

## Women with sleep apnea are more likely to be diagnosed with cancer than men

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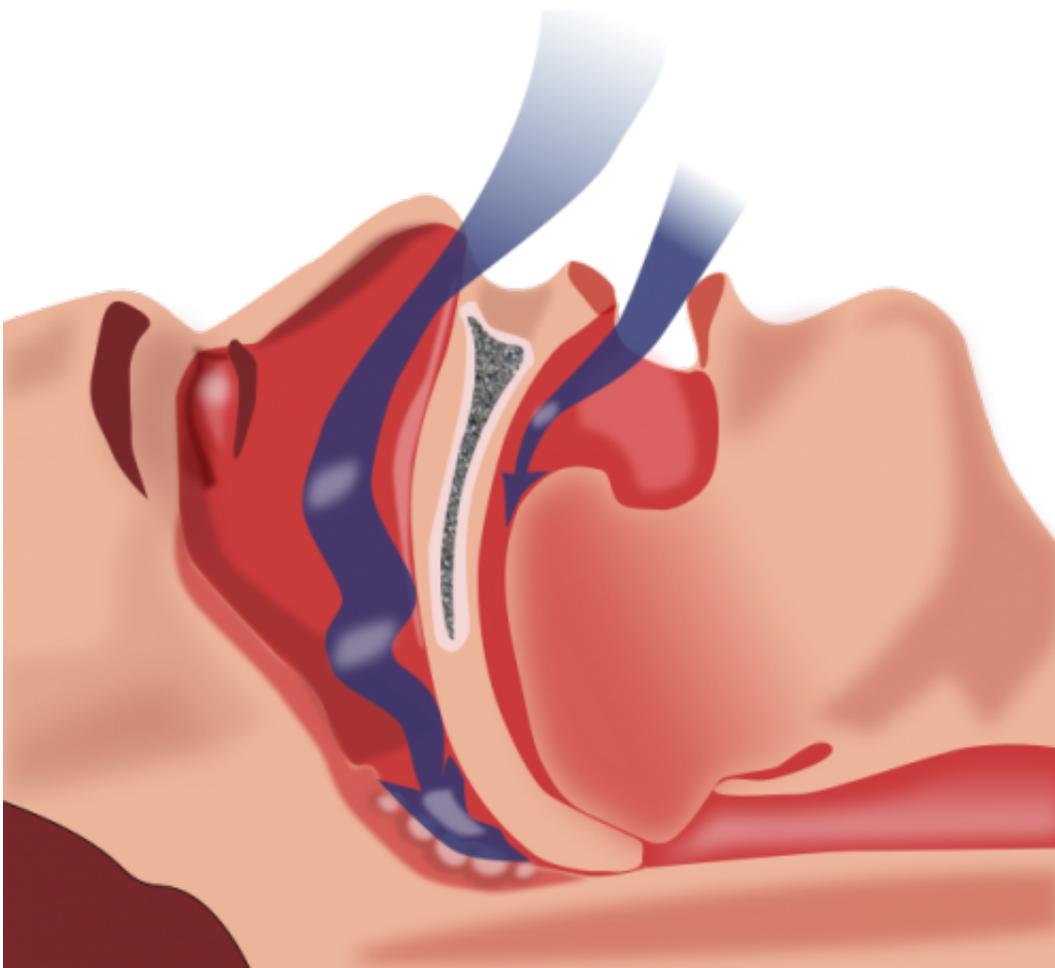


Illustration of obstruction of ventilation. Credit: Habib M'henni / public domain

A study of more than 19,000 people has found that women with

obstructive sleep apnoea (OSA) are more likely to be diagnosed with cancer than men with the condition, according to research published in the *European Respiratory Journal*.

OSA, where the airways close completely or partially many times during sleep, reduces the levels of oxygen in the blood, and [common symptoms](#) include snoring, disrupted sleep and feeling excessively tired. The new study suggests that people who experience more closures of the airways during sleep and whose blood oxygen saturation levels drop below 90% more frequently are more likely to be diagnosed with cancer than people without OSA.

The study also found that cancer was more prevalent among [women](#) with OSA than men, even after factors such as age, body mass index (BMI), smoking status and [alcohol consumption](#) were taken into account, suggesting women with OSA may be at greater risk of being diagnosed with cancer than men with OSA.

The study was led by Athanasia Pataka, who is Assistant Professor of Respiratory Medicine at Aristotle University and works at the George Papanikolaou General Hospital of Thessaloniki, Greece. She explained: "Recent studies have shown that low blood oxygen levels during the night and disrupted sleep, which are both common in OSA, may play an important role in the biology of different types of cancers. But this area of research is very new, and the effects of gender on the link between OSA and cancer have not been studied in detail before."

The researchers analysed data from 19,556 people included in the European Sleep Apnoea Database (ESADA), an international multi-centre study that includes patients with OSA, to explore the link between OSA severity, low blood oxygen levels and cancer development. The participants included 5,789 women and 13,767 men in total, who were also assessed for their age, BMI, smoking status and level of alcohol use,

as these factors can impact the risk of developing cancer.

To assess OSA severity and the link with developing cancer, the researchers looked at how many times the participants experienced partial or complete airways closure per hour of sleep, and how many times during the night their blood oxygen levels dropped below 90%.

The data showed that among the ESADA participants, 388 people (2%) had been diagnosed with a serious cancer; this included 160 women and 228 men, which is 2.8% of all women and 1.7% of all men in the ESADA group. Those who were diagnosed with cancer were likely to be over 50 years of age and less overweight, and the most common type of cancer among women was breast cancer, while prostate cancer was the most prevalent among men.

When the researchers analysed the data again according to the participants' sex, they found that the odds of cancer diagnosis were higher in women with severe OSA and who had more severely lowered blood oxygen levels during sleep compared with women without OSA. But this trend was not the same when comparing men with OSA versus men without OSA, even after the research team accounted for the other variables that could impact the risk of developing cancer, such as BMI, age, smoking status and alcohol use, which suggests that women with OSA are more likely to develop cancer than men with OSA.

Professor Pataka explained their results: "Our study of more than 19,000 people shows that severity of OSA is linked to a cancer diagnosis. This link was especially strong in the women that we analysed, and less so in the men, and suggests that severe OSA could be an indicator for cancer in women, though more research is needed to confirm these findings.

"Our study did not explicitly explore the causes of different cancers, but cancer may differ between men and women because of factors such as

how hormones affect tumour growth; how the different types of cancer that were more prevalent in men and women are affected by low blood oxygen levels; or how gender specific exposure to cigarette smoking may play a role."

Professor Pataka added: "The classic symptoms of OSA such as sleepiness, snoring and stopping breathing during the night time are reported more frequently in men, but other lesser known symptoms like fatigue, insomnia, depression and morning headaches are more common in women, therefore clinicians should be more careful when evaluating their [female patients](#) for possible OSA."

The researchers note that their analysis did not account for other factors that may affect cancer risk, such as participants' physical activity, marital status, education level and occupation, which potentially limits the study. They also stressed that their results cannot show that OSA causes the increased risk of cancer, only that there is an association between the two, and say that further research is needed to understand how OSA symptoms and treatment may affect cancer.

Professor Anita Simonds is a Consultant in Respiratory and Sleep Medicine at Royal Brompton and Harefield NHS Foundation Trust, UK and Vice President of the European Respiratory Society, and was not involved in the research. She said: "This study adds to the growing evidence on the possible link between the effects of OSA such as low blood oxygen levels and the risk of developing cancer, and provides new data on potential gender differences.

"In this study the overall cancer prevalence was low at just 2%, therefore OSA patients should not be alarmed by this research. Clinicians should continue to be vigilant when assessing patients with possible OSA, especially among women who may present with less common symptoms. Both female and male OSA patients should be advised to adhere to

therapy and follow a healthy lifestyle to manage their condition most effectively, including by being physically active, achieving ideal body weight, limiting alcohol use and not smoking."

The research team plan to conduct a follow-up study to evaluate the number of cancer diagnoses and [cancer](#) deaths in the ESADA population with OSA, and to look at specific cancers in more detail and how OSA treatment may affect outcomes.

**More information:** Athanasia Pataka et al, Cancer prevalence is increased in females with sleep apnoea – data from the ESADA, *European Respiratory Journal* (2019). [DOI: 10.1183/13993003.00091-2019](#)

Provided by European Lung Foundation

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