

# COPD patients experience poorer sleep quality and lower blood oxygen levels

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Patients with chronic obstructive pulmonary disease (COPD) experience poorer sleep quality than people of a similar age without COPD, according to research published in the journal *Respirology*.

Researchers also found an independent relationship between how well patients with COPD slept and the [oxygen levels](#) in their [arterial blood](#).

"Patients with COPD frequently report fatigue, sleepiness and impaired quality of life," says Professor Walter McNicholas from the Department of Respiratory and [Sleep Medicine](#) at St. Vincent's University Hospital, Dublin, Ireland.

"The study carried out by our group, which has been researching sleep and breathing for more than 25 years, showed that such patients experience poor [sleep quality](#), which may contribute to these debilitating symptoms."

COPD is the name for a collection of [lung diseases](#), including chronic bronchitis, emphysema and chronic obstructive airways disease. People with COPD have trouble breathing in and out because of long-term damage to their lungs, usually because of smoking. COPD is now the fourth leading cause of chronic death and ill health in the USA and is projected to rank fifth in the burden of disease worldwide.

The current study provides a secondary analysis of two previously published trials investigating the impact of long-acting bronchodilators

on night-time [oxygen saturation](#) in 106 patients with established, moderate to severe COPD. Bronchodilators make breathing easier by relaxing the muscles in the lungs and widening the airways.

Poor sleep quality was measured in a number of ways, including a reduced percentage of [rapid eye movements](#) (REM), which occur during the deepest level of sleep.

The patients covered by the study had an average age of just over 66 years, 67 per cent were male and all were current or former smokers, with a smoking history of ten or more years. Strict clinical criteria were applied to the subjects, which are outlined in full in the paper.

Key findings of the study included:

- Patients with severe COPD experienced poorer sleep quality than people without COPD of a similar age.
- Daytime hypoxemia (low arterial blood oxygen levels) is associated with sleep efficiency, but airflow obstruction is not. Hypoxemia is thought to impact on certain neurotransmitter levels and these mechanisms can contribute to poor sleep efficiency.
- COPD patients took longer to fall asleep than the age-matched controls after the lights had been turned off (sleep latency) and spent less of their time in bed sleeping (sleep efficiency). They also experienced greater differences in the way they slept, with more sleep at the lightest level (stage one) and less at REM (stage five, the deepest level). Slow wave sleep (stages three and four) was reasonably well preserved.

"Our study highlights poor sleep quality in patients with COPD and demonstrates an association between daytime hypoxemia and sleep

efficiency," concludes Professor McNicholas.

"However, sleep quality in COPD is determined by several factors and further studies on this topic are necessary to fully evaluate the relationship. This may identify therapeutic interventions that might improve the overall quality of life in COPD patients."

**More information:** [doi.wiley.com/10.1111/j.1440-1843.2012.02217.x](https://doi.wiley.com/10.1111/j.1440-1843.2012.02217.x)

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