

Social Disparities in Hypertension Control Among Whites and Blacks:

The Atherosclerosis Risk in Communities (ARIC) Study

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There are no relationships to disclose

Background (1)

- **Prevalence of Hypertension (HTN)**
 - 65 million Americans have HTN
 - It is nearly 1.5 times more prevalent amongst Blacks than Whites
- **Hypertension Treatment and Control**
 - Of those with HTN, 34% take antihypertensive meds yet 25% do not achieve control of their HTN
 - HTN treatment is higher in Blacks than Whites
 - Blacks are less likely to have their HTN controlled than Whites

Background (2)

■ HTN control and SES

- In several studies, education, and income in adulthood were found to be inversely associated with HTN control
- Studies of the influence of life course SES on HTN control are lacking to our knowledge
- Childhood SES may influence HTN control in adulthood due to events and exposures experienced during early life

Background (3)

- **Significance of HTN control**

- Uncontrolled hypertension is a leading cause of coronary heart disease, stroke, congestive heart failure, end-stage renal disease, and peripheral vascular disease
- NHANES reported that racial disparity in HTN control in treated hypertensives has increased from 1988-1994 to 1999-2002

Objectives

- **To assess and compare among adults with treated hypertension:**
 - **The association between childhood SES and hypertension control**
 - **The association between adulthood SES and hypertension control**
 - **Explore the above associations by race**

Study population

- **Atherosclerosis Risk in Communities Study (ARIC)**
 - Longitudinal cohort study of the etiology of CVD and its risk factors in a biracial population
 - 15,792 men and women 45-64 years at baseline (1987-89) from 4 communities:
 - Forsyth County, NC
 - Jackson, MS
 - Northwestern suburbs of Minneapolis, MN
 - Washington County, MD

Study population

- **Life Course Socioeconomic Status, Social Context and CVD (LC-SES) Study**
 - **An ancillary study to ARIC (2001-2002)**
 - **Examines association between SES across the life course and adult CVD**
 - **95% of the survivors of ARIC's original cohort were contacted**
 - **80.5% of original cohort were enrolled and interviewed by phone**

Variables

- **Dependent Variable:**
 - Hypertension Control: SBP < 140 *and* DBP < 90 mmHg *and* current use of antihypertensive meds
- **Independent Variables:**
 - From ARIC – at baseline
 - Education in adulthood: (<HS vs. ≥HS)
 - Family Income in adulthood: (<\$16,000 vs. ≥ \$16,000)
 - From LC-SES:
 - Social class in adulthood: (Working vs. Non-Working Class)
 - Father's education: (<HS vs. ≥ HS)
 - Mother's education: (<HS vs. ≥HS)

Study Population

In LC-SES 12,716 individuals interviewed at Baseline

Whites: 9454 (74%)

Blacks: 3227 (25%)

7070

1696

2,384 (25%)

Hypertensive
n=3,915 (31%)

1,531 (47%)

1,711 (72%)

Hypertension Treated
n=2,821 (72%)

1,110 (73%)

1,281 (75%)

Hypertension Controlled
n=1,999 (71%)

718 (65%)

Statistical Methods

- **Multivariate logistic regression used to examine the relationship between adult and childhood SES with HTN control**
- **Race-specific analysis was conducted**
- **Adjusted for age, gender, body mass index, center, diabetes, prevalent CHD, alcohol, smoking, physical activity and health insurance**

Characteristics of the Hypertensive Participants

	Whites (%)	Blacks (%)
Females:	1255 (53)	1026 (67)
Diabetes:	247 (10.4)	274 (18.4)
Previous CHD:	150 (6.5)	52 (3.5)
Med Insurance:	2272 (95.4)	1133 (74.3)
BMI (kg/m ²):	28.83	30.91
Age (yrs):	55.7	53.6
Drinking:	1885 (79.2)	750 (49.7)
Smoking:	1335 (56.0)	713 (46.6)
Exercising:	2.47	2.04

Adult SES & Hypertension Control

	Adj. OR (95% CI) Whites	Adj. OR (95%CI) Blacks
Education: <i><HS vs. >=HS</i>	0.75 (0.62, 0.90)	0.93 (0.77, 1.13)
Family Income: <i><\$16,000 vs. >=\$16,000</i>	0.95 (0.76, 1.18)	0.83 (0.67, 1.03)
Social Class: <i>Working vs. Non-working</i>	0.80 (0.65, 0.97)	1.10 (0.88, 1.38)

Childhood SES & Hypertension Control

	Adj. OR (95% CI) Whites	Adj. OR (95%CI) Blacks
Education (Mom): <HS vs. >=HS	0.86 (0.70, 1.05)	1.13 (0.80, 1.58)
Education (Dad): <HS vs. >=HS	1.04 (0.84, 1.30)	1.07 (0.70, 1.64)

Strengths and Limitations

■ Strengths

- Adequate sample size of White and Black treated hypertensive patients
- Diversity in SES variables
- Use of childhood SES measures

■ Limitations

- Possible recall bias of parent's education
- Loss-to-follow up may have occurred since some participants with HTN may have died before LC-SES, which may affect the results

Conclusion

- Childhood measures of SES are not associated with HTN control in Whites nor Blacks in this population
- Adult measures of SES are inversely associated with HTN control among Whites and Blacks
- Education and class were more important predictors of HTN control in Whites and income was a more important predictor of HTN control in Blacks

Distribution of SES measures

