

Longitudinal Association of Sleep-Related Breathing Disorder and Depression

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Background Sleep-related breathing disorder (SRBD) and depression have each been independently associated with substantial morbidity, impairment, and disability. The development of clinical strategies for screening and managing depression in patients with SRBD requires elucidation of the association between the 2 conditions. This population-based epidemiological study assesses SRBD as a longitudinal predictor of depression.

Methods Men (n = 788) and women (n = 620) randomly selected from a working population were evaluated for SRBD by in-laboratory polysomnography and for depression by the Zung depression scale. Results of multiple studies, performed at 4-year intervals, were available for most participants. Sleep-related breathing disorder was characterized by the apnea-hypopnea index (AHI; events per hour) categories: AHI = 0, no SRBD; $0 < \text{AHI} < 5$, minimal SRBD; $5 \geq 15$, moderate or worse SRBD. Depression was defined as a score of 50 or higher on the Zung scale or use of antidepressants. Potential confounding, interacting, and mediating factors were assessed by clinical measurements and questionnaires.

Results In purely longitudinal models, an increase of 1 SRBD category (eg, from minimal to mild SRBD) was associated with a 1.8-fold (95% confidence interval, 1.3-2.6) increased adjusted odds for development of depression. In adjusted models combining longitudinal and cross-sectional associations, compared with participants with no SRBD, the odds for development of depression were increased by 1.6-fold (95% confidence interval, 1.2-2.1) in participants with minimal SRBD, by 2.0-fold (95% confidence interval, 1.4-2.9) in participants with mild SRBD, and by 2.6-fold (95% confidence interval, 1.7-3.9) in those with moderate or worse SRBD.

Conclusion Our longitudinal findings of a dose-response association between SRBD and depression provide evidence consistent with a causal link between these conditions and should heighten clinical suspicion of depression in patients with SRBD.

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