

Sleep Apnea Raises Dementia Risk in Older Women

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STORY AT-A-GLANCE

- › A 10-year study reveals sleep apnea significantly increases dementia risk, with women facing a 4.7% higher risk by age 80 compared to 2.5% for men
- › Approximately 30 million Americans have sleep apnea, but 80% remain undiagnosed, leading to increased health risks over time
- › Sleep apnea disrupts your brain's waste-clearing glymphatic system and causes intermittent oxygen deprivation, contributing to inflammation
- › While CPAP is considered the “gold standard” treatment, alternatives like custom-fitted mouth guards and orofacial myofunctional therapy provide effective options with fewer side effects
- › Simple lifestyle changes, including proper breathing, side sleeping, weight management, and avoiding alcohol and sedatives, significantly reduce sleep apnea symptoms and protect brain health

Sleep apnea is a common yet often undiagnosed sleep disorder characterized by repeated interruptions in breathing during sleep. These interruptions, known as apneas, last from a few seconds to minutes and may occur multiple times an hour. The most prevalent type, obstructive sleep apnea (OSA), occurs when the muscles in your throat relax excessively, causing a blockage of your airway.

Symptoms include loud snoring, excessive daytime sleepiness and restless sleep, which significantly impacts your quality of life. About 6 million Americans have been

diagnosed with sleep apnea, but estimates suggest up to 80% of adults with OSA remain undiagnosed.¹ This means closer to 30 million Americans struggle with sleep apnea, most without realizing it.²

This high prevalence underscores the importance of awareness and screening, especially since OSA is not only disruptive but also linked to several serious health conditions. Men are generally more likely to be diagnosed with OSA than women, but research indicates that women may suffer more severe consequences from the disorder, particularly concerning cognitive health.³

The Link Between Sleep Apnea and Dementia

Findings from a comprehensive 10-year longitudinal study published in *SLEEP Advances* highlight a connection between known or suspected OSA and the risk of developing dementia, particularly among older women.

The study analyzed data from the Health and Retirement Study (HRS), encompassing 18,815 participants aged 50 and above who were dementia-free at the study's outset. By tracking these individuals over a decade, researchers aimed to uncover how OSA influences the likelihood of developing dementia.

The results were revealing. Both women and men with known or suspected OSA showed a higher cumulative incidence of dementia compared to those without OSA. Notably, by the age of 80, women with OSA had a 4.7% higher risk of developing dementia, whereas men had a 2.5% increased risk.⁴ Even after adjusting for factors such as race, education and cohabitation status, the association remained significant, emphasizing that OSA is an independent risk factor for dementia.

Why Older Women Are Particularly at Risk

The study reveals that women with OSA face a disproportionately higher risk of dementia. Several factors contribute to this sex-specific vulnerability. Women with untreated OSA often experience more severe symptoms, including poorer sleep quality,

increased fatigue, anxiety and depression.⁵ These downstream effects have a more pronounced impact on cognitive function over time.

Additionally, women are more likely to suffer from cardiovascular complications related to OSA, such as high blood pressure and heart disease, which are themselves risk factors for dementia. The intersection of OSA with other health conditions likely exacerbates cognitive decline in women, making them more susceptible to dementia compared to their male counterparts.

A significant challenge in addressing OSA-related dementia risk is the high rate of undiagnosed cases. The study employed an adapted version of the STOP-Bang questionnaire, a validated screening tool, to identify both diagnosed and suspected cases of OSA.

By capturing these undiagnosed cases, the research provides a more accurate estimate of the true prevalence of OSA and its impact on cognitive health. This is important because undiagnosed OSA remains untreated, allowing the disorder to persist and accelerate cognitive decline. Early identification and treatment of OSA could therefore play a pivotal role in reducing the risk of dementia, especially in older women who are already at a higher risk.

The relationship between OSA and dementia is complex, involving several biological and physiological mechanisms. Chronic interruptions in breathing during sleep lead to intermittent hypoxia (low oxygen levels) and fragmented sleep, both of which cause significant stress on the brain.

This stress may contribute to the accumulation of **amyloid beta and tau proteins**, hallmark features of Alzheimer's disease, the most common form of dementia. Furthermore, OSA is associated with systemic inflammation, which impairs cognitive function and promotes neurodegeneration.

Sleep Consolidation – A Key Player in Cognitive Function

Beyond the well-established risks associated with OSA, research underscores the role of sleep consolidation in maintaining cognitive health as you age. Sleep consolidation refers to the uninterrupted, continuous sleep that allows your brain to cycle effectively through the various stages of sleep, including deep restorative phases.

A study published in JAMA Network Open involving 5,946 middle-aged to older adults revealed that better sleep maintenance efficiency – essentially, fewer awakenings during the night – and reduced wake time after sleep onset are strongly associated with superior global cognitive function.⁶

Imagine your sleep as a symphony, where each instrument represents a different stage of sleep. When your sleep is consolidated, these "instruments" play harmoniously without disruptive pauses.

This seamless progression through sleep stages is involved in processes like memory consolidation, where your brain organizes and stores the information you've gathered throughout the day. Disruptions in this flow impair your ability to recall memories, solve problems and maintain attention – key components of cognitive health.

In short, improving the continuity of your sleep is important for preserving cognitive function and addressing sleep apnea, which leads to fragmented sleep, is part of that equation. According to the study, "poorer sleep consolidation and prevalent OSA were associated with poorer global cognition within five years,"⁷ adding support for the importance of addressing OSA to prevent cognitive decline.

Understanding the Biological Mechanisms Linking OSA and Dementia

The relationship between OSA and dementia reveals a complex web of biological mechanisms that underpin this association. One of the primary mechanisms involves intermittent hypoxia, a hallmark of OSA. During apneic episodes, your oxygen levels drop, leading to periods of low oxygen followed by reoxygenation. This cyclical pattern generates oxidative stress and inflammation within your brain.⁸

Another pathway is the glymphatic system, responsible for clearing metabolic waste from your brain. OSA-induced intrathoracic pressure swings disrupt the normal flow of cerebrospinal fluid, impairing the glymphatic clearance of amyloid beta.

Sleep fragmentation also plays a significant role. Continuous sleep is essential for processes like memory consolidation and synaptic remodeling. When sleep is fragmented, these processes are compromised, leading to deficits in memory, attention and executive functions.⁹ Over time, this chronic disruption contribute to the gradual decline in cognitive abilities observed in dementia.

Moreover, the chronic intermittent hypoxia and increased sympathetic activity associated with OSA contribute to cardiovascular issues, creating a vicious cycle that put both heart health and cognitive function at risk.

Neuroimaging studies have provided tangible evidence of the impact of OSA on brain structure. Patients with OSA often exhibit white matter lesions and grey matter atrophy in regions critical for cognitive processing. These structural changes correlate with impairments in memory, executive function and processing speed, further linking OSA to cognitive decline and dementia.¹⁰

Mouth Guards, OMT and CPAP for Sleep Apnea Treatment

Continuous positive airway pressure (CPAP) is considered the "gold standard" for treating OSA.¹¹ This therapy involves a small device that delivers a steady stream of air through a mask worn over your mouth, nose or both. The continuous air pressure prevents your airway from collapsing during sleep, maintaining oxygen levels and enhancing sleep quality.

However, CPAP therapy has its drawbacks. Some individuals may feel claustrophobic wearing the mask, and common side effects include nasal congestion, dry mouth and eyes, and facial sores from the mask's pressure points. As an alternative, **mandibular advancement devices** (MADs), a type of mouthguard, offer effective treatment with fewer side effects compared to CPAP.

MADs are custom-fitted by dentists in collaboration with sleep specialists. These devices consist of two parts that fit over your upper and lower teeth, connected by a mechanism that gradually advances your lower jaw forward. This repositioning moves the base of your tongue away from the airway, reducing the likelihood of obstruction.

Dentists perform a thorough examination and take X-rays to determine the precise amount your lower jaw needs to be moved to keep the airway open. Adjustments are made gradually to avoid altering your bite or causing jaw discomfort.

Another treatment option is [orofacial myofunctional therapy](#) (OMT). OMT focuses on the neuromuscular re-education of your oral and facial muscles through exercises and behavior modification techniques. These practices promote proper tongue placement, enhance breathing, chewing and swallowing, and correct head and neck postures. OMT is particularly effective for treating mild to moderate sleep apnea and offers significant benefits.

Lifestyle Modifications to Alleviate Sleep Apnea

[Dysfunctional breathing habits](#) sabotage your health and worsen conditions like sleep apnea. I recommend consulting with a breathing behavior analyst to help you become conscious of your breathing habits, what's triggering them and how to resolve them. This is an important step in managing sleep apnea.

In addition to proper breathing, adopting specific lifestyle changes significantly reduce sleep apnea symptoms, including snoring. Depending on the severity of your condition, these adjustments are often highly effective.¹²

- **Maintain a healthy weight** — Obesity is a risk factor for sleep apnea. If you're overweight or obese, losing even 10% of your body weight can lead to noticeable improvements in sleep apnea symptoms.
- **Choose the right sleep position** — Back sleeping often worsens sleep apnea because it allows your tongue and soft palate to fall backward, blocking your airway. Instead, try sleeping on your side or stomach, or with your upper body elevated.¹³ To

avoid rolling onto your back while sleeping, try simple tricks like attaching a tennis ball to the back of your pajamas or using strategically placed pillows.

- **Avoid alcohol and smoking** – Both alcohol and smoking make sleep apnea symptoms worse. Alcohol relaxes your throat muscles, increasing the risk of airway obstruction, while smoking leads to inflammation and fluid retention in your airway.
- **Steer clear of benzodiazepines** – These sedative medications worsen sleep apnea by further relaxing your throat muscles, making airway obstruction more likely.

Embracing this knowledge empowers you to make informed decisions about your health, ensuring that you can enjoy a better quality of life with reduced risks of cognitive decline. Avoid letting sleep apnea silently contribute to your cognitive challenges – seek evaluation and holistic treatment to safeguard your brain health for the future.

Sources and References

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