

Beta-blockers not likely to cause depression yet may contribute to sleep disturbances

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Beta-blockers treat various cardiovascular diseases and were not more likely to cause depression compared to other similar treatments, according to new research published today in *Hypertension*, an American Heart Association journal. While depression may occur during beta-blocker therapy, the research suggests beta-blockers are not the likely cause.

Beta-blockers are a class of medications that reduce the [heart rate](#), the heart's workload and the heart's output of blood, which, together, lower blood pressure. They are a common treatment for cardiovascular diseases, including heart failure, arrhythmias, chest pains and high blood pressure. Researchers have suspected beta-blockers of having negative psychological side effects, including depression, anxiety, drowsiness, insomnia, hallucinations and nightmares.

"The possible mental health side effects of beta-blockers have been the subject of discussion in the [scientific community](#) for many decades," says Reinhold Kreutz, M.D., Ph.D., a professor at the Berlin Institute of Health, Institute of Clinical

Pharmacology and Toxicology and the study's supervising and corresponding author. "So, our results showing beta-blockers are not the cause of so many of these negative side effects are quite consequential."

The study is the first of its kind to examine the entire spectrum of mental health side effects in relation to beta-blockers. The researchers analyzed data for more than 50,000 individuals from 258 studies including beta-blockers in double-blind, randomized controlled trials. Nearly 70% of the studies were clinical trials focused on high blood pressure treatment, and 31 assessed depression in placebo-controlled trials.

Results from the comprehensive analysis revealed:

- Despite being the most frequently reported mental health side effect, depression did not occur more frequently during [beta-blocker](#) treatment compared to placebo treatment.
- The rate of discontinuing medication use due to depression was not any different for those taking beta-blockers compared to those on other treatments.
- Unusual dreams, insomnia and sleep disorders may be linked to beta-blockers.
- Among the mental health events analyzed, the most common reason for discontinuing beta-blockers was fatigue/tiredness.

"Our results indicate that concerns about adverse mental health events, especially depression, should not affect the decision about beta blockers. Beta-blockers are mostly safe regarding psychological health," said Kreutz. "We found no indication of an association between beta-blocker use and [depression](#). The same was true for most of the other mental health symptoms, as reported in the studies that were included in our analyses. However, sleep-related symptoms such as unusual dreams or insomnia did emerge during [beta-blocker therapy](#) for some patients."

Kreutz added, "Patients with a history of cardiovascular events such as a heart attack or stroke were prone to develop psychological complications. Though we found beta-blockers were not causally linked, these patients should be monitored."

The original studies did not include individual patient data, so for this analysis, researchers were unable to investigate whether sleep-related symptoms were persistent for those taking beta-blockers. Additional research is needed to address this question.

The researchers report there an important limitation to consider when interpreting the results of their analysis: most beta-blocker trials were conducted more than 20 years ago, before a uniform language to describe adverse events was established. Additionally, the authors only considered randomized, double-blind trials for their analysis, which left out some studies that might provide more data on long-term beta-blocker treatment.

More information: *Hypertension* (2021). [DOI: 10.1161/HYPERTENSIONAHA.120.16590](https://doi.org/10.1161/HYPERTENSIONAHA.120.16590)

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