

The Role of Health and Lifestyle Behaviors on White-Black Disparities in Disability

Mihaela A. Popa, MD, MGS

Sandra L. Reynolds, PhD

Brent J. Small, PhD

School of Aging Studies
University of South Florida

May 17, 2007

Correlates of White-Black disparities in disability

- Proven correlates: socio-economic status, chronic conditions, cognitive status
- Health and lifestyle behaviors:
 - Physical activity participation
 - Smoking
 - Drinking
 - Body weight status
- Older Blacks are more likely to be inactive, current smokers, overweight or obese

Physical activity and disability

Delayed disability onset

Slower rate of progression of disability, independent of additional risk factors

Higher odds of recovering from disability

Buffered negative effects on disability of obesity and aging-related weight loss

Smoking and disability

- Onset of disability
- Higher odds of having any physical functioning limitations

Drinking and disability

- Moderate consumption has some protective effects on physical functioning
- Excessive consumption:
 - higher disability
 - higher odds of developing incident disability
- U-shaped effect

Body weight and disability

- Obesity:
 - earlier onset and higher levels of disability
 - fewer years free of disability and longer years with disability
- Underweight:
 - higher disability levels
- U-shaped relationship

Research questions

Are there persistent differences in longitudinal trajectories of disability between White and Black older adults independent of socio-economic and health status?

If yes, are these residual differences attributable to disparities in health behaviors?

What are the specific contributions of health and lifestyle behaviors on trajectories of disability in White and in Black older adults after adjusting for socio-economic and health status?

Data and study population

- Asset and Health Dynamics among the Oldest Old (AHEAD)
- Data collection: 1995, 1998, 2000, 2002
- Inclusion criteria:
 - White and Black race/ethnicity
 - Non-demented
- Exclusion criterion during the follow-up:
 - Proxy responses

Measures

- Outcome variables:
 - ADL (6 tasks; range 0-6)
 - IADL (5 tasks; range 0-5) (0= no difficulty, 1=difficulty)
- Predictors:
 - Physical activity participation (0=no, 1=yes)
 - Smoking (0=never; 1= former; 2= current)
 - Drinking (0= abstainer; 1= recommended amount; 2= above the recommended amount)
 - BMI (0=underweight; 1=normal weight; 2= overweight; 3= obese)

Statistical analysis

- Mixed models with time-varying covariates

Step 1: Test the existence of a residual White-Black gap in disability after controlling for socio-economic and health status

Step 2: Test whether potential residual White-Black differences are attributable to health behaviors

Step 3: Test whether health behaviors have different effects on disability in Whites and in Blacks

Baseline characteristics

4072 Whites, 425 Blacks (mean age= 78.5 years)

Blacks were less likely to be married or partnered

Blacks had:

- fewer years of education, less household wealth
- more multiple morbidities
- lower cognitive performance
- poorer self-reported health

Fewer Blacks participated in physical activities

More Blacks were abstainers and had higher BMI

There were no White-Black differences in smoking

Blacks had higher mean scores of ADL and IADL

ADL trajectories

Step 1: Test the existence of a residual White-Black gap in disability after controlling for socio-economic and health status:

Time*Race: est.=0.04, $p=.020$

Step 2: Test whether potential residual White-Black differences are attributable to health behaviors

Time*Race: est.=0.06, $p=.048$

Step 3: Test whether health behaviors have different effects on disability in Whites and in Blacks

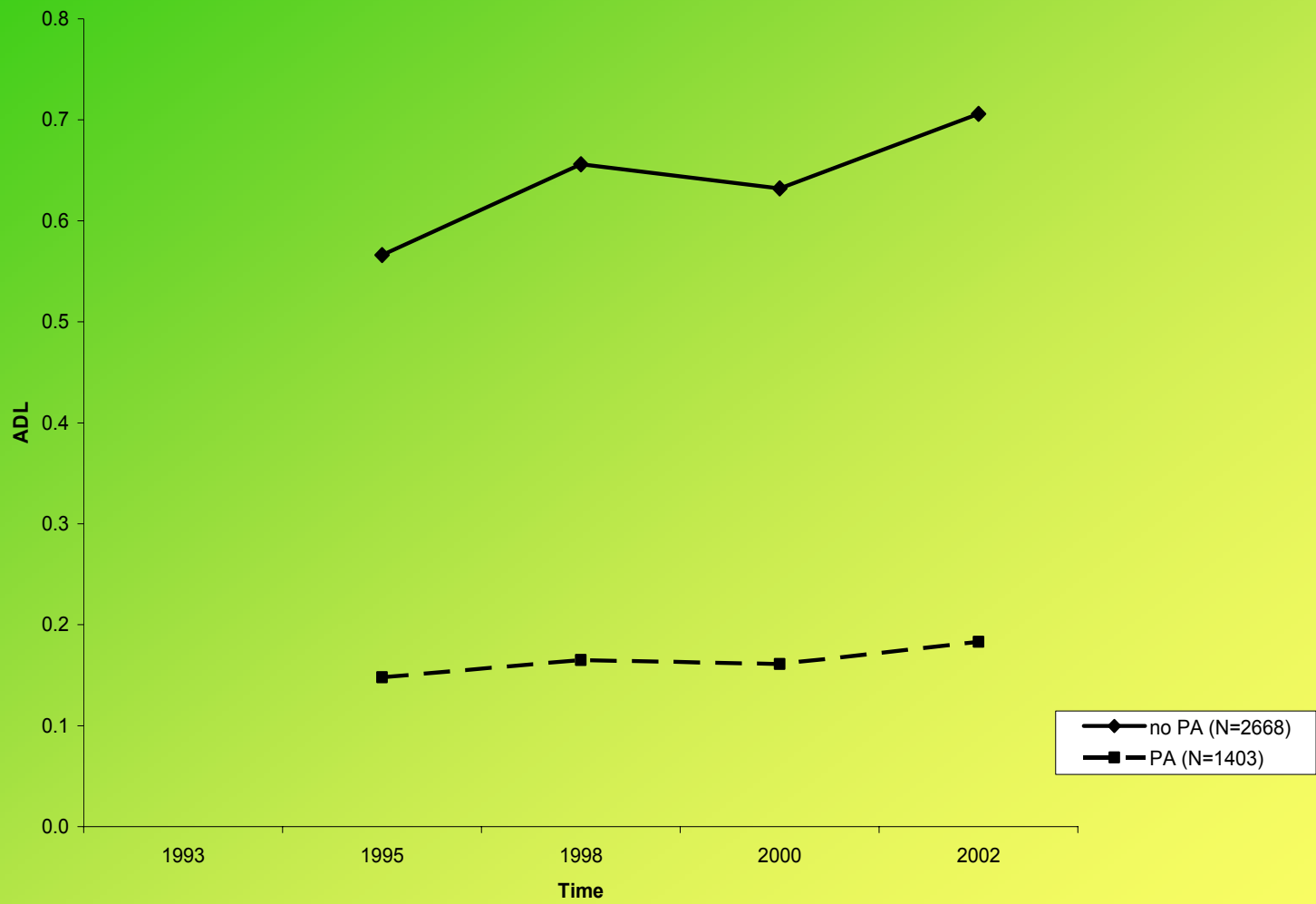


Figure 1. Trajectories of ADL disability by physical activity (PA) participation in Whites

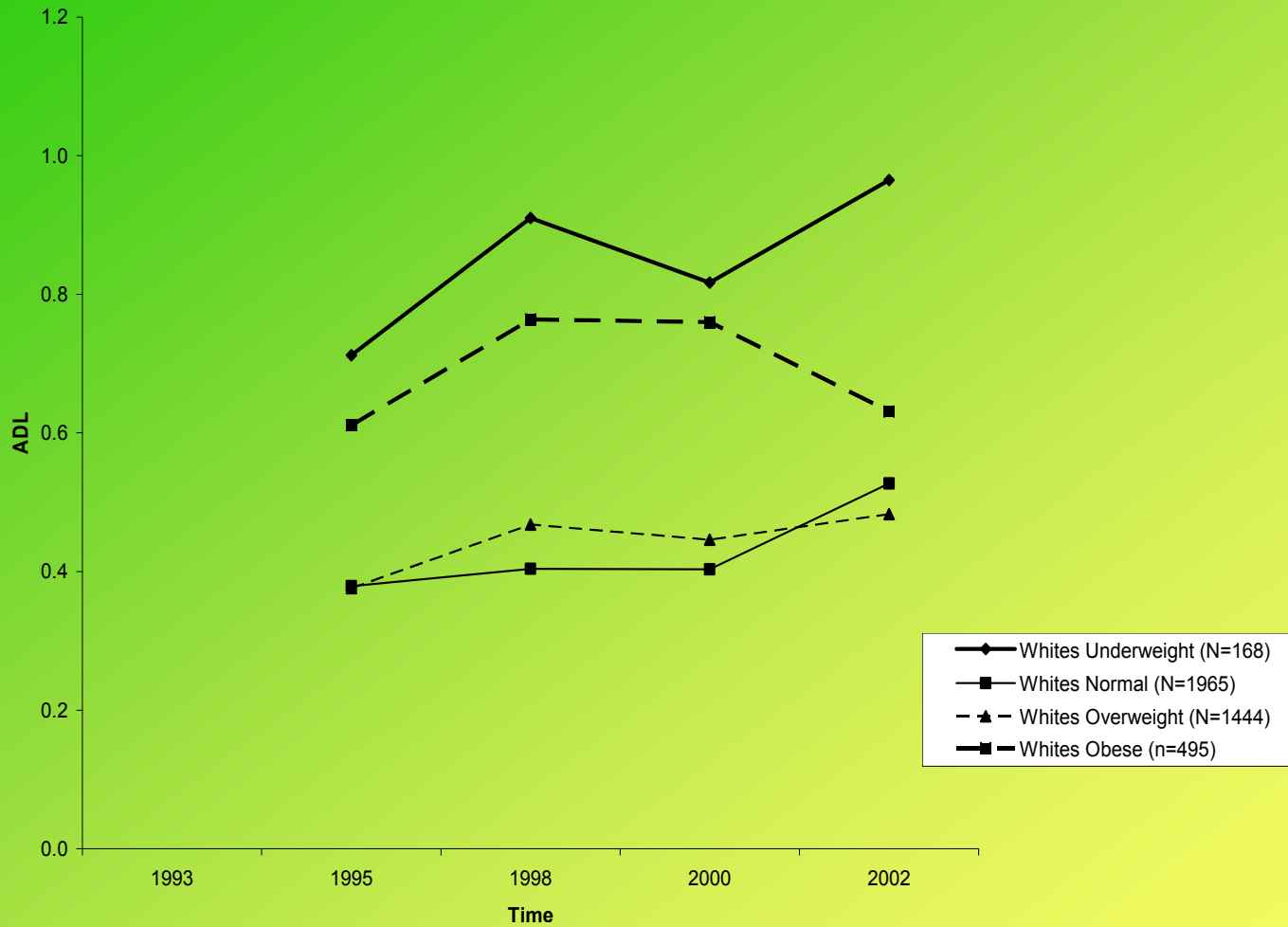


Figure 2. Trajectories of ADL disability by body mass index (BMI) group in Whites.

IADL trajectories

Step 1: Test the existence of a residual White-Black gap in disability after controlling for socio-economic and health status

$$\text{Time}^2 * \text{Race} = -0.02, p = .006$$

Step 2: Test whether potential residual White-Black differences are attributable to health behaviors

$$\text{Time}^2 * \text{Race} = -0.03, p = .099$$

Step 3: Test whether health behaviors have different effects on disability in Whites and in Blacks

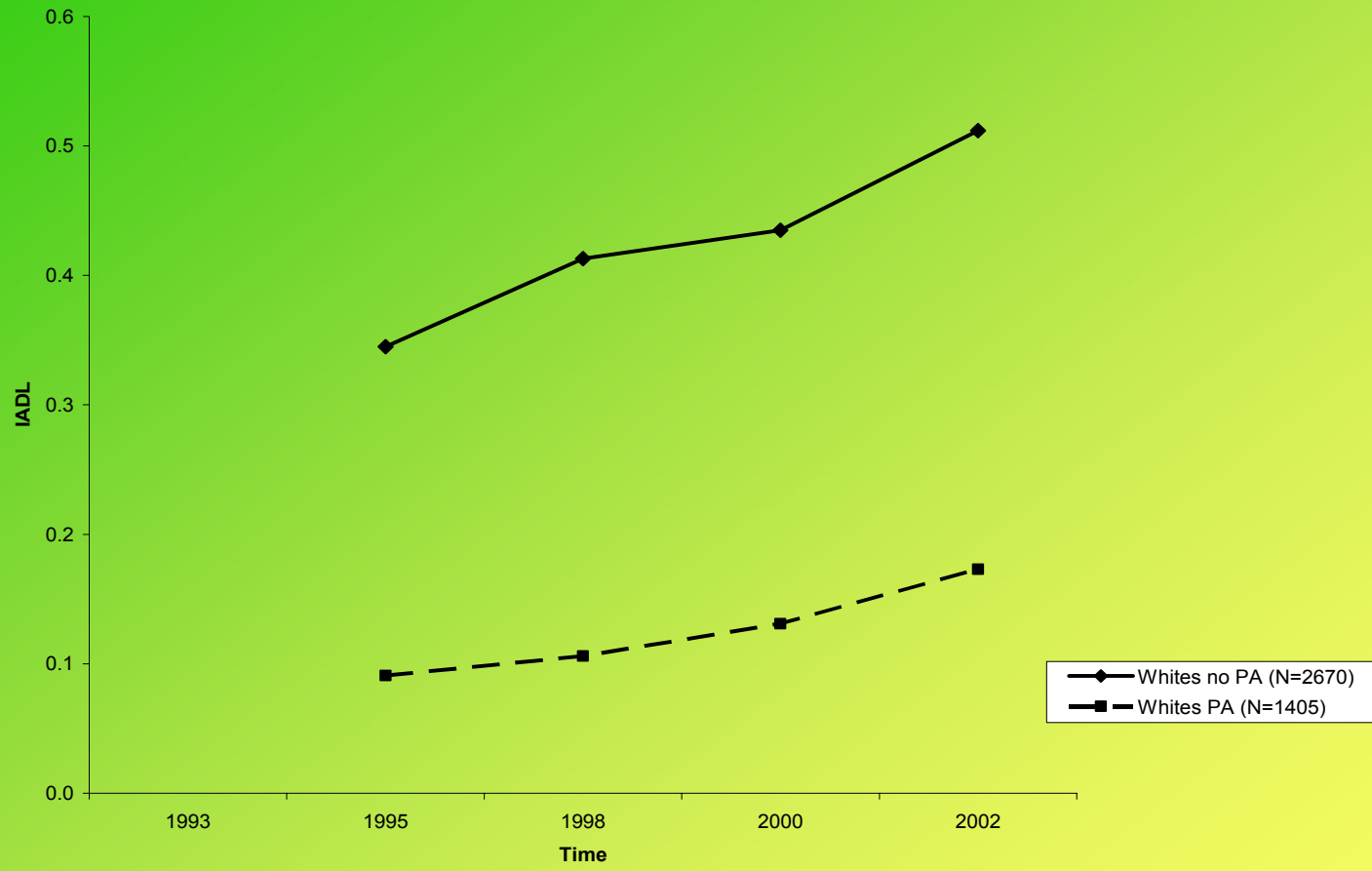


Figure 3. Trajectories of IADL disability by physical activity (PA) participation in Whites

Conclusions

- Health behaviors closed the White-Black IADL gap but not the ADL gap.
- Future research should examine whether factors such as access to and quality of health care, or social support contribute to the residual differences in ADL trajectories.
- Regular participation in physical activity had protective effects on ADL and IADL trajectories among Whites.
- Maintaining a normal or overweight status had protective effects on ADL trajectories among Whites.

Conclusions

- Among Blacks, none of the health behaviors affected ADL or IADL trajectories, after adjusting for socio-economic and health status. Future studies should replicate this analytic model using larger samples of Blacks.
- Evidence-based modifiable risk factors should lay the foundation for intervention programs targeted at minimizing or eliminating White-Black disparities in disability, as aimed by *Healthy People 2010*.