

Assaults decrease by three percent the Monday after Daylight Saving

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On Sunday, Nov. 5, Daylight Saving Time officially ends. That means as we "fall back," we add an hour of sleep and return to Standard Time. When DST officially begins, which happened this year on Mar. 12, we lose that same hour.

Much has been studied about long-term effects of [sleep deprivation](#). For

instance, work by Adrian Raine, the Richard Perry University Professor of Criminology, Psychiatry and Psychology, connected daytime drowsiness at age 15 to violence at age 24.

But fourth-year criminology doctoral student Rebecca Umbach wanted to better understand what happens immediately following [sleep loss](#) in the short term. Working with Raine and criminologist Greg Ridgeway, an associate professor of criminology and statistics, Umbach hypothesized that after a night with an hour less sleep—like what happens the Monday starting DST—people would become more antagonistic.

"In the spring, the day after we move into Daylight Saving Time, there are more car accidents, greater stock market losses, more workplace injury, reduced test scores, and higher suicide rates," Ridgeway says.

Their research, however, told a different story: On Mondays after the start of DST, the overall assault rate dropped by about 3 percent, findings the researchers published in the *Journal of Experimental Criminology*.

"Sleep problems have previously been associated with increased antisocial and criminal behavior, so we were surprised to find that increased sleep was associated with increased offending," Raine says. "This discrepancy is likely due to the fact that 40 to 60 minutes of lost sleep in one night is just not the same as months, or even years, of poor sleep."

The researchers also looked at the fall [time](#) change, when we regain that hour of sleep. Though they found that assaults rose by about 3 percent the next day—a mirror image of the spring findings—they say their supporting evidence here isn't as robust.

Regardless, the researchers say it is challenging to explain why these results occurred. Umbach surmises it may relate to internal biases.

"You think, 'If I don't get a lot of sleep, I'm going to be cranky and angry.' You assume that's the way you would react," she says. "Your intention is to act more aggressively, but your behavior does not reflect that because you're tired. You're too lethargic and sleepy to act."

Daylight Saving Time made for a logical study subject. For one, research has shown that we tend to lose sleep because of the time switch, as opposed to anticipating the shift and going to bed early. Secondly, nearly any other Monday of the year could, in theory, act as a control; to isolate sleep as the explanatory variable—rather than changes in weather or daylight, say—the Penn researchers chose the Monday the week after each time switch. Finally, a large database called the National Incident-Based Reporting System tracks the time, date, and details of individual crimes for many cities across the country. The researchers supplemented this with data from New York, Chicago, Los Angeles, and Philadelphia.

Though the researchers don't currently have plans for follow-up, Raine says anyone who ignores the morning alarm ring might take heed.

"Before we hit that snooze button, perhaps we should stop and think," he says. "Hit the button and we might end up at least a little grumpier at work, and possibly more aggressive."

More information: Rebecca Umbach et al, Aggression and sleep: a daylight saving time natural experiment on the effect of mild sleep loss and gain on assaults, *Journal of Experimental Criminology* (2017). [DOI: 10.1007/s11292-017-9299-x](https://doi.org/10.1007/s11292-017-9299-x)

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