

Association between diet quality and sleep apnea in the Multi-Ethnic Study of Atherosclerosis

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Abstract

Rationale

Although short sleep duration has been linked to unhealthy dietary patterns, little is known about the association of obstructive sleep apnea (OSA), a disorder characterized by sleep fragmentation and diet.

Study Objectives

Investigate associations between diet quality and OSA in the Multi-Ethnic Study of Atherosclerosis and assess whether reductions in slow-wave sleep (stage N3) and rapid eye movement (REM) sleep are potential mediators for these associations.

Methods

A diverse population ($N = 1813$) completed a food frequency questionnaire and underwent Type 2 in-home polysomnography, which included measurement of N3 and REM sleep and apnea–hypopnea index (AHI). Moderate-to-more severe OSA was defined as having an AHI > 15 events/hr.

Results

Participants were 53.9% female with a mean age of 68.3 ($SD\ 9.1$) years. Approximately 33.8% were categorized as having moderate-to-more severe OSA. In adjusted analyses, OSA was associated with lower intakes of whole grains, ($\beta = -0.200$, $SE = 0.072$, $p < 0.01$), higher intakes of red/processed meat, ($\beta = -0.440$, $SE = 0.136$, $p < 0.01$), and lower overall diet quality ($\beta = -1.286$, $SE = 0.535$, $p = 0.02$). Stage N3 sleep partially explained the associations between red/processed meat and overall diet quality score with OSA.

Conclusions

Moderate-to-more severe OSA is associated with a less healthy dietary profile that is partially explained by reduced N3 sleep. These findings suggest the opportunity to target sleep quality in interventions aimed at improving cardio-metabolic risk factors in patients with OSA.

[OSA](#), [diet quality](#), [slow-wave sleep](#), [Alternative Health Eating Index](#)

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