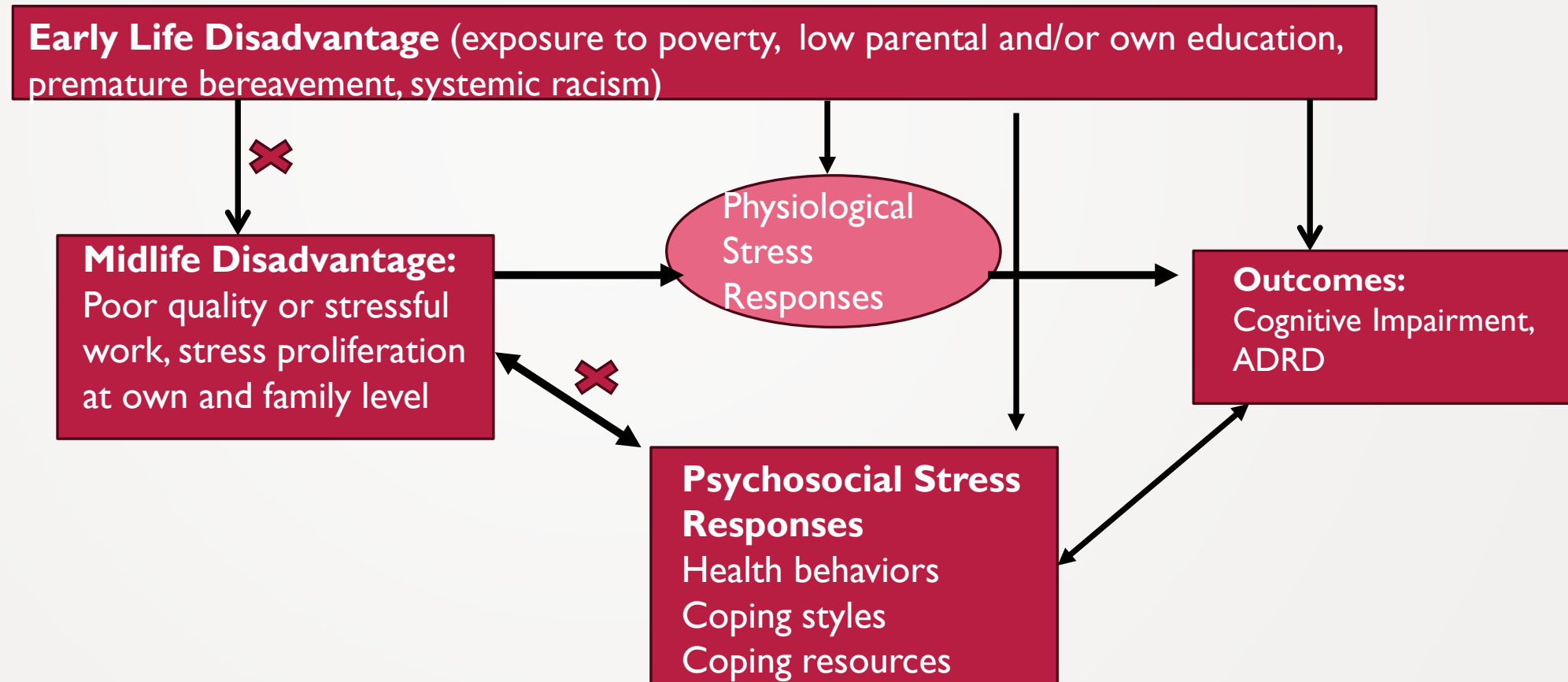

SESSION 3: EDUCATIONAL AND WORKPLACE CONTEXTS/POLICY

DEBORAH CARR
DEPARTMENT OF SOCIOLOGY AND CENTER FOR
INNOVATION IN SOCIAL SCIENCE
BOSTON UNIVERSITY

OUTLINE

- Describe cumulative stress exposure models.
- Examples of three workplace stressors that link early adversity to late-life cognitive decline/ADRD.
 - Shift work/irregular schedules
 - Discrimination/microaggressions (including ageism)
 - Work-family conflict
- Recognize psychosocial/behavioral mechanisms linking midlife work stress to cognitive health.
 - Coping behaviors: smoking, drinking, sleep, diet, exercise
 - Coping style: denial, avoidance, rejection of social support
- Suggest avenues for innovative data collection.
 - Diverse cognitive outcomes
 - Measures of chronic, acute, and daily stressors (objective and perceived)
 - Measures of behavioral and cognitive adaptations to stress
 - Longitudinal data to adjust for early-life selection into midlife stressful contexts
 - Dyadic/family level data to explore contagion/stress crossover

SOCIAL STRATIFICATION OF STRESS EXPOSURE



TAKE-AWAY MESSAGE

- Early adversities have direct effects on cognitive health, but...
- they also render people vulnerable to a **greater number of stressors** and **fewer coping resources** at midlife that **amplify impacts** of early adversity.
- **Stress proliferation** can threaten mid- and later-life cognitive health through direct biological pathways and...
- **behavioral and psychosocial mechanisms** that undermine cognitive health.
- **Novel data** needed to capture diverse types and consequences of midlife stressors.

POTENTIALLY IMPORTANT (AND MODIFIABLE) WORKPLACE CONDITIONS



Exposure is higher among those with lower levels of educational attainment and other social advantages.



Each has documented impacts on health, health behaviors, and cognitive functioning.



Not an exhaustive list:

Shift work/irregular schedules

Discrimination and microaggression (including ageism)

Work-family conflict/overload

SHIFT WORK AND IRREGULAR SCHEDULES

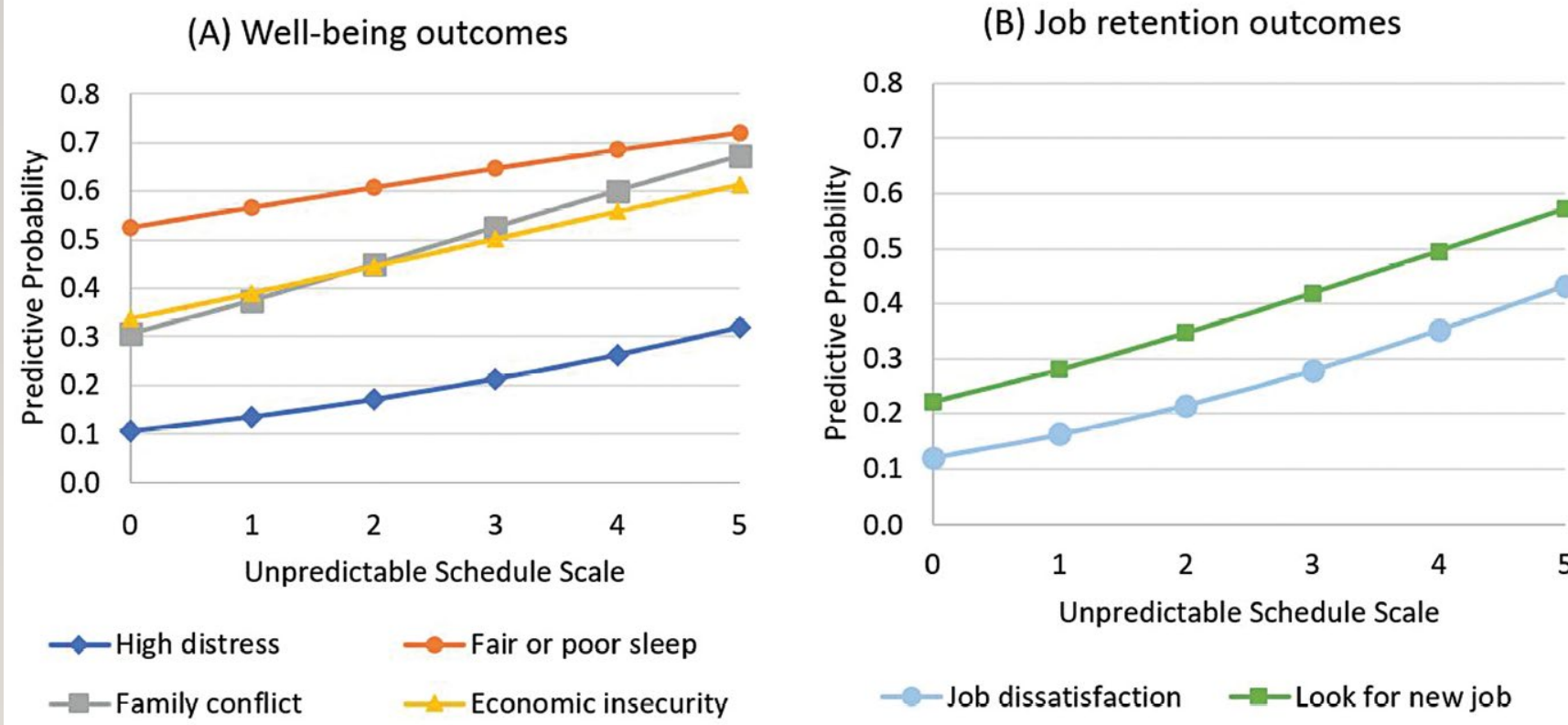
- Shift work: outside of traditional 7 am to 6 pm hours.
 - Very early morning
 - Nights/evenings
- Irregular or non-standard
 - 3-4 extended workdays each week
 - Different times/days each week
- Who does this?
 - ~20% U.S. workers
 - Lower educ > higher educ
 - Black > white
 - Younger > older
 - Men (night, rotating)
 - Women (evening, part-time)
 - Single parents > married parents

DIRECT AND INDIRECT IMPACTS OF SHIFT OR IRREGULAR WORK ON COGNITIVE HEALTH

- Sleep problems, substance use, poor diet, mental health symptoms
- Disrupted circadian rhythms
- Cardiovascular risk
- Metabolic disorders and obesity
- Strained or disrupted interpersonal relationships
- Heightened work-family conflict

For reviews, see: Boivin et al., (2020); Rivera et al., (2020); Torquati et al., (2019)

Irregular or Unpredictable Work Schedules Affect Older Workers' Outcomes That Have Been Found To Undermine Cognitive Health



	No. of dementia cases/person-years	Incidence rate per 1000 person-years (95%CI)	Model 1		Model 2		Model 3	
			HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Shift work								
Non-shift workers	1525/3,209,326	0.48 (0.45–0.50)	1 [Reference]		1 [Reference]		1 [Reference]	
Shift workers	362/664,429	0.54 (0.49–0.60)	1.39 (1.24–1.56)	< 0.001	1.26 (1.12–1.42)	< 0.001	1.26 (1.11–1.42)	< 0.001
Frequency of shift work								
Non-shift workers	1525/3,209,326	0.48 (0.45–0.50)	1 [Reference]		1 [Reference]		1 [Reference]	
Sometimes shift workers	152/286,265	0.53 (0.45–0.62)	1.27 (1.07–1.50)	0.005	1.21 (1.02–1.43)	0.026	1.21 (1.02–1.44)	0.026
Usually/Always shift workers	210/378,164	0.56 (0.49–0.64)	1.49 (1.29–1.72)	< 0.001	1.30 (1.12–1.50)	0.001	1.29 (1.11–1.50)	0.001
Type of shift work								
Non-shift workers	1525/3,209,326	0.48 (0.45–0.50)	1 [Reference]		1 [Reference]		1 [Reference]	
Non-night-shift workers	191/325,885	0.59 (0.51–0.68)	1.35 (1.16–1.57)	< 0.001	1.26 (1.08–1.47)	0.003	1.24 (1.06–1.44)	0.007
Night shift workers	171/338,544	0.51 (0.43–0.59)	1.43 (1.22–1.67)	< 0.001	1.26 (1.07–1.48)	0.006	1.28 (1.08–1.51)	0.004

WORKPLACE DISCRIMINATION (INCLUDING MICRO-AGGRESSIONS AND AGEISM): EARLY ADVERSITY (INDIRECTLY) ELEVATES RISK

Older Workers and Age Discrimination

The Age Discrimination in Employment Act (ADEA), signed into law in 1967, forbids discrimination in the workplace against anyone 40 or older. A recent survey shows that many workers still believe there are signs of age discrimination on the job today.



64% of workers say they have seen or experienced age discrimination in the workplace.

58% of adults believe age discrimination begins among workers in their 50s.

Source: Bureau of Labor Statistics

Staying Ahead of the Curve 2013: AARP Multicultural Work and Career Study Perceptions of Age Discrimination in the Workplace — Ages 45-74

GRAPHIC: AARP Digital Design



	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Job discrimination</i> (<i>n</i> = 1,983)					
Disability ^a	0.22 (0.04)***	0.24 (0.04)***	0.23 (0.04)***	0.19 (0.04)***	0.13 (0.04)**
Age group ^b					
Young adulthood		0.17 (0.06)**	0.15 (0.05)*	0.17 (0.06)**	0.12 (0.06)*
Early midlife		0.15 (0.04)***	0.15 (0.04)***	0.18 (0.04)***	0.13 (0.04)**
Female ^c		-0.08 (0.04)*	-0.06 (0.04)	-0.06 (0.04)***	-0.06 (0.04)
Occupation type ^d					
Lower-level white			0.08 (0.05)	0.08 (0.05)	0.07 (0.04)
Blue/farm/military			0.29 (0.05)***	0.19 (0.05)***	0.21 (0.05)***
Adjusted R ²	0.02	0.04	0.05	0.06	0.12

Source: MIDUS (Carr & Namkung, 2021)

Research Article

Ageism Amplifies Cost and Prevalence of Health Conditions

Becca R. Levy, PhD,^{1,2,*} Martin D. Slade, MPH,³ E-Shien Chang, MA,¹ Sneha Kanno, MPH,⁴ and Shi-Yi Wang, MD, PhD⁴

¹Social and Behavioral Sciences Department, Yale School of Public Health, New Haven, Connecticut. ²Department of Psychology, Yale University, New Haven, Connecticut. ³Department of Internal Medicine, Yale School of Medicine, New Haven, Connecticut. ⁴Department of Chronic Disease Epidemiology, Yale School of Public Health, New Haven, Connecticut.

The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 2024, **79**(6), gbae059
<https://doi.org/10.1093/geronb/gbae059>
Advance access publication 8 April 2024

Research Article

Perceived Discrimination and Incident Dementia Among Older Adults in the United States: The Buffering Role of Social Relationships

Ning Hsieh, PhD,^{1,*} Hui Liu, PhD,² and Zhenmei Zhang, PhD¹

¹Department of Sociology, Michigan State University, East Lansing, Michigan, USA.

²Department of Sociology, Purdue University, West Lafayette, Indiana, USA.

*Address correspondence to: Ning Hsieh, PhD. E-mail: hsiehnin@msu.edu

Decision Editor: Zhen Cong, PhD, FGSA (Social Sciences Section)

Received: 24 March 2020 | Revised: 5 June 2020 | Accepted: 17 June 2020 | Published online: 13 July 2020

DOI: 10.1002/dad2.12067

RESEARCH ARTICLE

ADDITIONAL INFORMATION
Diagnosis, Assessment
& Disease Monitoring

Experiences of racism and subjective cognitive function in African American women

Patricia Coogan¹ | Karin Schon² | Shanshan Li¹ | Yvette Cozier¹ | Traci Bethea³ | Lynn Rosenberg¹

Everyday Discrimination and Subsequent Cognitive Abilities Across Five Domains

Laura B. Zahodne, Emily P. Morris, Neika Sharifian, Afsara B. Zaheed, A. Zarina Kraal, and Ketlyne Sol
University of Michigan

HRS | HEALTH AND
RETIREMENT
STUDY

Table 3
Standardized Effects of Baseline Discrimination on Follow-Up Performance Within Each Cognitive Domain

Latent cognitive outcome	Total effect		Indirect effect through CESD		Indirect effect through VASC		Direct effect	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Episodic memory	−.004	.015	−.009*	.003	.000	.001	.005	.015
Executive functioning	−.054*	.014	−.014*	.003	−.002	.001	−.039*	.014
Processing speed	−.041*	.015	−.014*	.003	−.002*	.001	−.025	.015
Language	−.023	.019	−.011*	.004	−.001	.001	−.012	.019
Visuoconstruction	−.072*	.021	−.008*	.004	−.002	.001	−.062*	.022

Note. CESD = Center for Epidemiological Studies Depression Scale; VASC = vascular burden.

* $p < .05$.



ELSEVIER

Contents lists available at ScienceDirect

Journal of Psychosomatic Research

journal homepage: www.elsevier.com/locate/jpsychores



Perceived weight discrimination and performance in five domains of cognitive function

Angelina R. Sutin^{a,*}, Yannick Stephan^b, Mary A. Gerend^a, Eric Robinson^c, Michael Daly^d, Antonio Terracciano^a

^a Florida State University College of Medicine, United States of America

^b Euromov, University of Montpellier, France

^c University of Liverpool, United Kingdom

^d Maynooth University, Ireland

HRS | HEALTH AND
RETIREMENT
STUDY

Table 2

Linear and logistic regression predicting cognitive function from perceived discrimination.

Discrimination	Memory	Speed-attention	Visuospatial ability	Language	Numeric reasoning
Linear analysis					
Weight discrimination	−0.03	−0.05**	−0.07**	−0.02	−0.05*
Age discrimination	−0.01	−0.01	−0.01	0.02	−0.03
Gender discrimination	0.03	0.00	0.00	0.03	0.04*
Race discrimination	0.03	0.00	0.00	0.02	0.00
Logistic analysis					
Weight discrimination	2.23 (1.32–3.79)**	1.98 (1.11–3.53)*	1.89 (1.14–3.11)*	1.28 (0.76–2.13)	2.08 (1.18–3.66)*
Age discrimination	1.03 (0.78–1.35)	1.22 (0.91–1.64)	0.97 (0.74–1.28)	0.99 (0.77–1.28)	1.16 (0.85–1.58)
Gender discrimination	1.05 (0.66–1.67)	1.05 (0.65–1.70)	1.31 (0.86–1.99)	0.93 (0.61–1.43)	0.61 (0.36–1.02)
Race discrimination	0.52 (0.30–0.91)*	0.99 (0.59–1.66)	0.61 (0.37–1.00)	0.74 (0.46–1.18)	0.93 (0.55–1.58)

Note. $N = 2593$. Analytic ns range from 2272 (Numeric Reasoning) to 2569 (Memory and Language) due to missing data. Cognitive function measures were an aggregate of standardized subscale measures in the linear analysis. Cognitive function measures were dichotomized in the logistic analysis (1 standard deviation or more below the mean = 1, others = 0). All analyses control for age, sex, race, Latinx ethnicity, education, and body mass index.

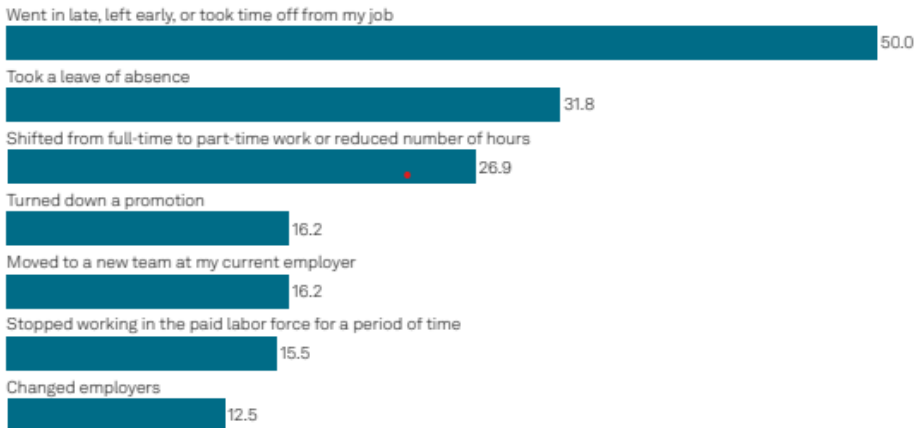
* $p < .05$.

** $p < .01$.

WORK-FAMILY OVERLOAD

- Spousal caregiving
- Custodial grandparent care
- Parent care
- Other network members
- More 'at risk' family members and fewer paid supports for those from disadvantaged backgrounds

**Actions taken to meet caregiving responsibilities
(% of total respondents)**



Question: Which of the following, if any, have you ever done in order to meet your caregiving responsibilities? Please select all that apply.
Base: 1,200.
Sources: S&P Global and AARP Employee Caregiver Survey 2023; S&P Global Market Intelligence.
©2024 S&P Global.

HEALTH, CAREGIVING & LONG TERM CARE, FINANCIAL SECURITY & RETIREMENT • MAY 16, 2024

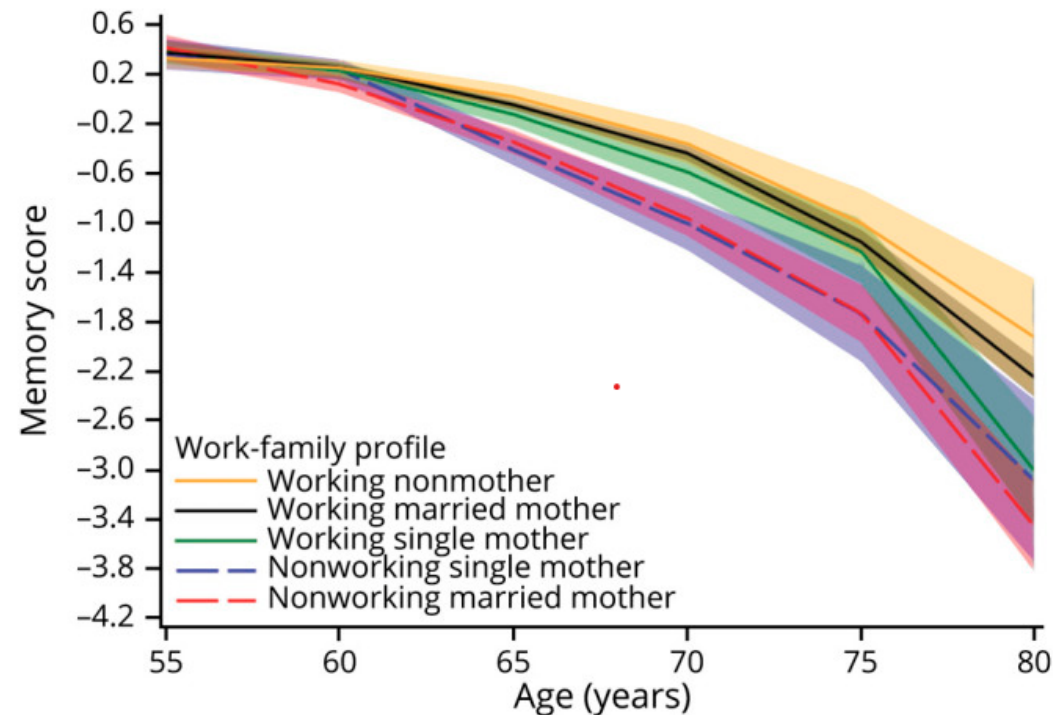
New U.S. Workforce Report: Nearly 70% of Family Caregivers Report Difficulty Balancing Career and Caregiving Responsibilities, Spurring Long-Term Impacts to U.S. Economy

Access to caregiving benefits offered by US employers has increased nationwide since AARP and S&P Global's 2020 report; there is more to be done, however, particularly for adult caregivers.



Work-family overload triggers stress and undermines cognitive health but...some combinations are protective

Figure 1



Estimated memory trajectories (95% confidence intervals) by work-family profile among women born between 1935 and 1956 in the Health and Retirement Study

STRESS DOES
NOT OCCUR
IN A VACUUM!

CONSIDER
LARGER
FAMILY
CONTEXT OF
STRESS:
CROSSOVER
EFFECTS

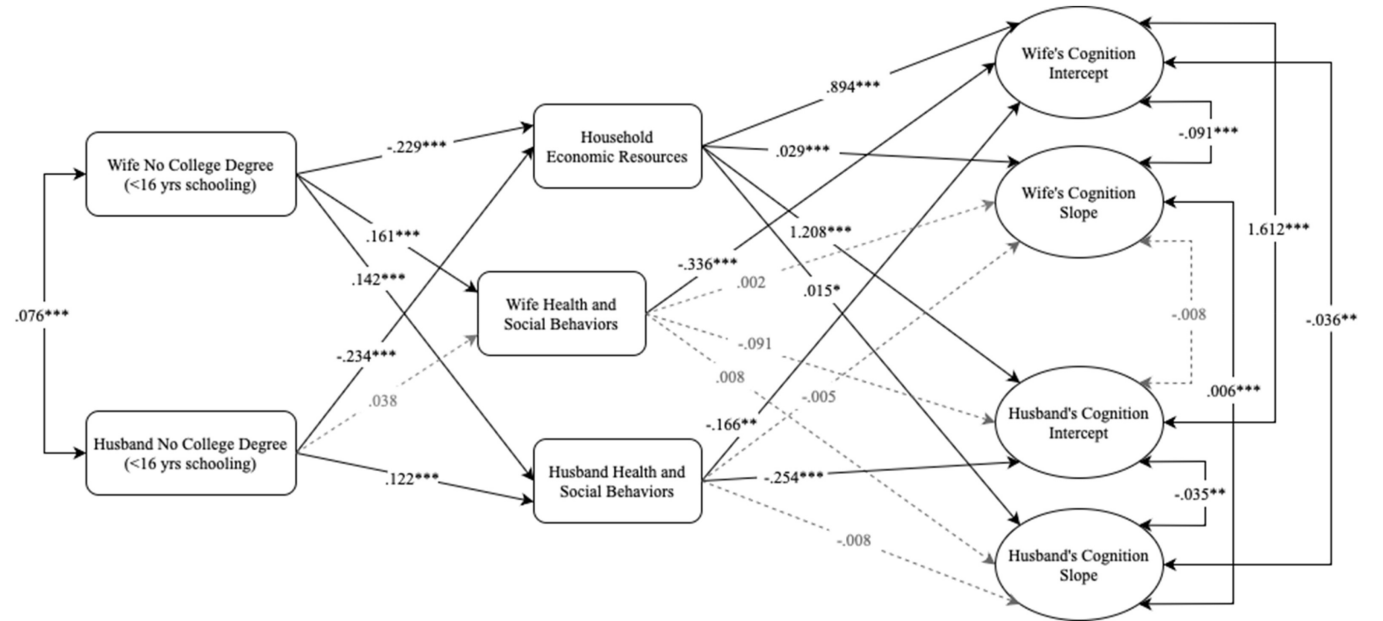
- **Families share social contexts** and thus stress may accumulate at couple- or family-level, potentially amplifying effects of own stress exposure.
- Mounting research based on dyadic data documents that own health is affected by own and spouse stress exposure and coping resources.
- **Few studies have examined impacts on cognition:** an important site for future research.
 - Proximate influences like depression investigated.



A national longitudinal dyadic analysis of spousal education and cognitive decline in the United States^{*}

Hui Liu^{a,b,*}, William J. Chopik^c, M. Rosie Shrout^{b,d}, Juwen Wang^{a,b}

HRS | HEALTH AND
RETIREMENT
STUDY



CFI = 0.952; TLI = 0.941; RMSEA = 0.026.

TABLE 2. Prevalence of subjective cognitive decline* among adults aged ≥45 years, by risk factor status† and total number of risk factors§ — Behavioral Risk Factor Surveillance System, United States,¶ 2019

Risk factor	% (95% CI)	p-value **
Overall	11.3 (11.0–11.6)	NA
High blood pressure		
No	8.8 (8.4–9.3)	Ref
Yes	13.8 (13.3–14.3)	<0.001
Not meeting aerobic physical activity guideline		
No	8.3 (7.9–8.7)	Ref
Yes	14.5 (14.0–15.1)	<0.001
Obesity		
No	10.8 (10.3–11.2)	Ref
Yes	12.7 (12.1–13.3)	<0.001
Diabetes		
No	9.9 (9.6–10.2)	Ref
Yes	17.4 (16.5–18.4)	<0.001
Depression		
No	7.5 (7.2–7.8)	Ref
Yes	28.5 (27.4–29.6)	<0.001
Current cigarette smoking		
No	10.1 (9.7–10.4)	Ref
Yes	18.4 (17.3–19.6)	<0.001
Hearing loss		
No	9.7 (9.4–10.0)	Ref
Yes	24.7 (23.5–26.0)	<0.001
Binge drinking		
No	11.2 (10.9–11.6)	Ref
Yes	11.3 (10.2–12.4)	0.9
Total no. of risk factors§		
None	3.9 (3.4–4.4)	Ref
One	6.2 (5.8–6.7)	<0.001
Two	9.6 (9.0–10.2)	<0.001
Three	15.0 (14.2–15.9)	<0.001
Four or more	25.0 (23.9–26.2)	<0.001

Psychosocial mechanisms linking stress/adversity and cognitive health

SOURCE: OMURA ET AL., (2022)

DATA NEEDS

- Longitudinal data that allows for parsing of selection effects.
- Multiple dimensions of cognitive impairment and ADRD, at multiple time points.
 - Earlier onset for persons with cumulative stress exposure
- Subjective and objective measures of workplace stress exposure
 - Chronic, acute, and 'quotidian'
- Assessments of spouse or family member stress, given shared environment and stress contagion.
- Measures of behavioral and cognitive/psychological reactions to workplace stress.

THANK YOU

Deborah Carr

carrds@bu.edu