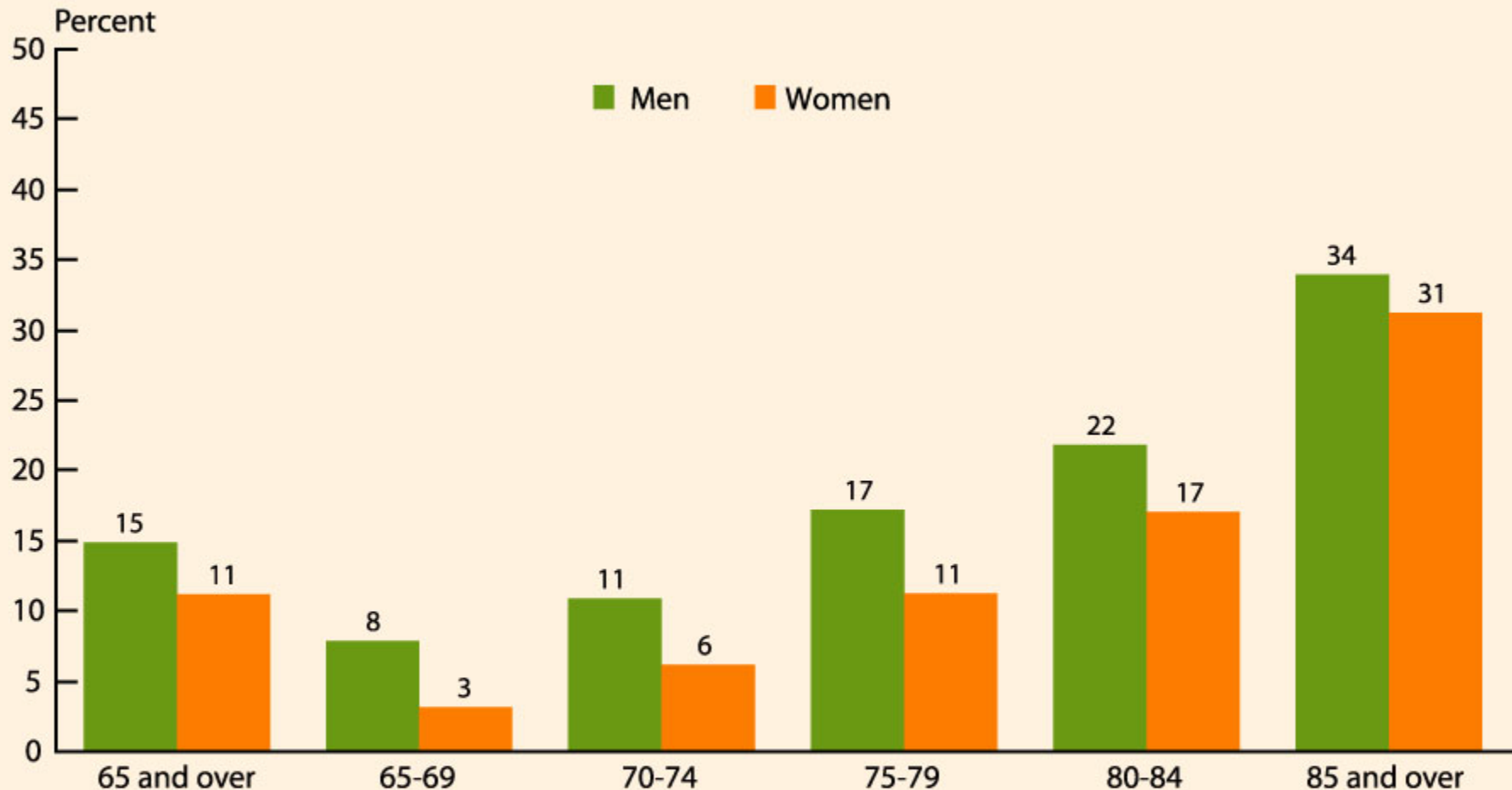
Source: National Vital Statistics, various reports

Age-specific death rates per 100,000. Standardized by age distribution of U.S. population in 2000

# Trends in CV Risk Factor Count: NHANES



## Percentage of people age 65 and over with moderate or severe memory impairment, by age group and sex, 2002

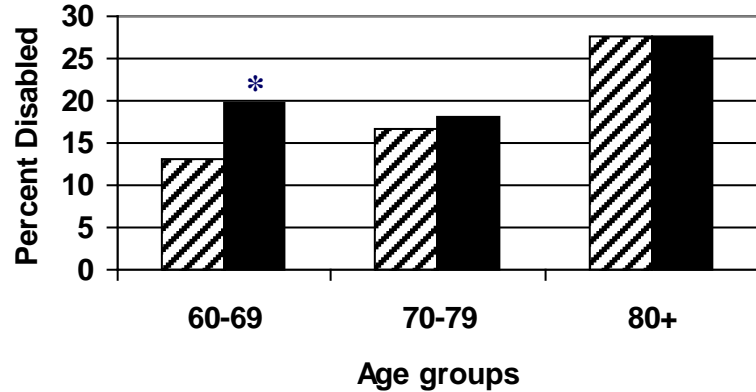


Note: The definition of "moderate or severe memory impairment" is four or fewer words recalled (out of 20) on combined immediate and delayed recall tests among self-respondents. Self-respondents who refused either the immediate or delayed word recall test were excluded from the analysis. Proxy respondents with an overall memory rating of "poor" were included as having moderate or severe memory impairment. Because of some changes in methods from the 2000 edition of *Older Americans*, no inference should be made about longitudinal trends.

Reference population: These data refer to the civilian noninstitutionalized population.

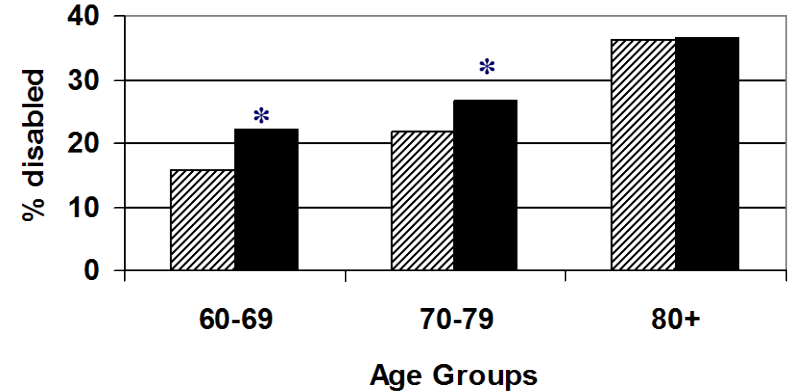
Source: Health and Retirement Study.

# Disability Trends: NHANES



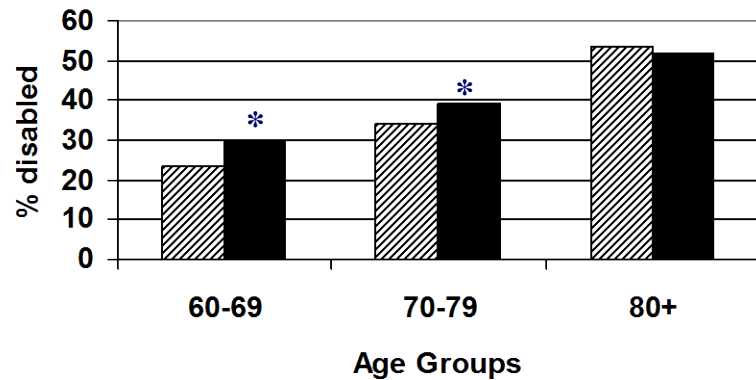
**ADL disability**

▨ 1988-1994 ■ 1999-2004



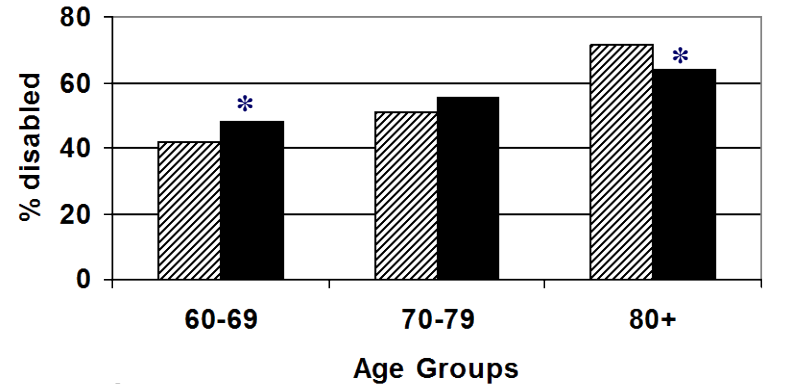
**Mobility limitations**

▨ 1988-1994 ■ 1999-2004



**IADL disability**

▨ 1988-1994 ■ 1999-2004

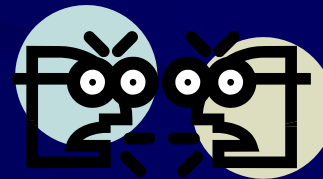


**Functional limitations**

▨ 1988-1994 ■ 1999-2004

# Psychosocial Factors / Stressors

- Social status; financial stresses
- Daily stresses: job strain, inter-personal
- Discrimination
- Psychological ill-health







# Psychosocial Stress : Good or Bad ?

**The Good:** Promotes adaptive response and improves efficiency in the face of a threat

**The Bad:** Heightened 'tension' which ultimately results in deleterious health outcomes



# Price paid for chronic stress

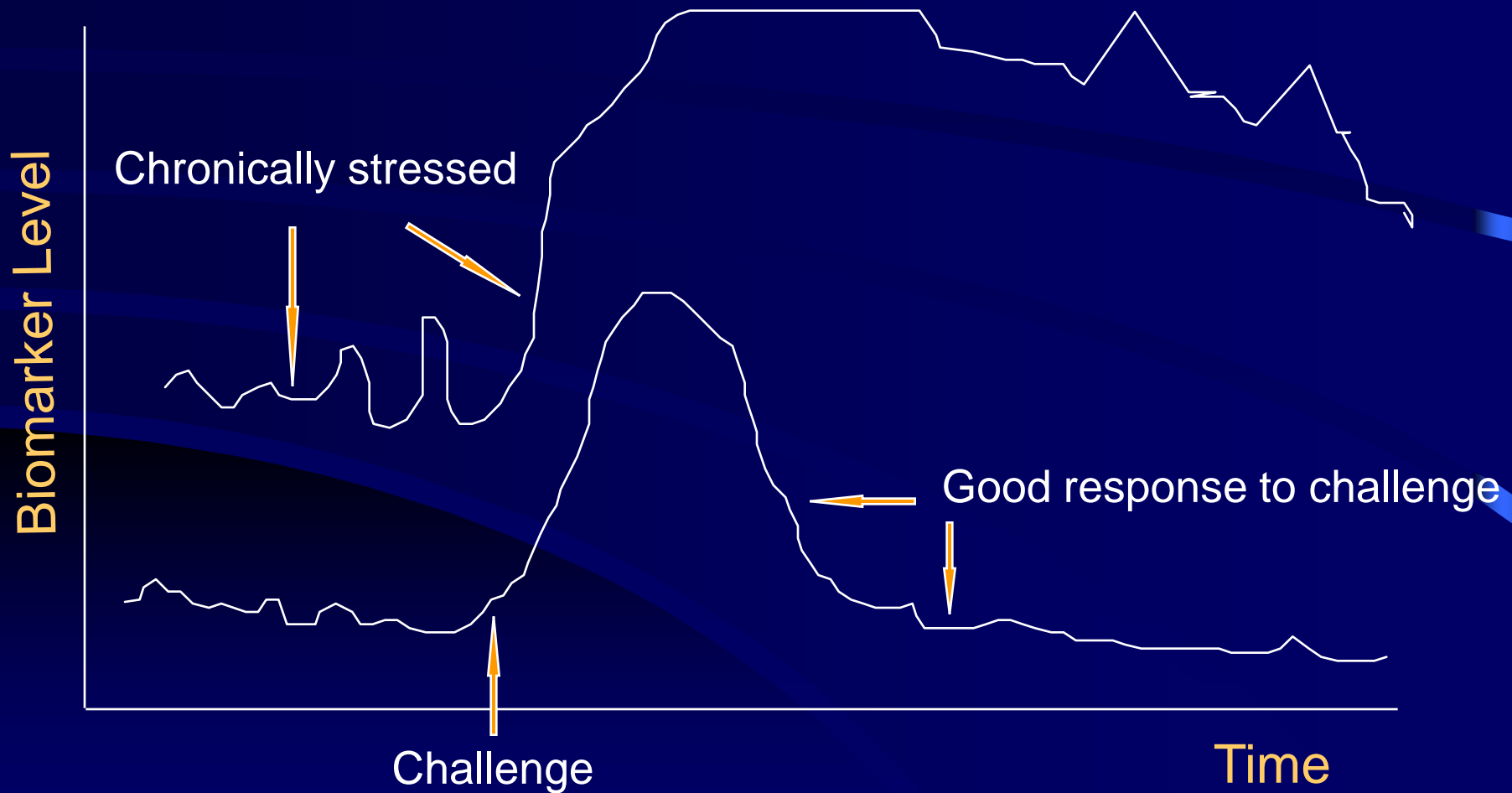
**Allostatic Load:** Dysregulation of stress hormones

E.g.:

- Altered resting levels
- Altered reactivity
- Sluggish return to resting level

McEwen and Stellar 1993

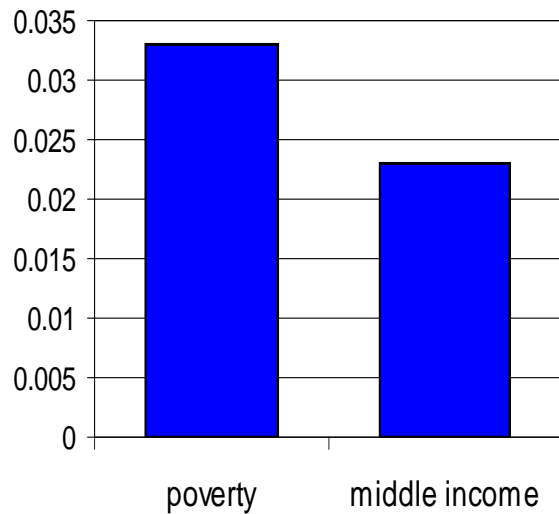
# Dysregulated Stress Biology



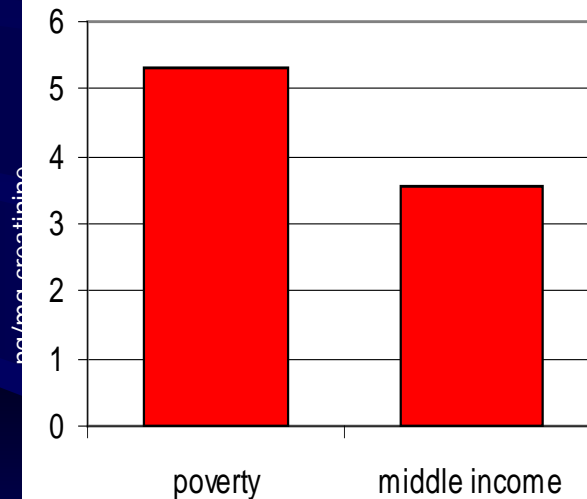
# Childhood Poverty and Stress Hormones

Overnight hormone levels in rural dwelling 8 to 10 yr. olds:

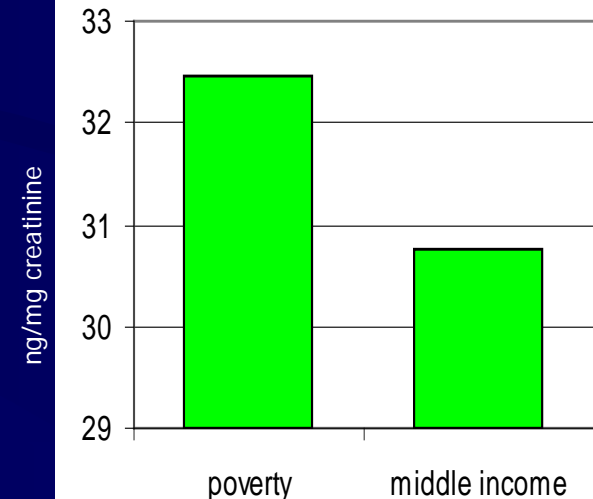
cortisol



epinephrine



norepinephrine

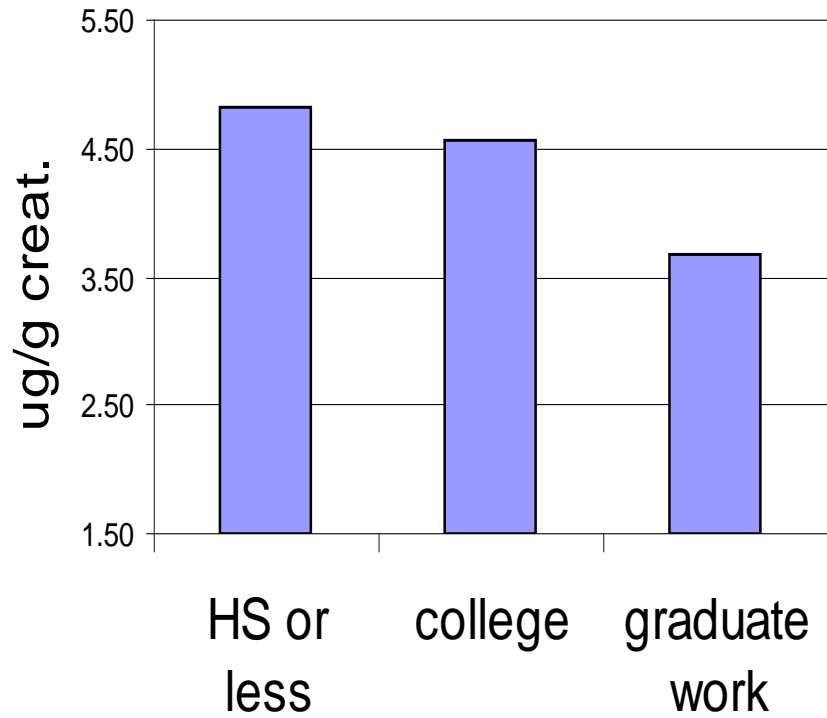


\*\*  $p < .01$

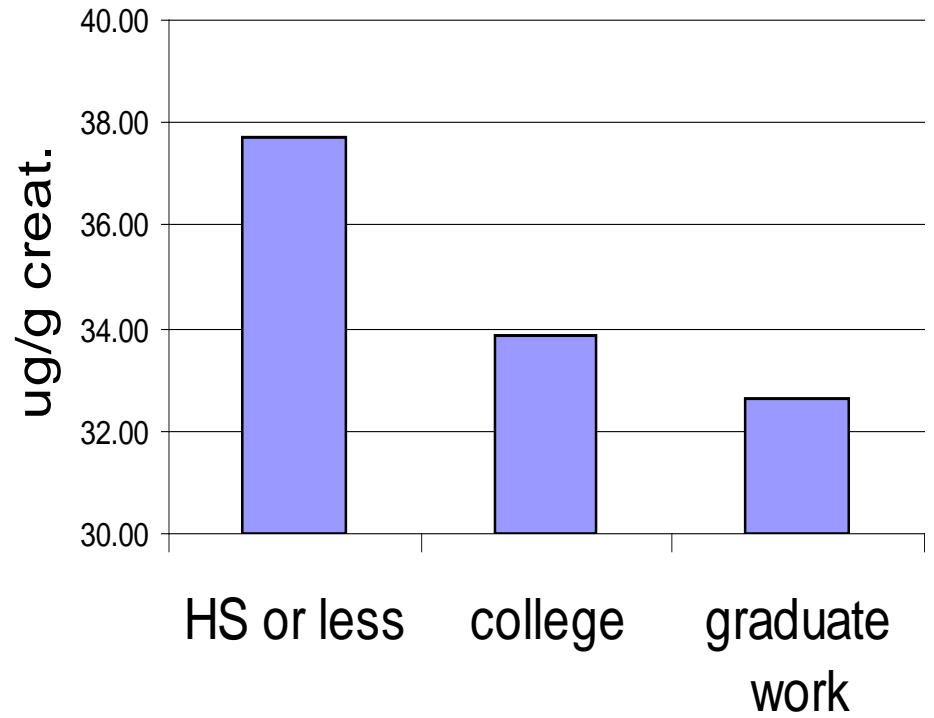
Evans & English, 2002

# Education level and Catecholamines Young Adults, CARDIA

## Epinephrine



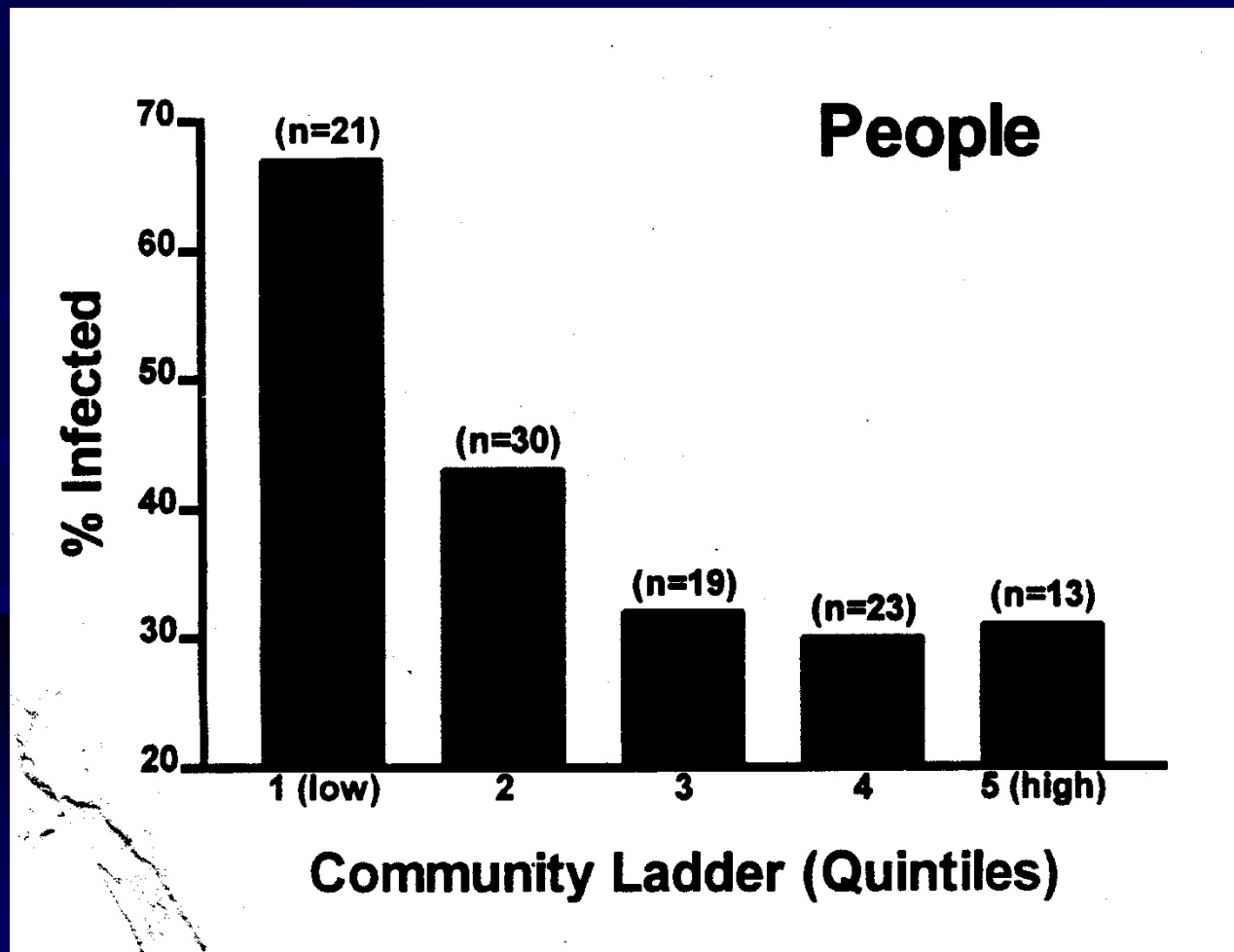
## Norepinephrine



# Caregiving and Cortisol

- Caregiving of older disabled adults and of disabled children are known stressors
- Older adult caregivers have higher levels of cortisol in their saliva than non-caregivers
  - Vedhara et al., 1999
- Parents of children with cancer have flatter cortisol rhythms (blunted peaks, higher nadirs)
  - Miller et al., 2002

# SES and Immunity to the Cold Virus



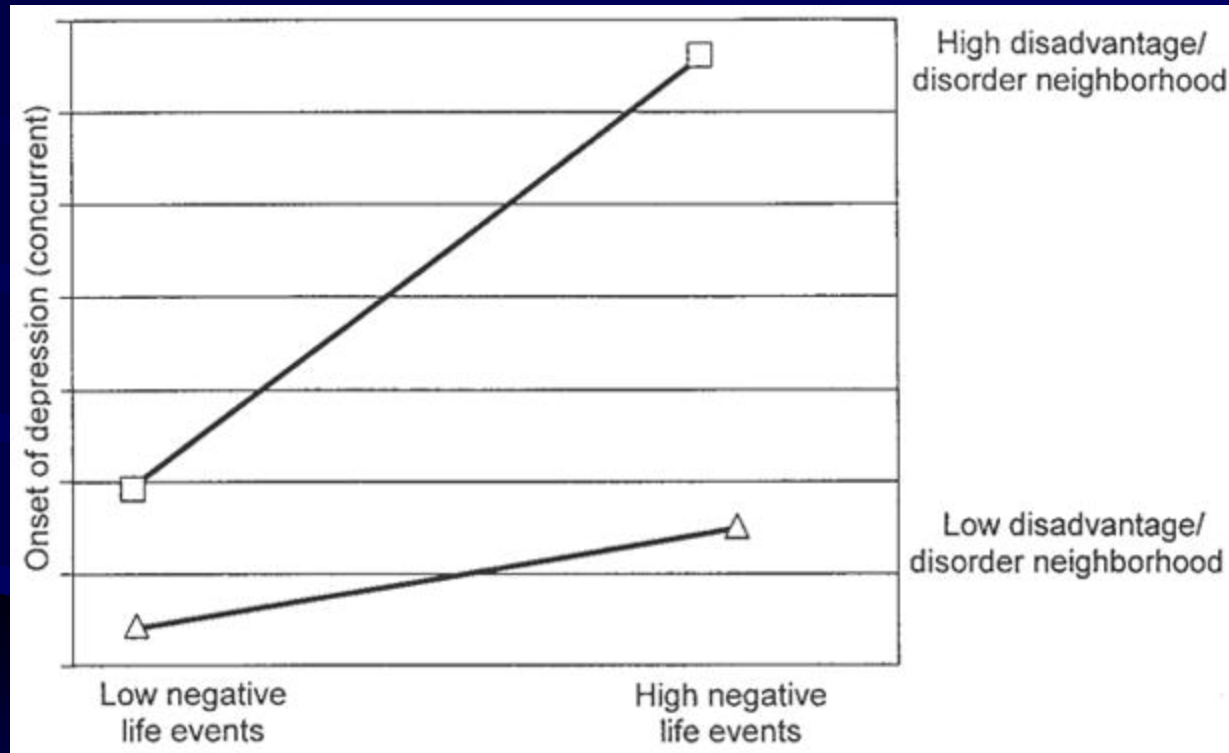
# Psychosocial Influences on Chronic Diseases

Psychosocial factors (both *individual* and *neighborhood*) have been implicated in the development and progression of

- Depression
- Diabetes and Pre-diabetes (metabolic syndrome)
- Cardiovascular disease (heart attacks, strokes)
- Osteoporosis



# Stressors and Depression



# Neighborhood Influences on Depression

- Residents in *low SES neighborhoods* are twice as likely to develop depression as residents of *high SES areas*
  - Galea et al. 2007
- People who live in neighborhoods with *less residential stability* endorse more depressive symptoms
  - Aneshensel, Wight, Miller-Martinez, Botticello, Karlamangla, and Seeman. JGSS 2007

# Pathways from neighborhood characteristics to depression.

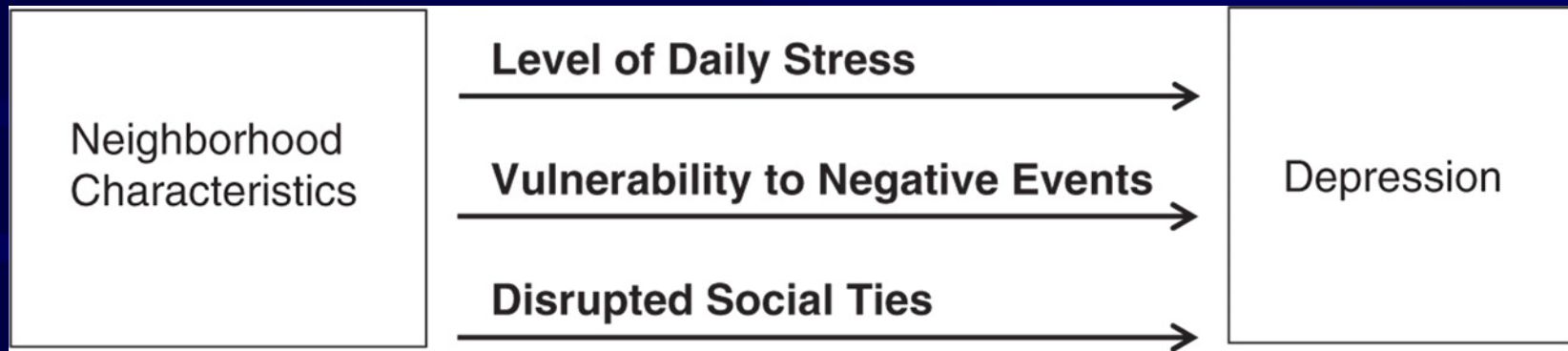
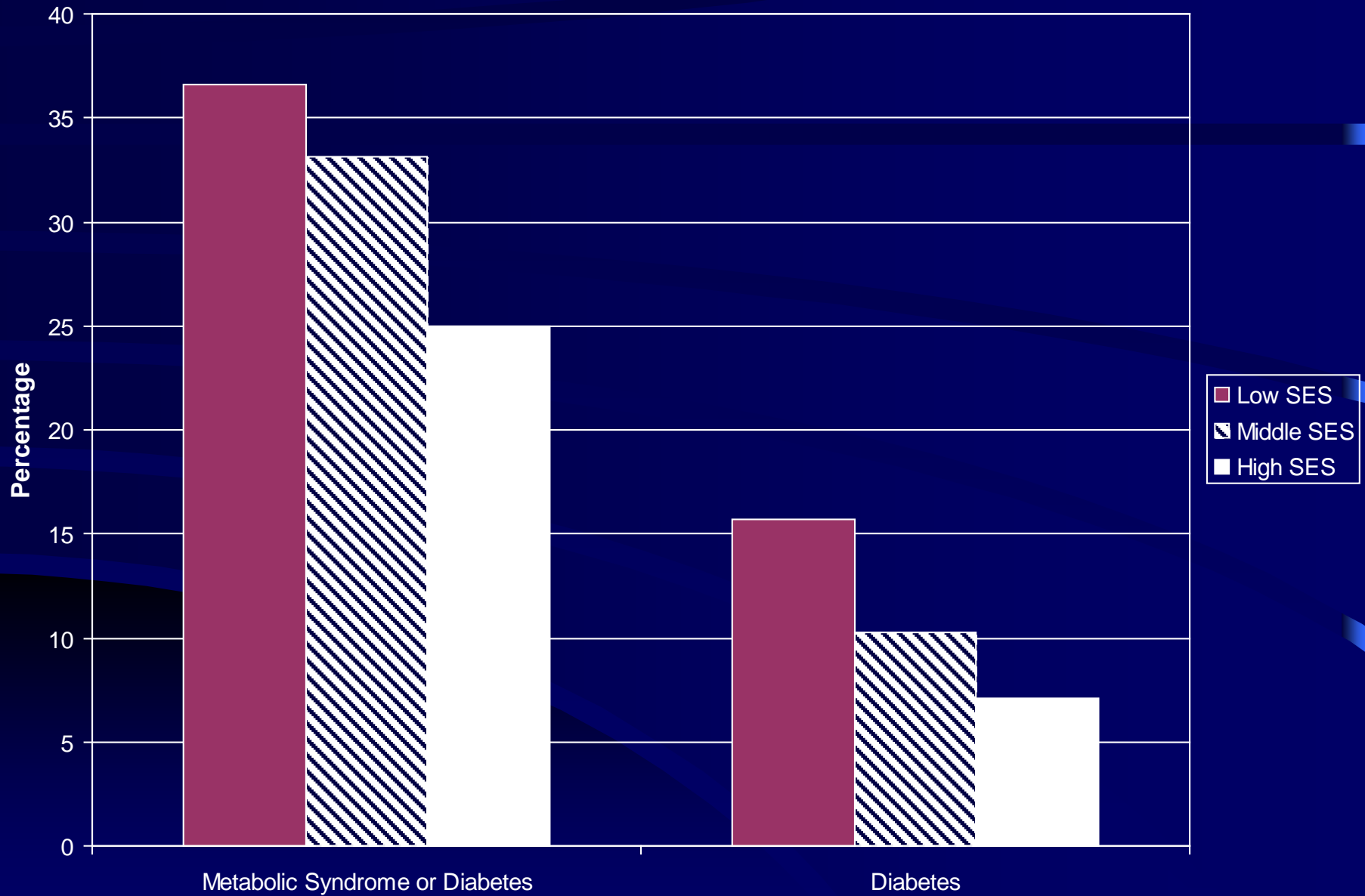
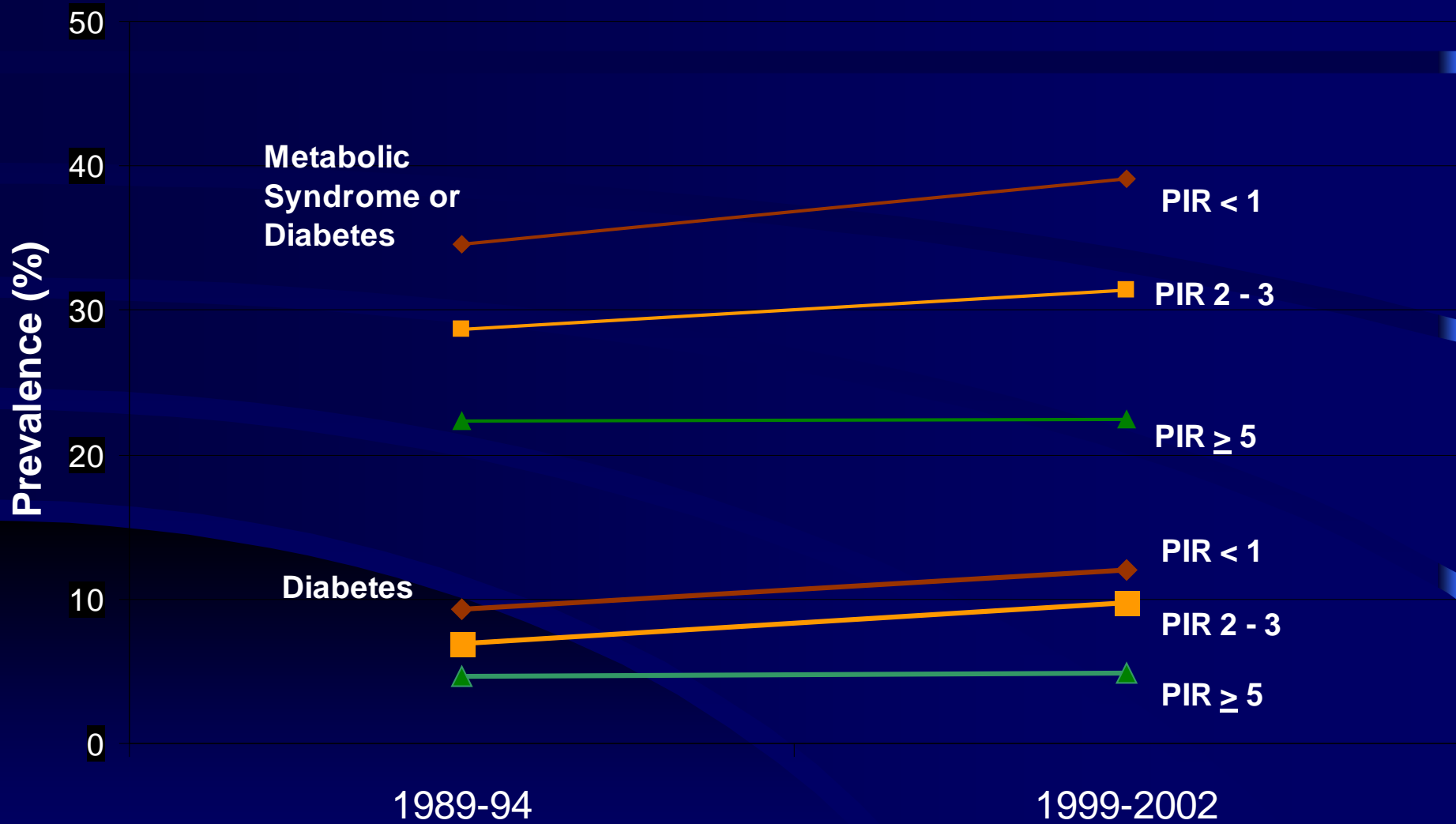


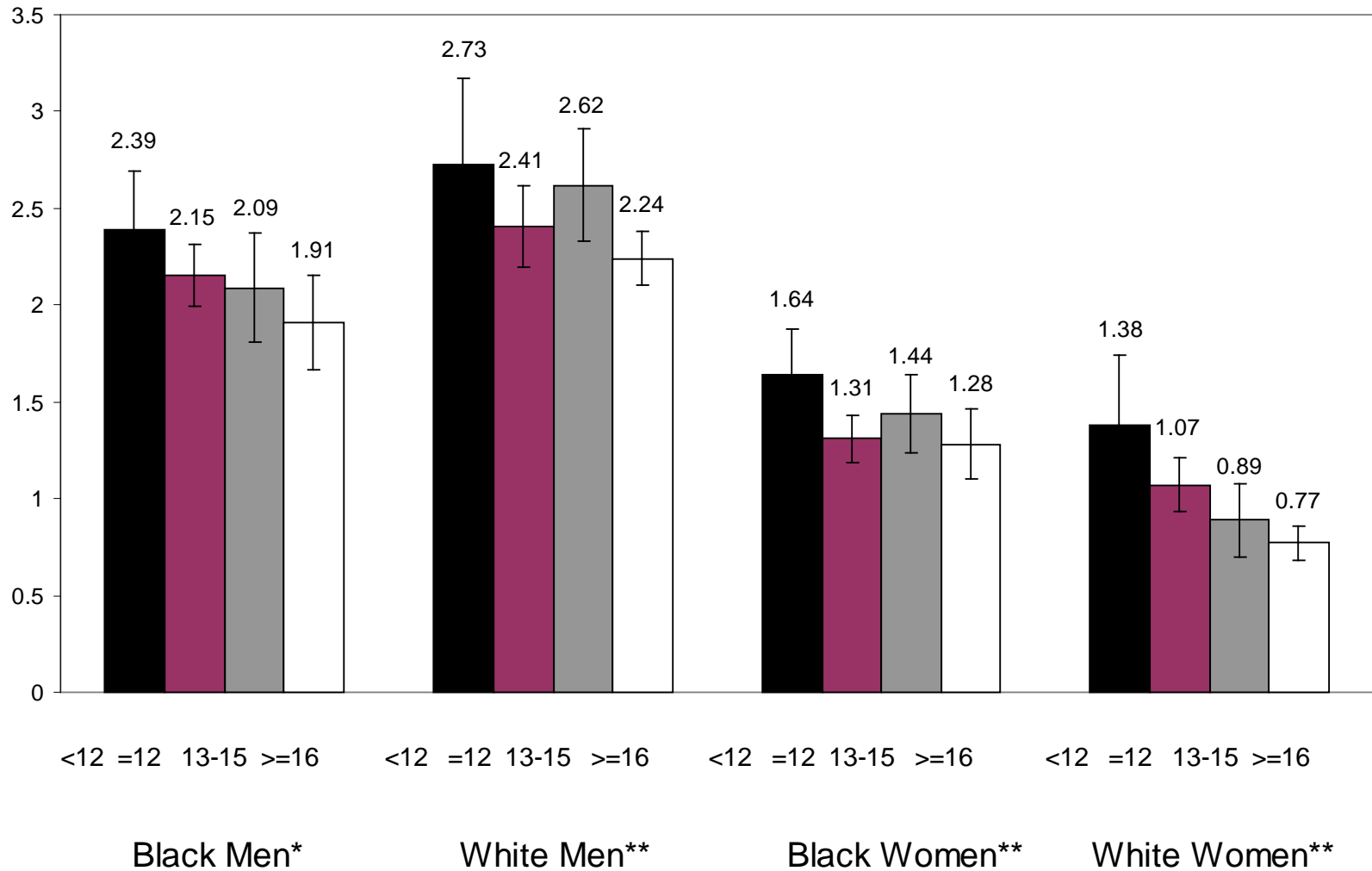
Fig 1b. SES Differences in Metabolic Risk in the United States, 2001-2006



# Trends in Metabolic Risk



# Parents' Education and Young Adult CV Risk

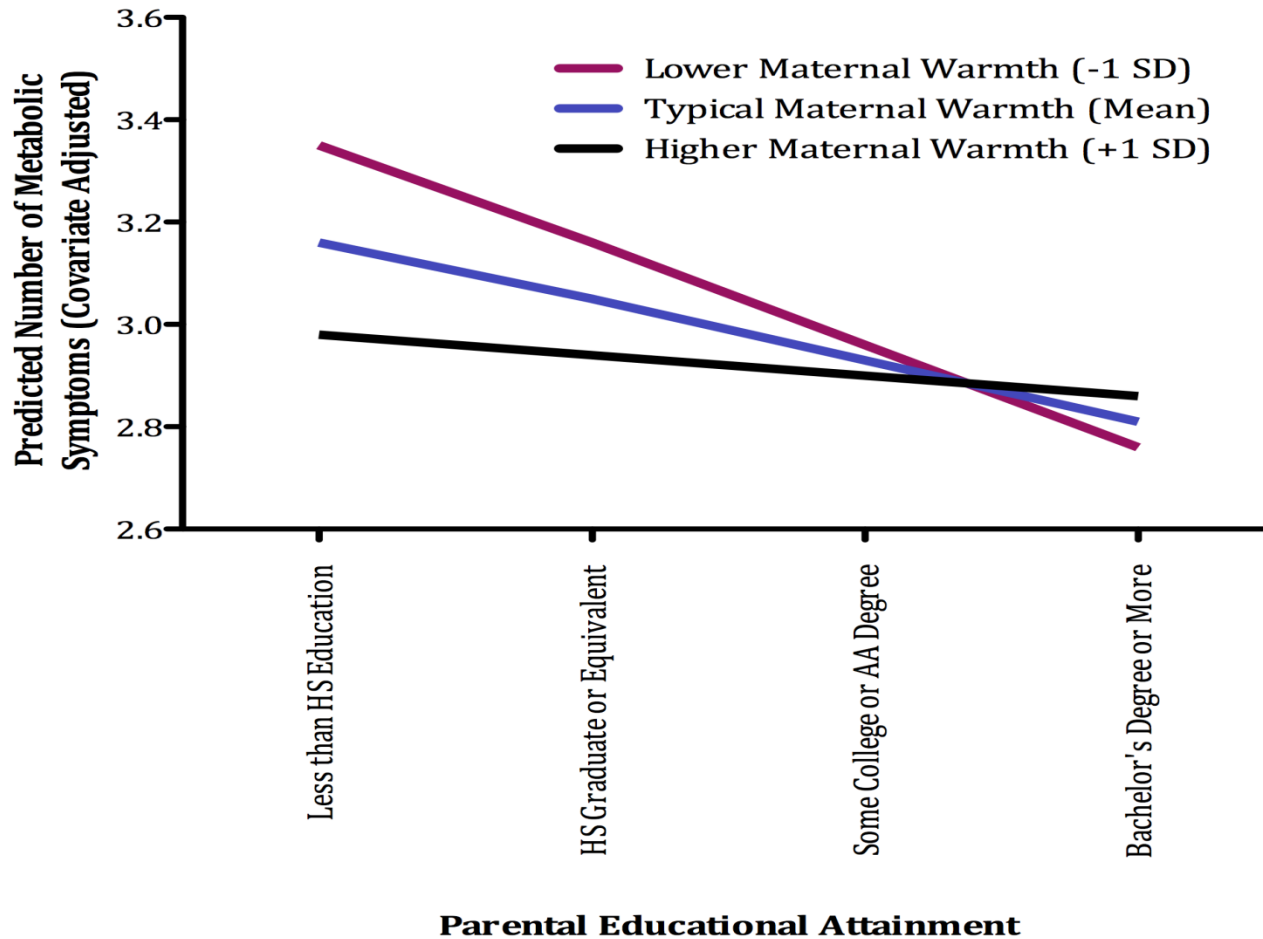


# SES Life Profiles and Osteoporosis

SES	Bone density in the spine
Childhood Advantage Score	.011*
College Education	.047*
Adult Financial Adv Score	.001

Low bone density is the hallmark of osteoporosis, and the major risk factor for hip and spine fractures in older ages

# Maternal Nurturance as Buffer





# Psychosocial Influences on Physical Aging

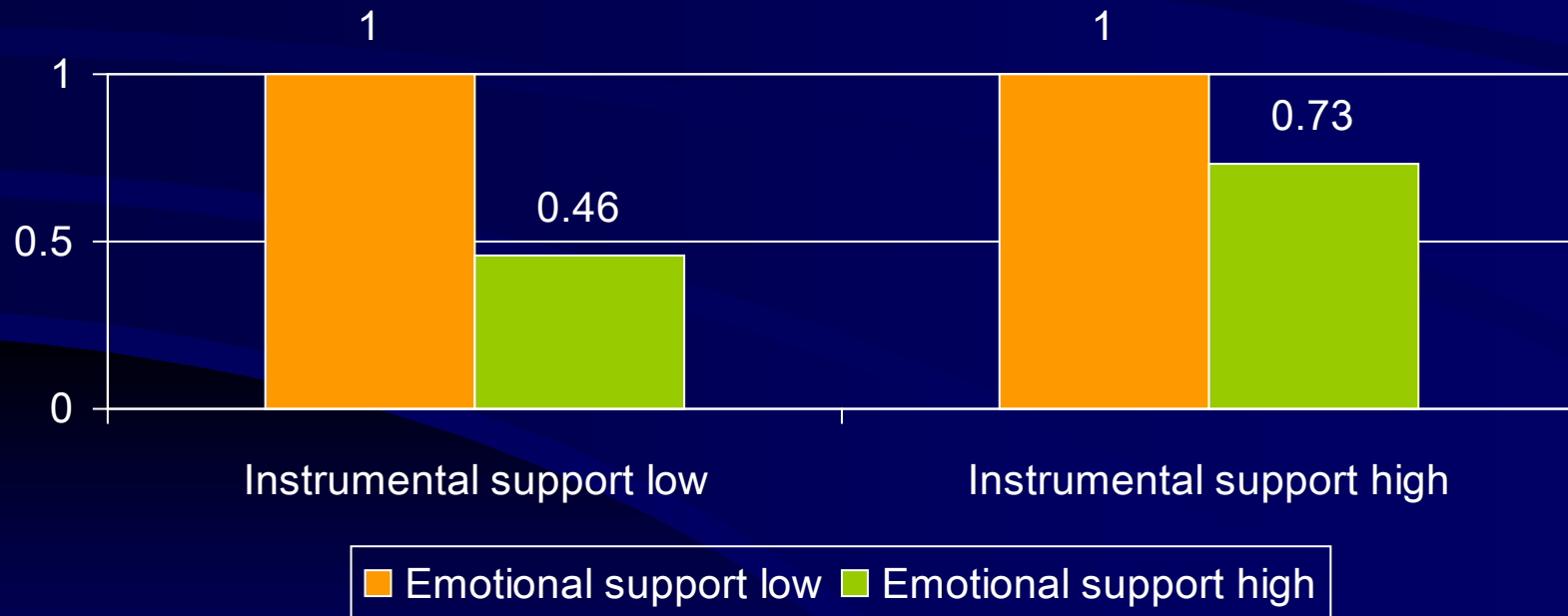
Those who are able to **delay physical decline** have

- High levels of **emotional support**
- High perception of **usefulness**
- High levels of **self efficacy** belief  
(i.e., in ability to manage life situations, finances)

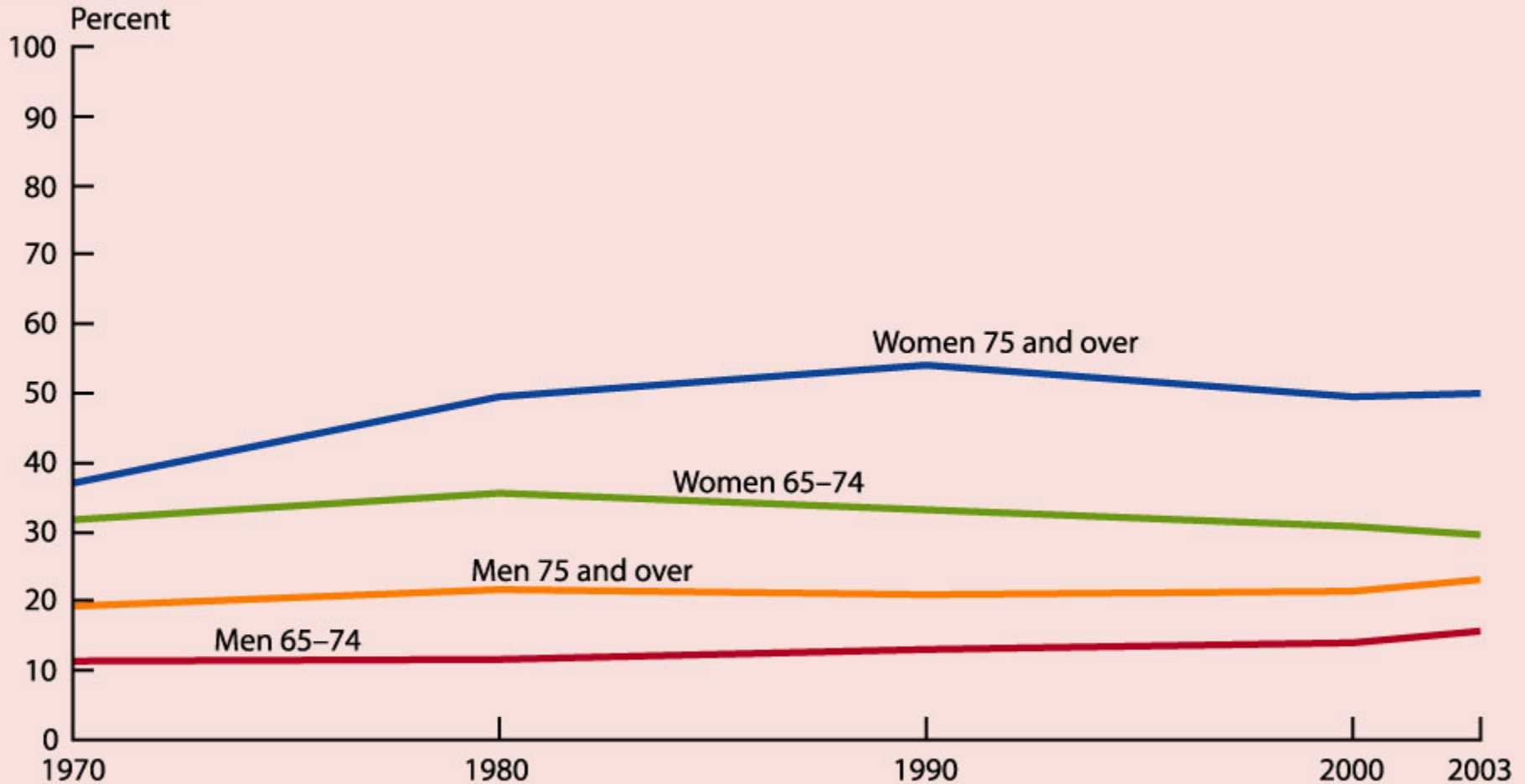
MacArthur Successful Aging Study

# Social support and physical decline

Odds Ratio for Physical Decline  
(High vs. low emotional support)



## Population age 65 and over living alone, by age group and sex, selected years 1970-2003

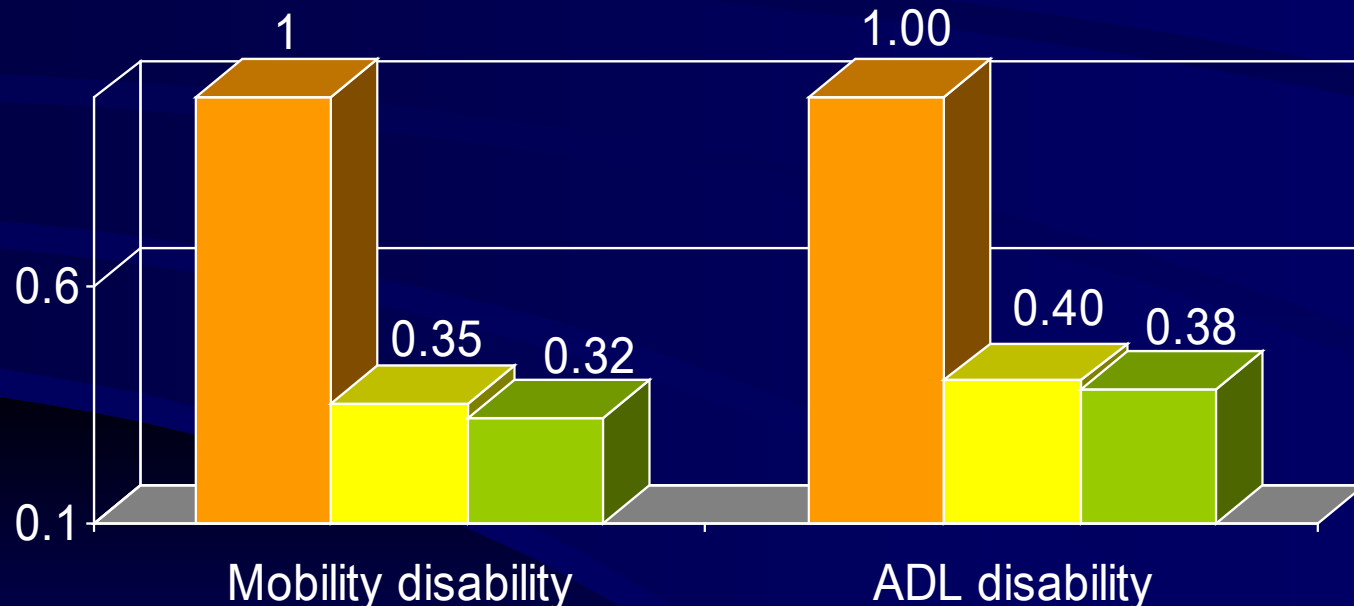


Reference population: These data refer to the civilian noninstitutionalized population.

Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement.

# Perceived Usefulness and Physical Disability

Odds Ratios for Incident Disability  
(Reference group: Never/rarely feel useful)



■ Never/rarely feel useful ■ Sometimes feel useful ■ Frequently feel useful

# Psychosocial Influences on Cognitive Aging

Those who are able to **slow cognitive decline** have

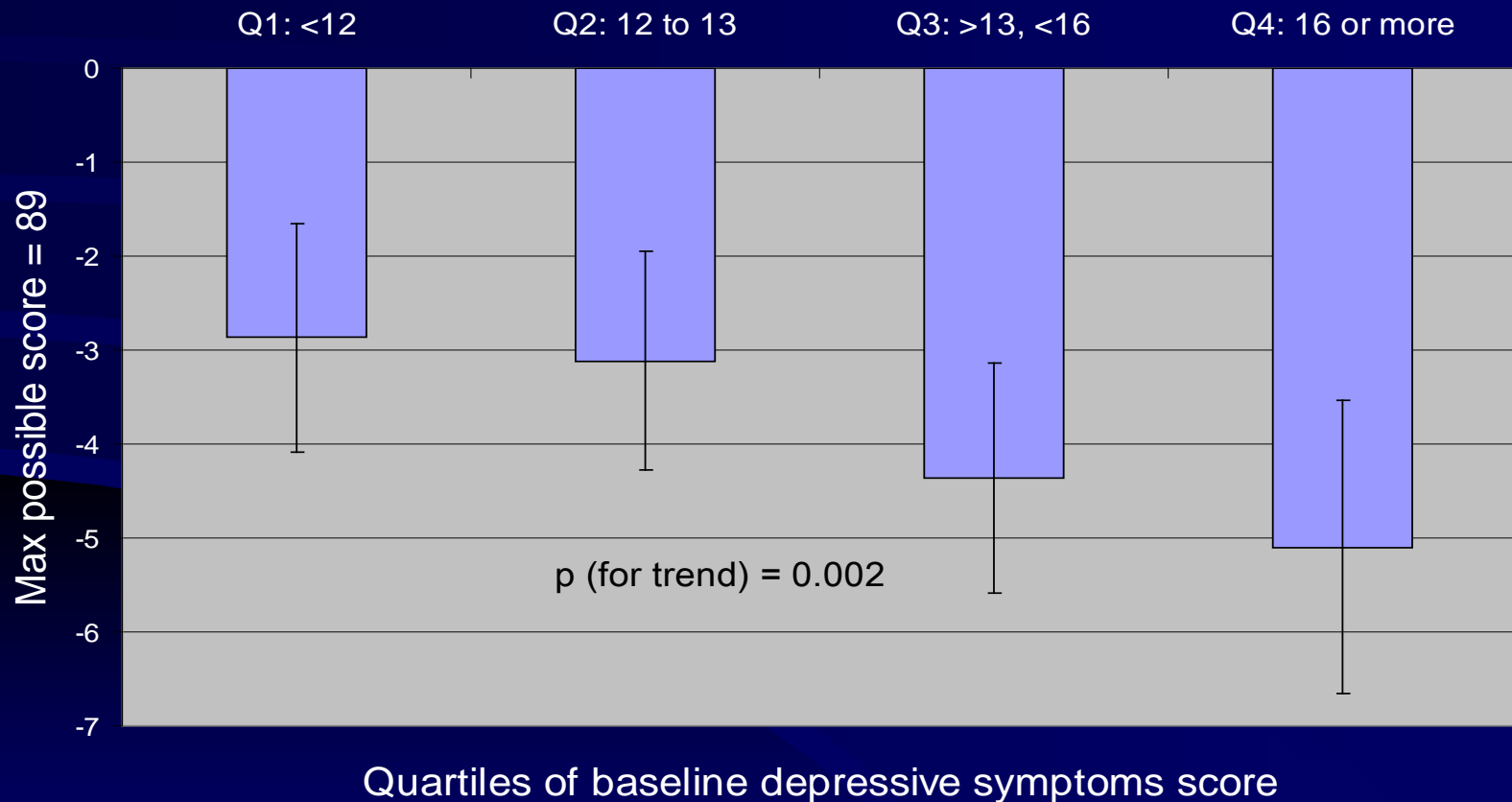
- High level of **emotional support**
- Large **social network**
- Strong **self efficacy** belief
- Few **depressive symptoms**



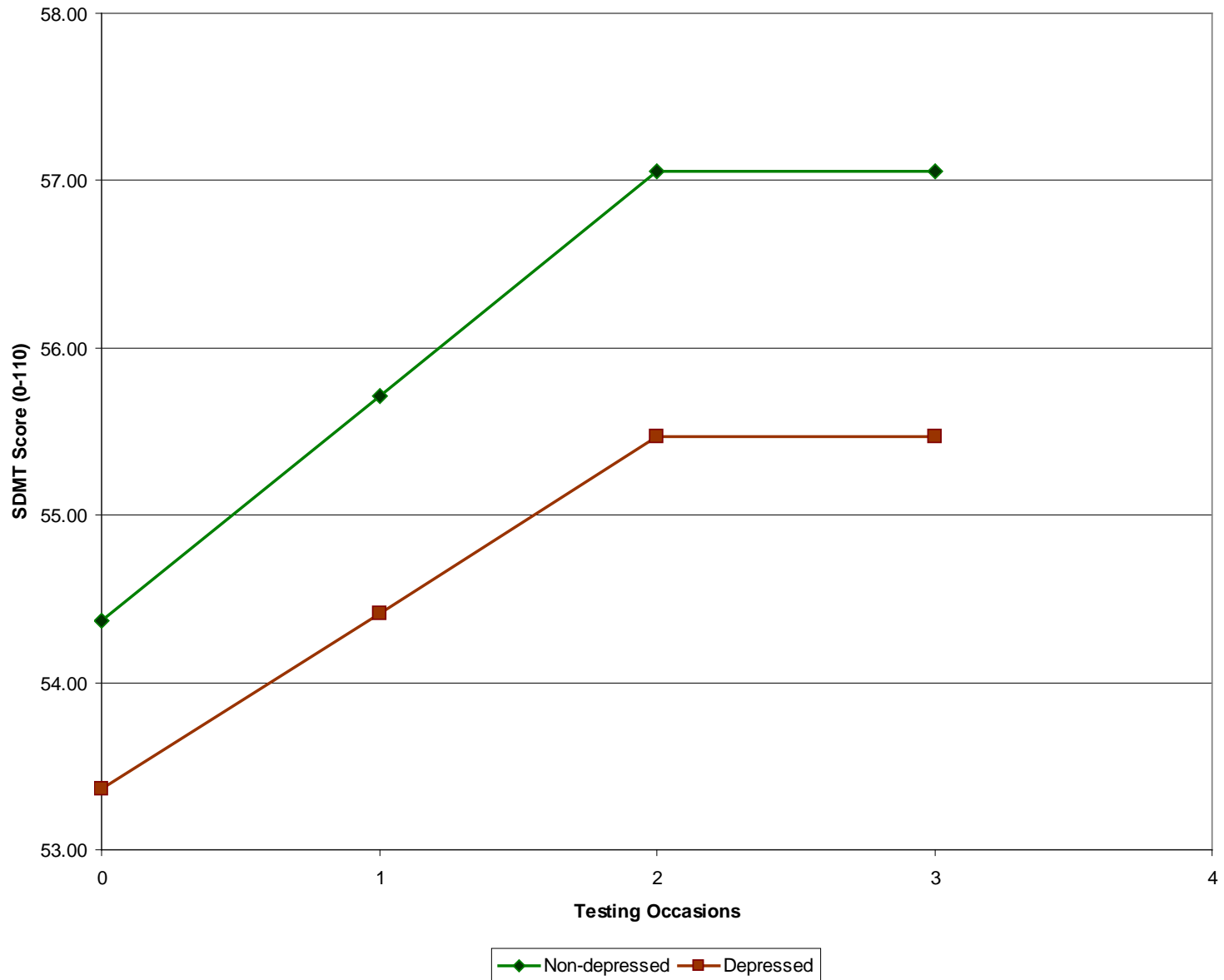
MacArthur Successful Aging Study

# Depression and Cognitive Decline

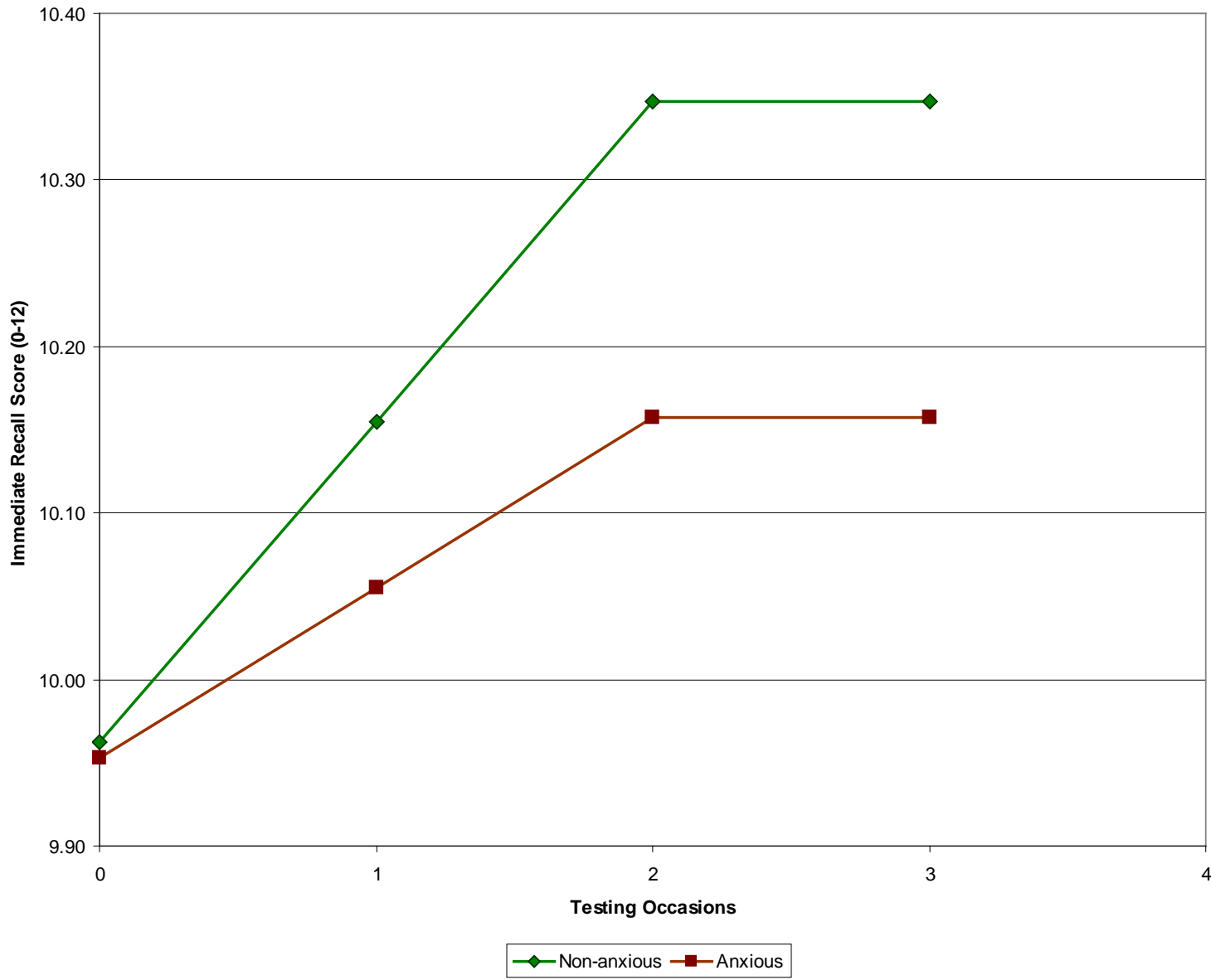
Mean 7-year Change in Summary Cognitive Score



### Depressive Symptoms During the Menopause Transition and Processing Speed



### Anxiety Symptoms during the Menopause Transition and Learning





# Summary

Psychosocial stressors influence biology, chronic diseases, and how well we age

Social support and good lifestyle choices can offset the health effects of stressors

