

# Late sleep-wake time preference linked to depression in individuals with diabetes

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People with type 2 diabetes who are "night owls" and prefer the evening for activity report having more symptoms of depression than those who are early to bed and early to rise, regardless of the quality of their sleep, a new study finds. Study results are being presented Saturday at the Endocrine Society's 99th annual meeting in Orlando, Fla.

"These findings are important because [depression](#) is common in patients with type 2 diabetes," said lead investigator Sirimon Reutrakul, M.D., an associate professor at Mahidol University Faculty of Medicine, Bangkok, Thailand. "Also, previous studies show that untreated depression is related to worse patient outcomes, including diabetes self-care, blood glucose control and diabetes complications."

In the general public, people with a later "chronotype," meaning a preference to go to bed late and wake up late, tend to have more symptoms of depression than do people who go to bed early and wake up early (early chronotype or morning preference), past studies have found.

Reutrakul and her co-investigators wanted to study people with type 2 diabetes, who have an increased risk of depression, to learn whether a later chronotype, or preference for evening activity, was independently associated with greater depression symptoms.

Because chronotype may differ by geographic location, with a greater morning preference near the equator, the investigators studied diabetic patients from two different geographic regions: Chicago and Thailand. They received research funding from Rush University Medical Center in Chicago, Mahidol University Faculty of Medicine Ramathibodi Hospital in Bangkok and the Endocrine Society of Thailand.

The U.S. group consisted of 194 patients, 70 percent of whom were women. Similarly, in the Thai group, women comprised 67 percent of 282 patients. All participants answered questionnaires regarding symptoms of depression, [sleep quality](#) and preferred times for activity and sleep. Chicago patients answered the questionnaires between February and early April, whereas in Thailand, which has little seasonal variation, patients participated throughout the year, Reutrakul said.

For both groups, those who preferred the evening reported more depression symptoms than did those with a morning preference. This result remained even after the researchers adjusted their statistical analyses for sleep quality, age, sex and other factors that could affect depression.

Their findings, Reutrakul said, support an association between circadian regulation and psychological functioning in patients with type 2 diabetes. She pointed out, however, that they did not prove cause and effect and that the strength of the association was "only modest."

"We need further research to explore a combination of interventions that help with circadian timing, such

as light therapy and melatonin," she said. "Learning more about the relationship between depression and circadian functioning might help us figure out strategies to improve physical and mental health for [patients](#) with [diabetes](#)."

Provided by The Endocrine Society

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