

Sleep deficiency increases risk of a motor vehicle crash

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Excessive sleepiness can cause cognitive impairments and put individuals at a higher risk of motor vehicle crash. However, the perception of impairment from excessive sleepiness quickly plateaus in

individuals who are chronically sleep deprived, despite continued declines in performance. Individuals may thus be unaware of their degree of impairment from sleep deficiency, which raises the question of whether these individuals are at an increased risk of motor vehicle crash. A team of researchers from Brigham and Women's Hospital addressed this question and their results are published in *BMC Medicine*.

"We found that chronically sleep-deprived individuals don't perceive themselves as being excessively sleepy and thus don't perceive themselves as impaired," said lead author Daniel J. Gottlieb, MD, MPH, associate physician in the Division of Sleep and Circadian Disorders at BWH. "This resulted in an increased risk of [motor vehicle crashes](#) in sleep-deprived individuals."

The prospective study examined the relationship between motor vehicle crashes and two common causes of sleep deficiency - insufficient sleep duration and [obstructive sleep apnea](#). The cohort in the study were participants in the Sleep Heart Health Study, a community-based study of the health consequences of sleep apnea, comprised of 1,745 men and 1,456 women between the ages of 40 and 89.

Obstructive sleep apnea is a chronic sleep disorder in which breathing repeatedly starts and stops during sleep, drastically reducing the quality of sleep and increasing sleepiness. An estimated one-sixth of adult women and one-third of adult men in the U.S. suffer from obstructive sleep apnea. Insufficient sleep duration is also common in the U.S. population, with an estimated 25-30 percent of U.S. adults sleeping six or fewer hours per night, a duration associated with excessive sleepiness.

Severe sleep apnea was associated with a 123 percent increased risk of motor vehicle [crash](#), and mild to moderate sleep apnea was associated with a 13 percent increased risk of motor vehicle crash. These numbers were in comparison to those with no sleep apnea. Sleeping six hours per

night was associated with a 33 percent increased crash risk, compared to sleeping seven or eight hours per night. Gottlieb added that this [increased risk](#) of crash was independent of an individual's self-reported sleepiness.

"To help reduce these crash risks we need to identify individuals with [sleep apnea](#) and ensure they are properly treated for their apnea. We also need to increase public awareness of the importance of a good night's sleep to reduce the percentage of the population with insufficient sleep duration," said Gottlieb. "Ultimately, we would like to be able to identify a biomarker for cognitive impairments due to [excessive sleepiness](#)."

This study used data from the Sleep Heart Health Study which was supported by National Heart, Lung and Blood Institute.

More information: Daniel J. Gottlieb et al. "Sleep Deficiency and Motor Vehicle Crash Risk in the General Population: A Prospective Cohort Study" *BMC Medicine* DOI: doi.org/10.1186/s12916-018-1025-7

Provided by Brigham and Women's Hospital

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