



Short Sleep Duration and the Risk of Obesity among Black and White Americans

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Introduction

Evidence suggests that individuals experiencing less than the population modal sleep duration (7hrs) might be at greater risk of becoming obese. The effect of race/ethnicity on the risk of obesity associated with short sleep duration is largely unknown.

We assessed whether short sleep duration might portend greater obesity risk among blacks relative to whites living in the United States.

Methods

Analysis was based on data obtained from 29,818 Americans (age range: 18-85 years) who participated in the 2005 National Health Interview

Survey, a cross-sectional household interview survey, using a multistage area probability design.

Probability samples of the civilian population of all 50 states and DC were obtained. Details on sample design can be found in Design and Estimation for the National Health Interview Survey, 1995–2005.¹

During face-to-face interviews conducted by trained interviewers from the U.S. Census Bureau, respondents provided socio-demographic data and information about several physician-diagnosed chronic

conditions (e.g., hypertension, diabetes, cancer, heart disease, and arthritis).

Subjective and anthropometric data including mood, habitual sleep duration and height/weight were also collected.

Results

Self-Reported Health Characteristics by Ethnicity

Variable	Black (15%)	White (85%)	χ^2
Hypertension (%)	36	27	133*
Diabetes (%)	12	8	62*
Heart Disease (%)	6	8	29*
Arthritis (%)	22	24	11*
Cancer (%)	4	8	121*

Legend: Data were analyzed from black and white Americans participating in the 2005 National Health Interview Survey; * $p < 0.01$.

Baseline characteristics of black and white participants in the study are reported in the table. Using Chi square tests, we found that blacks were less likely to report sleeping 7 hours compared with whites [23% vs. 30%, $p < 0.0001$].

Specifically, we observed a characteristically greater prevalence of short sleep (≤ 5 hrs) among blacks [12% vs. 8%, $p < 0.0001$].

Blacks had a greater prevalence of obesity (BMI ≥ 30 kg/m²) than did whites [52% vs. 38%, $p < 0.0001$]. Short sleep was associated with obesity among both blacks and whites [OR = 2.22, 95% CI: 1.68-2.95, $p < 0.0001$; and OR = 1.82, 95% CI: 1.60-2.07, $p < 0.0001$, respectively].

Multivariate-adjusted odds ratios for blacks and whites were 1.78 [95% CI: 1.30-2.45, $p < 0.0001$] and 1.43 [95% CI: 1.24-1.66, $p < 0.0001$], respectively. Sociodemographic and medical risk factors were adjusted.

Conclusions

Race/ethnicity of participants significantly influenced the risk of obesity associated with short sleep duration. An excess of 35% of blacks showed greater obesity risk associated with short sleep.

Conceivably, short sleep duration among some black participants might reflect undiagnosed sleep apnea, which has a 3-fold greater prevalence in that population, relative to whites.²

Further research is needed to examine the mediators of excess risk in the black population.

References

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2. Redline, S., Tishler, P., Hans, M., et al. Racial differences in sleep-disordered breathing in African-Americans and Caucasians. *Am J Respir Crit Care Med* 1997, 55:186-192.