

Loud Snoring, Insomnia Symptoms Linked to Risk for Metabolic Syndrome

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Loud snoring, difficulty falling asleep and “un-refreshing” sleep may each predict development of the metabolic syndrome....

Lead author Wendy M. Troxel, PhD, assistant professor of psychiatry and psychology at the University of Pittsburgh, Pennsylvania, stated in a news release, “This is the first prospective study to show that a broader array of commonly reported sleep symptoms, including insomnia and sleep-disordered breathing symptoms, predict the development of the metabolic syndrome, a key risk factor for cardiovascular disease.” “It was rather striking that the effects of difficulty falling asleep and loud snoring were largely independent of one another.”

The study sample consisted of 812 participants in the community-based Heart Strategies Concentrating on Risk Evaluation study who were free of metabolic syndrome or diabetes at baseline, who had completed a baseline sleep questionnaire (including the Insomnia Symptom Questionnaire and the Multivariable Apnea Prediction Questionnaire), and who were assessed for metabolic syndrome 3 years after baseline. Two thirds of participants were women, and 36% were African American.

A subset of 290 participants underwent cross-sectional determination of the apnea-hypopnea index (AHI) using a portable monitor. The risk for the development of metabolic syndrome and its components was calculated for insomnia syndrome as well as for individual insomnia symptoms with use of logistic regression.

During 3-year follow-up, metabolic syndrome was diagnosed in 14% of participants (n = 115). Significant predictors of development of the metabolic syndrome were difficulty falling asleep (DFA; odds ratio [OR], 1.81) and un-refreshing sleep (OR, 1.71) but not a syndromal definition of insomnia, difficulty staying asleep, or frequent awakening from sleep.

Loud snoring was associated with more than twice the risk for the development of the metabolic syndrome (OR, 2.30) and also with the specific metabolic abnormalities of hyperglycemia (OR, 2.15) and low high-density lipoprotein cholesterol level (OR, 1.92).

Loud snoring remained a significant predictor of metabolic syndrome even after additional adjustment for AHI (OR, 3.01) or for the number of baseline metabolic abnormalities. However, the predictive value of DFA and un-refreshing sleep were only marginally significant after this adjustment. Logistic regression showed that both loud snoring and DFA remained significant independent predictors of the metabolic syndrome.

“Difficulty falling asleep, un-refreshing sleep, and, particularly, loud snoring, predicted the development of metabolic syndrome in community adults,” the study authors write. “Evaluating sleep symptoms can help identify individuals at risk for developing metabolic syndrome.”

Limitations of this study include cross-sectional nature of the AHI assessment, AHI assessed in a relatively small subsample of the study cohort, and AHI determined via nasal airflow. The study also lacked a direct measure of intermittent hypoxemia, objective measures of sleep disturbances, and a measure of sleep duration.

“To better understand the putative mechanisms linking sleep disturbances with cardiovascular risk, future prospective studies should examine the combination of subjective sleep complaints in conjunction with physiological indicators of poor sleep in relation to cardiovascular morbidity and mortality,” the study authors conclude. “Given that in the general population, sleep complaints are considerably more prevalent than either insomnia or obstructive sleep apnea syndromes, these findings have far-reaching implications for public health, particularly given epidemic levels of obesity and its associated cardiometabolic consequences, which are associated with sleep disturbances.”

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