



Women's Mental Health in Midlife and Beyond: Research Gaps

Lauren M.
Osborne, MD

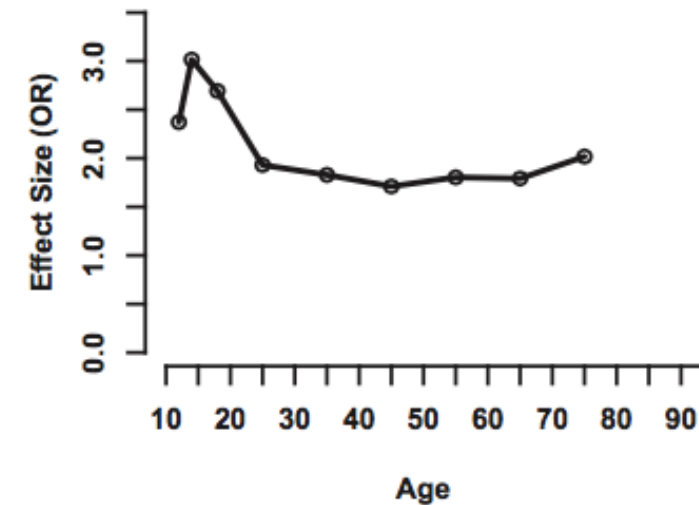
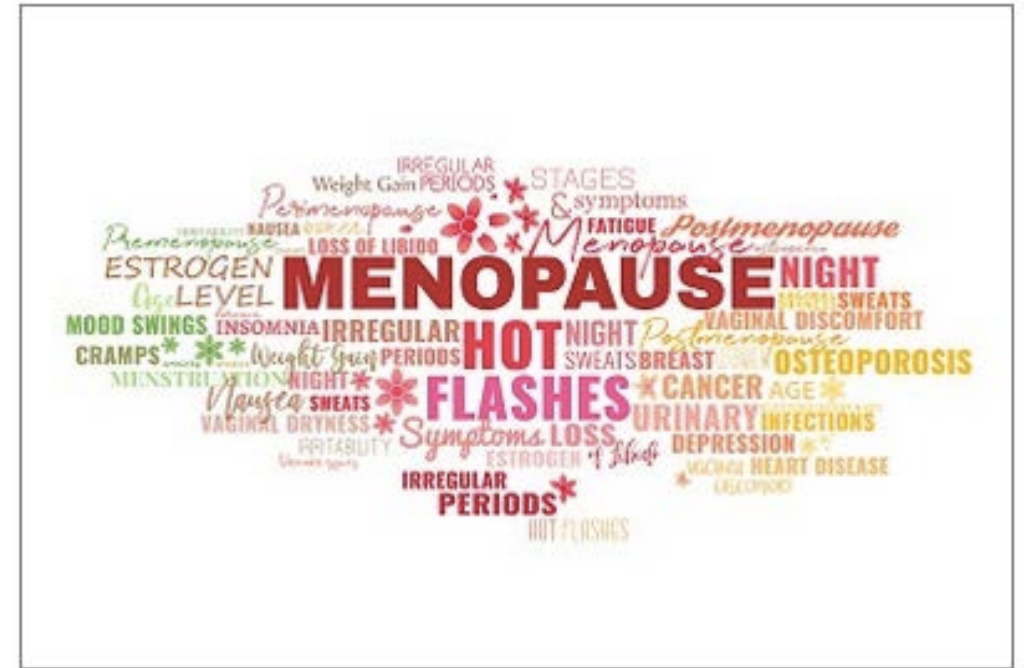
Assistant Director,
Women's Mood
Disorders Center

Johns Hopkins
University School
of Medicine

Disclosures

- None
- Research support from NIMH, ABPN, Doris Duke Foundation, Brain & Behavior Foundation

- 4-6x risk of depressive sx for those with a history, 2-3x risk for those without
- Cognitive effects – who is at risk, how to treat?
- Link with early life adversity
- Connection between mental health and physical symptoms – direction?
- Stress eating a significant mediator between depressive symptoms and weight in post-menopausal women
- Research has focused on estrogen – gaps in other hormones, other biological systems; different populations

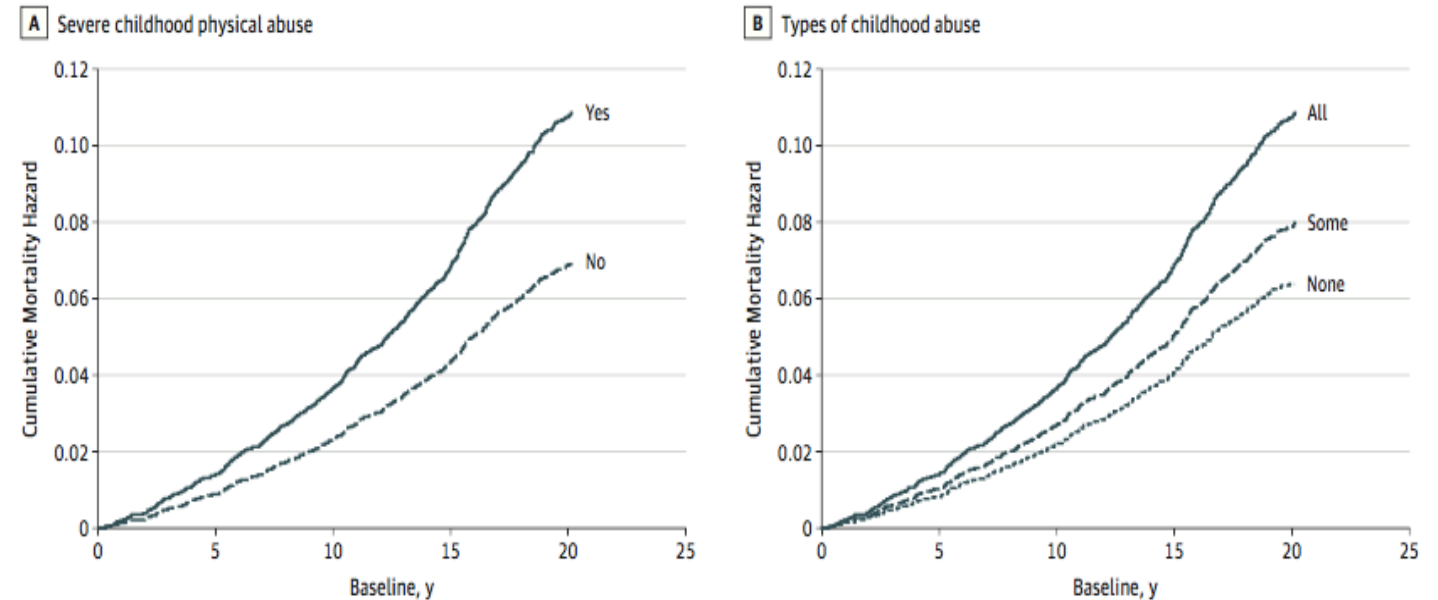


Salk et al., Psychol Bull 2017 14(8):783-8333;
Lee et al., Social Science & Medicine 105 (2014) 122e130

Early Life Adversity

- Childhood sexual abuse: 1 in 5 girls, 1 in 20 boys
- All abuse associated with midlife metabolic syndrome; sexual for women only
- Childhood abuse associated with greater all-cause mortality at midlife and beyond for women only, even when sexual abuse excluded
- SES and life-course mediators alter relationship for men but not women
- Treatment? Resilience? Biological mediators? Other populations?

Figure. Cumulative Hazard Plots by Abuse Group



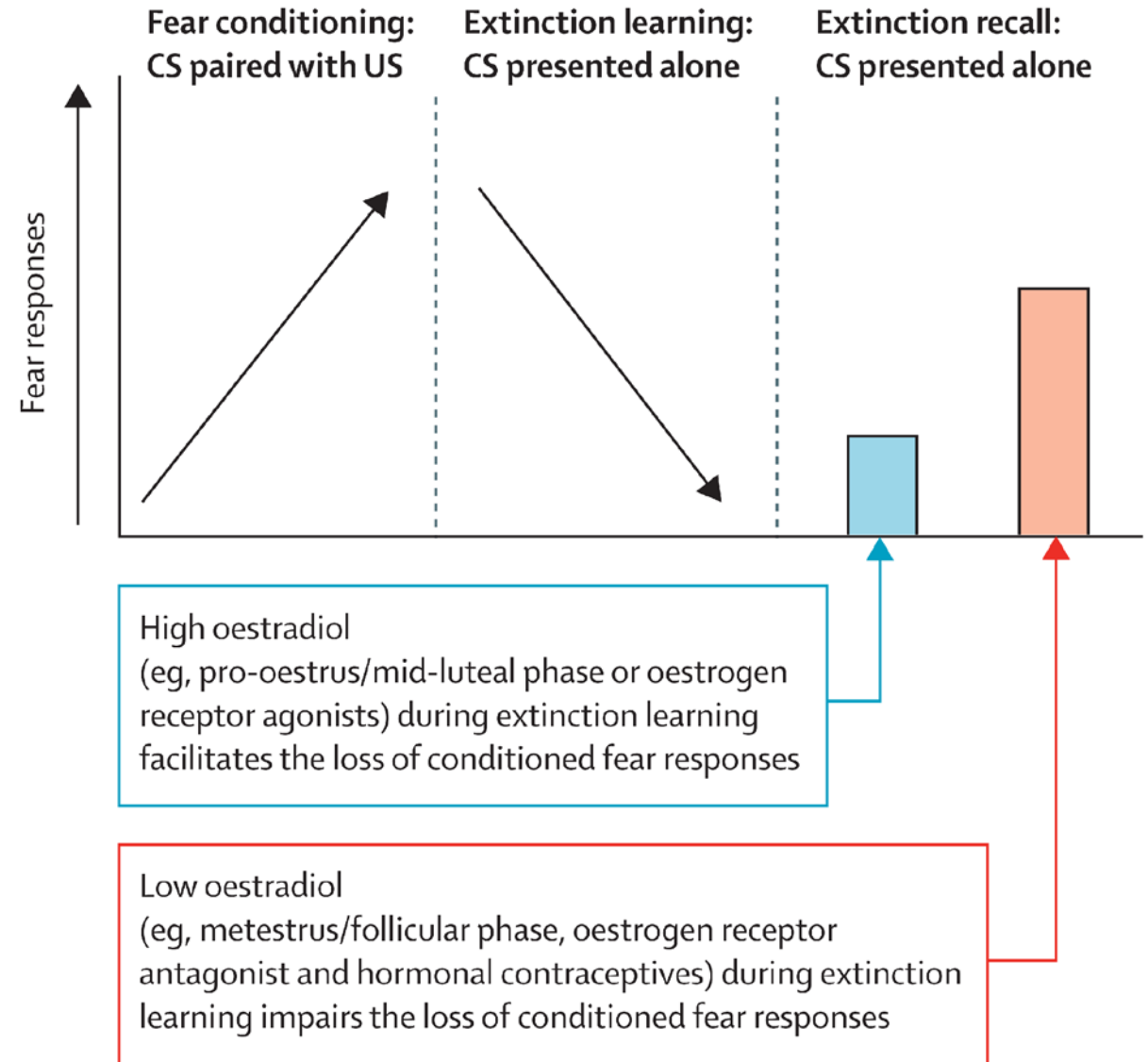
A, Plot of cumulative mortality hazard by years since study entry for women with and without reported severe childhood physical abuse. B, Cumulative mortality hazard for women with all types of reported childhood abuse (emotional, moderate physical, and severe physical), some types of reported abuse, and no reported abuse. Analyses control for age, race/ethnicity, education, history of heart disease, history of cancer, alcohol use, and smoking.

Anxiety

- Aging Anxiety (health declines, loss of fertility, appearance)
- Late-life onset of generalized anxiety (25%)
- Only 1/3 of elderly women with anxiety are treated
- What are the biological pathways?
- Alternative treatments?



Estrogen and fear conditioning



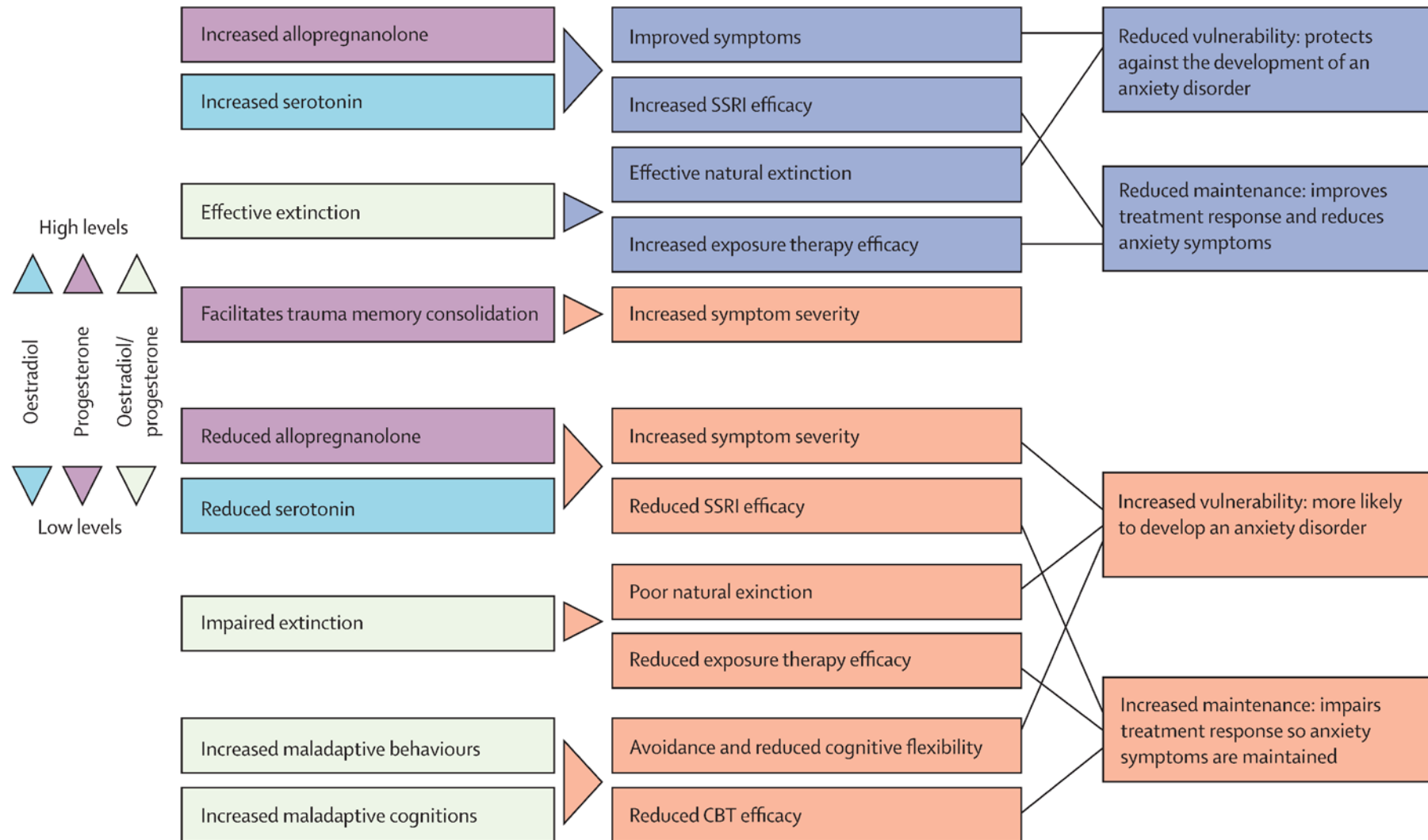


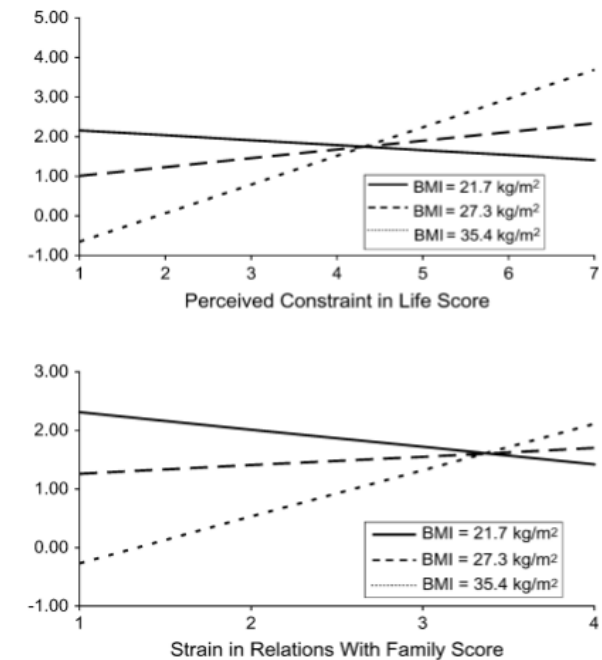
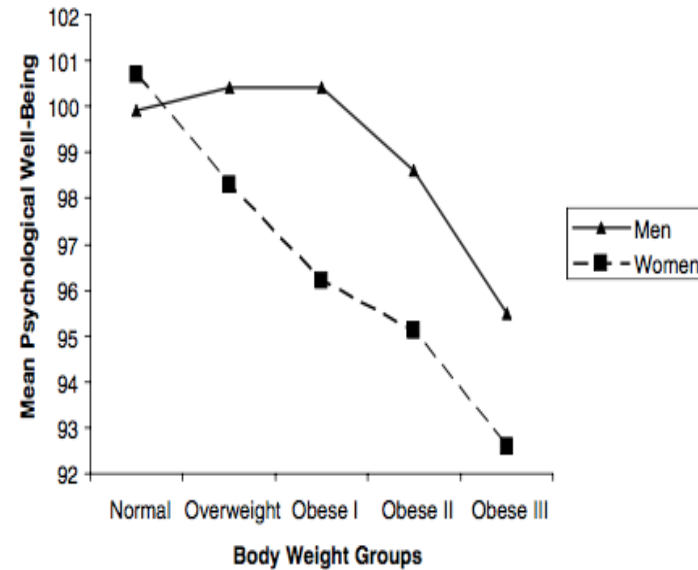
Figure 3: Hypothesised model of the influence of sex hormones on biological, behavioural, and cognitive pathways that promote or reduce anxiety disorder vulnerability and maintenance in women

The Connection between Mind and Body

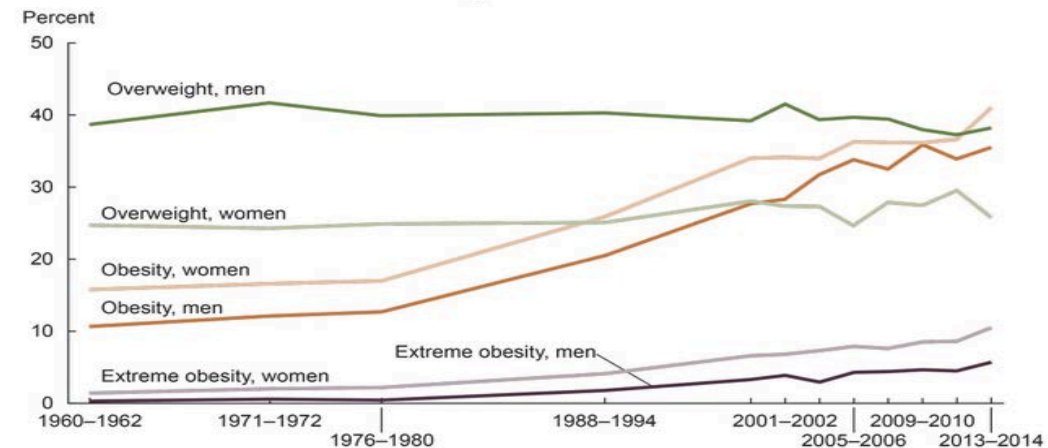


Overweight & Obesity

- Overall rates higher in men than in women, but obesity higher in women
- Weight gain in both associated with job demands, bills, but perceived constraints and family relationships only in women
- Higher BMI predicts poorer psychological well-being (women)
- Substantial racial/ethnic differences; stronger relationship between WC and inflammation in Black women
- What are the biological connections?

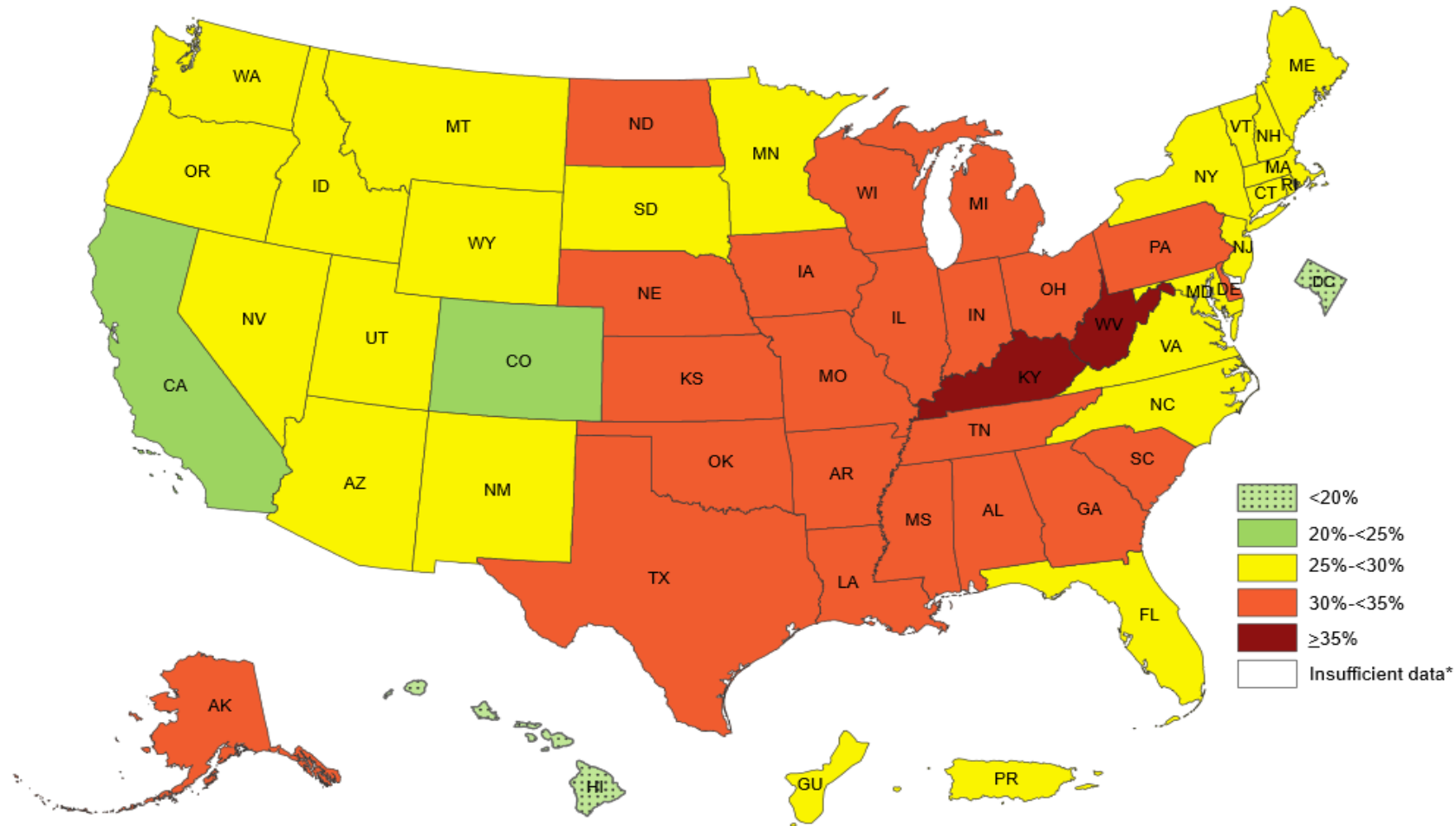


Trends in adult overweight, obesity, and extreme obesity among men and women aged 20–74: United States, 1960–1962 through 2013–2014



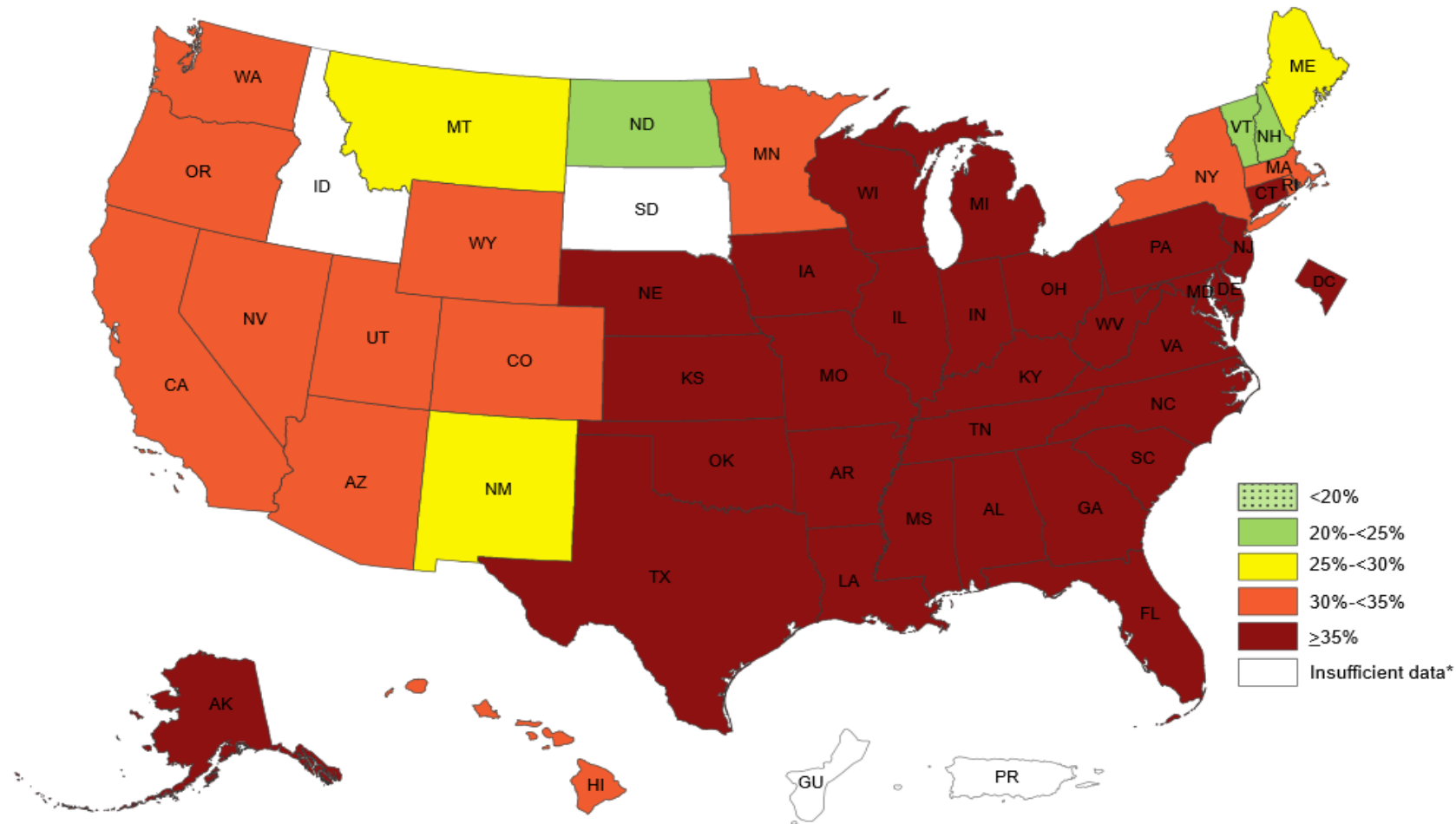
NOTES: Age-adjusted by the direct method to the year 2000 U.S. Census Bureau estimates using age groups 20–39, 40–59, and 60–74. Overweight is body mass index (BMI) of 25 kg/m² or greater but less than 30 kg/m²; obesity is BMI greater than or equal to 30; and extreme obesity is BMI greater than or equal to 40. Pregnant females were excluded from the analysis.
SOURCES: NCHS, National Health Examination Survey and National Health and Nutrition Examination Surveys.

Prevalence of Self-Reported Obesity Among Non-Hispanic White Adults, by State and Territory, BRFSS, 2016-2018



*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

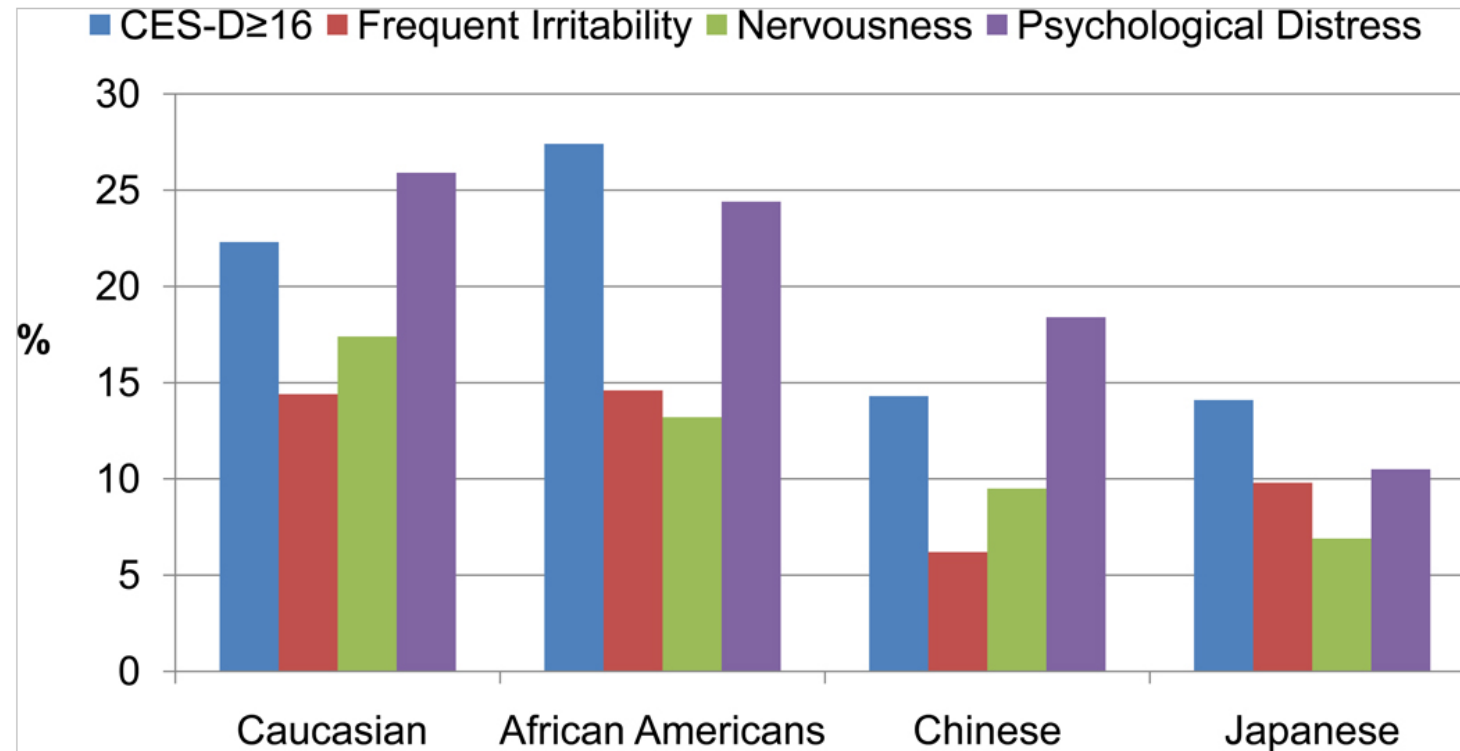
Prevalence of Self-Reported Obesity Among Non-Hispanic Black Adults, by State and Territory, BRFSS, 2016-2018



*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.



Racial/ethnic differences



Prevalence of CES-D ≥ 16 , frequent irritability, nervousness and psychological distress at baseline by race/ethnicity.

Bromberger Am J Pub Health 2001;91:1435-42; Freeman EW et al. AGP 2004;61:62-7

The Isms (Ag-, Rac-, Sex-)



- Subjective experiences of aging & positive affect
- Discrimination associated with physiological markers of stress and with poor psychological well-being
- Little research in sexual minority populations
- What are the biological pathways?

Table 3. Effect sizes for associations between racism and health outcomes.

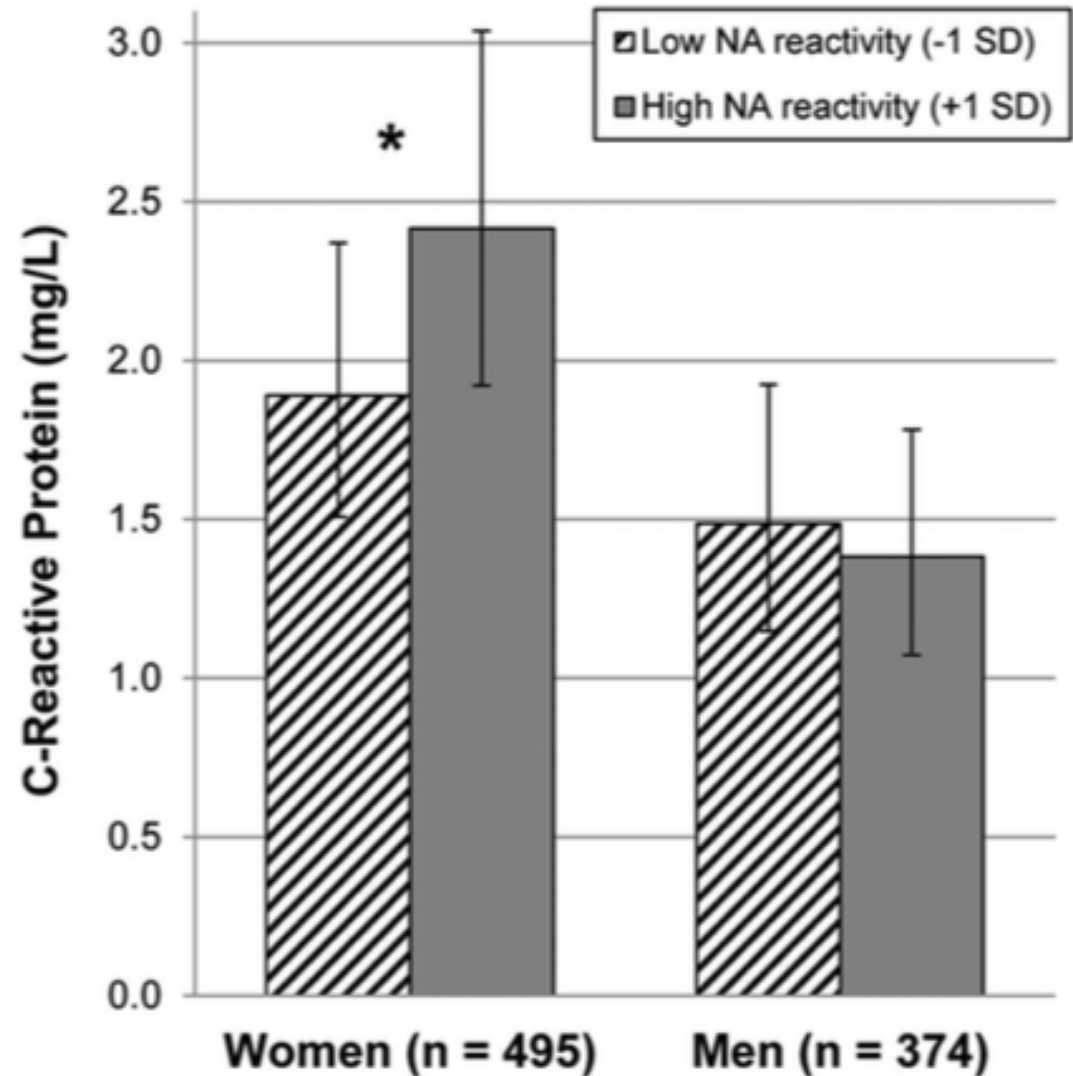
| Outcome group | Outcome | r | Lower CI | Upper CI | z | p-value | k | Q-value | p-value Q |
|-----------------------------|------------|-------|----------|----------|--------|---------|-----|---------|-----------|
| Negative mental health (NM) | DEP | -0.21 | -0.23 | -0.19 | -18.40 | <0.001 | 109 | 976.78 | <0.001 |
| | DIS | -0.22 | -0.25 | -0.19 | -14.11 | <0.001 | 55 | 447.87 | <0.001 |
| | STR | -0.27 | -0.30 | -0.23 | -12.82 | <0.001 | 66 | 891.69 | <0.001 |
| | ANX | -0.24 | -0.29 | -0.19 | -9.50 | <0.001 | 40 | 249.34 | <0.001 |
| | INT | -0.26 | -0.34 | -0.17 | -5.65 | <0.001 | 9 | 39.11 | <0.001 |
| | NA | -0.20 | -0.24 | -0.16 | -10.00 | <0.001 | 23 | 69.73 | <0.001 |
| | PTS/PTSD | -0.34 | -0.40 | -0.27 | -8.96 | <0.001 | 16 | 68.48 | <0.001 |
| | SOM | -0.23 | -0.29 | -0.17 | -7.61 | <0.001 | 13 | 40.07 | <0.001 |
| | SUI | -0.16 | -0.19 | -0.12 | -8.57 | <0.001 | 10 | 3.76 | 0.927 |
| | MHS | -0.21 | -0.29 | -0.12 | -4.72 | <0.001 | 11 | 136.39 | <0.001 |
| | GMH | -0.18 | -0.24 | -0.12 | -5.55 | <0.001 | 12 | 48.84 | <0.001 |
| | Overall NM | -0.23 | -0.24 | -0.21 | -27.28 | <0.001 | 227 | 2278.70 | <0.001 |
| Positive mental health (PM) | SE | -0.12 | -0.15 | -0.10 | -9.28 | <0.001 | 78 | 284.86 | <0.001 |
| | CON | -0.11 | -0.14 | -0.07 | -5.92 | <0.001 | 18 | 40.56 | 0.001 |
| | LS | -0.16 | -0.22 | -0.10 | -5.35 | <0.001 | 29 | 295.24 | <0.001 |
| | PA | 0.00 | -0.06 | 0.07 | 0.09 | 0.926 | 4 | 1.02 | 0.796 |
| | WB | -0.19 | -0.26 | -0.12 | -5.10 | <0.001 | 10 | 33.89 | <0.001 |
| | Overall PM | -0.13 | -0.16 | -0.10 | -9.36 | <0.001 | 113 | 945.00 | <0.001 |
| Physical health (PH) | BP & HTN | 0.00 | -0.02 | 0.01 | -0.24 | 0.814 | 24 | 25.78 | 0.312 |
| | CHO | 0.00 | -0.02 | 0.02 | -0.10 | 0.919 | 4 | 1.84 | 0.606 |
| | DIA | -0.02 | -0.09 | 0.04 | -0.70 | 0.482 | 7 | 14.98 | 0.020 |
| | HRT | 0.00 | -0.05 | 0.06 | 0.15 | 0.880 | 8 | 9.79 | 0.201 |
| | OW | -0.08 | -0.11 | -0.05 | -5.31 | <0.001 | 15 | 22.16 | 0.075 |
| | Misc | -0.13 | -0.18 | -0.08 | -5.15 | <0.001 | 20 | 251.00 | <0.001 |
| | Overall PH | -0.09 | -0.12 | -0.06 | -5.384 | <0.001 | 50 | 445.520 | <0.001 |
| General health (GH) | GH | -0.13 | -0.18 | -0.09 | -5.61 | <0.001 | 30 | 615.85 | <0.001 |

DEP—Depression; DIS—Distress; STR—Stress; ANX—Anxiety; INT—Internalizing; NA—Negative affect; PTS/PTSD—Post-traumatic stress and post-traumatic stress disorder; SOM—Somatization; SUI—Suicidal ideation, planning, and attempts; MHS—Other mental health symptoms (e.g., paranoia, psychoticism); GMH—General mental health; Overall NM—Overall negative mental health; SE—Self-esteem; CON—Control/Mastery; LS—Life satisfaction; PA—Positive affect; WB—Wellbeing; Overall PM—Overall positive mental health; BP & HTN—Blood pressure and hypertension; CHO—cholesterol; DIA—Diabetes; HRT—Heart conditions/illnesses; OW—Overweight (BMI, WC, WHR, overweight, obesity); MISC—Miscellaneous physical health; Overall PH—Overall physical health; GH—General health (unspecified/ physical & mental)

doi:10.1371/journal.pone.0138511.t003

Inflammation/Immune

- Major depression associated with increased odds of allergy in midlife women but not men
- Greater negative affect reactivity associated with increased inflammation in women but not men
- Likely bidirectional – but what are the causal pathways? How does this differ in different populations?
- What is the role of OTHER aspects of the immune system, and how do they intersect with other systems?

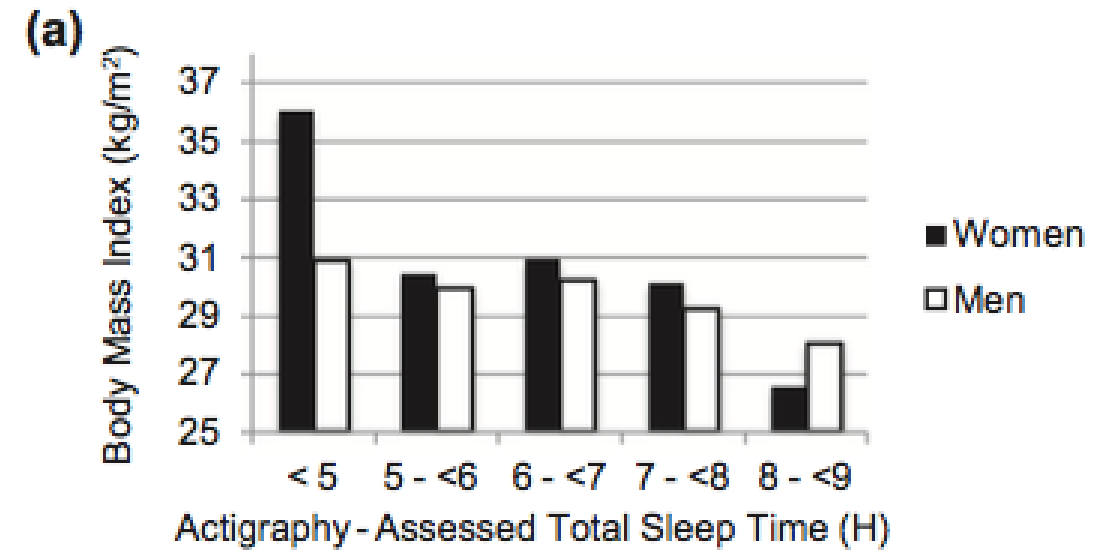
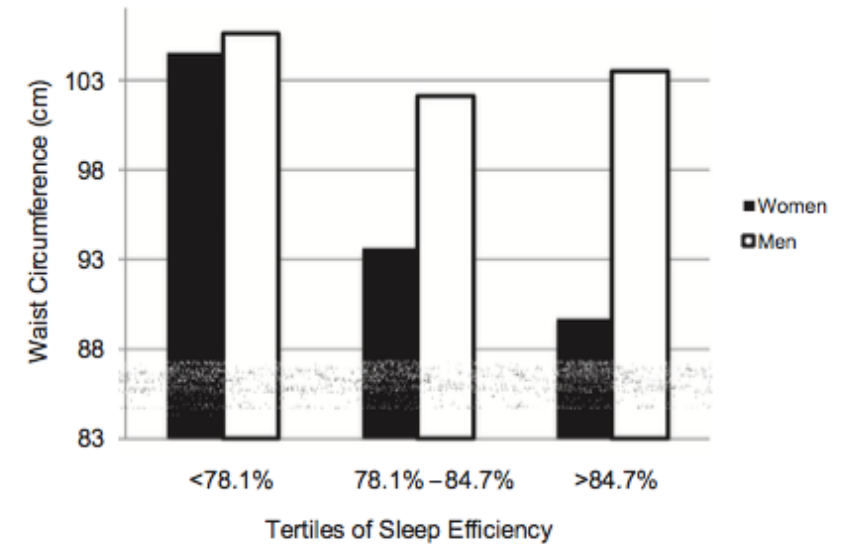


Goodwin et al., Psychosomatic Medicine 68:94–98 (2006)

95; Sin et al., Health Psychology 2015, Vol. 34, No. 12, 1154–1165

Sleep

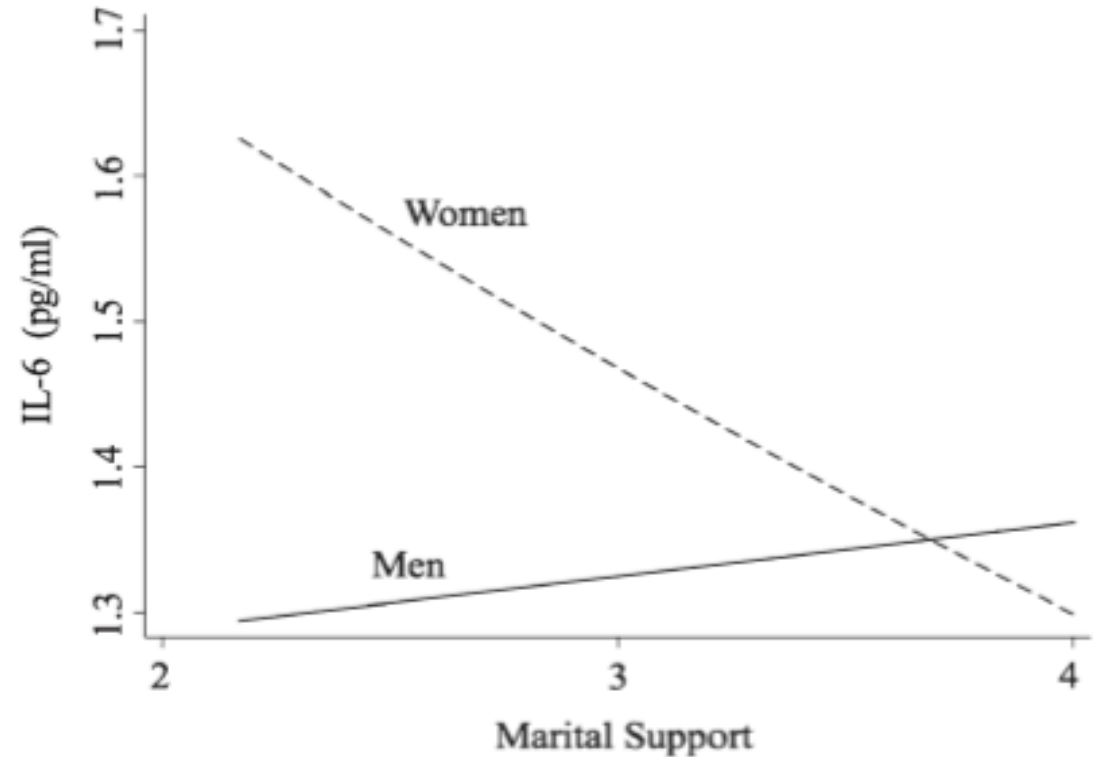
- Roughly half of the racial difference in cardiometabolic risk is due to sleep health
- Higher sleep latency associated with increased inflammation and insulin resistance in midlife, women only
- Sleep efficiency and total sleep time associated with higher BMI and waist circumference in women only
- What are the pathways connecting weight, inflammation, racism, sleep, and mental health?



Marriage, Mothering, Caregiving & Work

- Low levels of spousal support associated with higher inflammation among women but not men
- Intensive mothering associated with worse psychological well-being in mid-life
- Mothers have similar work effort and intensity with other groups, but fathers and childless women report that home life relaxes and recharges them for work
- Women are much more likely to be caregivers
- For women only, having multiple roles is associated with HIGHER psychological well-being
- What elements can mitigate this?

FIGURE 1. MARITAL SUPPORT AND IL-6 FOR MEN AND WOMEN.

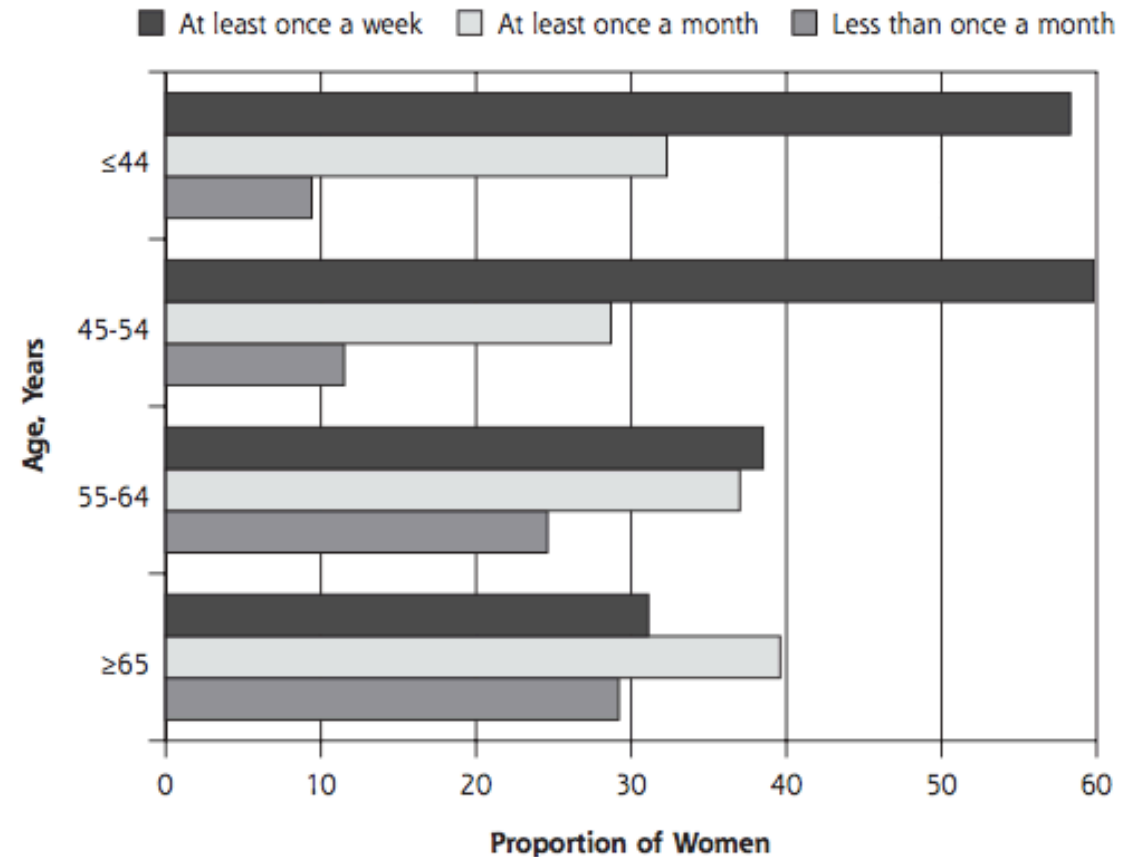


Ahrens & Ryff, Sex Roles (2006) 55:801–815; Donoho et al., Journal of Marriage and Family 75 (February 2013): 127 – 141; Gunderson et al., Journal of Family Issues 2017, Vol. 38(7) 992–1009; Kmec JA, Social Science Research 40 (2011) 444–459

Sexual Health and Function

- Sexual function closely correlated with relationship satisfaction and overall well-being
- 45% of midlife women report sexual problems
- Genitourinary changes, pelvic organ prolapse, medical problems and medications, partner issues
- Gaps
 - Sexual health education for providers
 - Screening tools
 - Protective factors
 - Changes in sexual minority groups
 - Treatment

Figure 2. Frequency of sexual activity among sexually active women in the Survey of Midlife Development in the United States (MIDUS II), by age (n = 1,345).



Thomas et al., ANNALS OF FAMILY MEDICINE, VOL. 13, NO. 4;2015; 337-342;

Thomas et al., Obstet Gynecol Clin N Am 45 (2018) 709–722

Summary of Research Gaps

- Connection between psychosocial stressors and biological pathways
 - Stressors include early life adversity, discrimination, marital stress, caregiving, work
- Role of hormones other than estrogen
- Links with cognitive health
- Role of immune system (inflammation and beyond)
- Connections with sleep, weight
- Racial/ethnic differences
- Anxiety
- Sexual health and functioning