

Sleep Regularity and Major Adverse Cardiovascular Events



An irregular sleep-wake cycle is linked to an increased risk of major cardiovascular events, such as heart attack and stroke, even in individuals who meet the recommended amount of nightly sleep, according to research published in the *Journal of Epidemiology & Community Health*.

While much of the research on sleep and health has focused on sleep duration, less attention has been given to the impact of irregular sleep patterns—defined as variations in the times people go to sleep and wake up. To investigate further, researchers analysed data from 72,269 participants aged 40 to 79 from the UK Biobank study, none of whom had a history of major cardiovascular events.

Participants wore activity trackers for seven days to monitor their sleep patterns, and their Sleep Regularity Index (SRI) scores were calculated. Those with SRI scores above 87 were classified as regular sleepers, scores below 72 as irregular sleepers, and scores in between as moderately irregular sleepers.

Over an eight-year follow-up period, data on cardiovascular-related deaths, heart attacks, heart failure, and strokes were collected from death registries and hospital records to assess the risk of these events in relation to sleep regularity. After accounting for potential confounding factors—such as age, physical activity, diet, alcohol use, smoking, mental health, medication use, and shift work—researchers found that irregular sleepers were 26% more likely to experience a major cardiovascular event compared to regular sleepers. Moderately irregular sleepers faced an 8% higher risk.

A detailed analysis revealed an almost linear relationship between lower SRI scores (more irregular sleep) and higher cardiovascular risk, with the steepest reduction in risk observed at higher SRI scores (indicating better sleep regularity).

While a higher percentage of regular sleepers met the recommended nightly sleep duration—61% compared to 48% of irregular sleepers—achieving the recommended sleep quota (7–9 hours for adults aged 18–64, and 7–8 hours for those aged 65 and older) did not fully offset the cardiovascular risks for irregular sleepers. However, moderately irregular sleepers who met the recommended sleep duration showed a reduced risk.

While the study is observational and cannot establish causation, and the UK Biobank sample may not fully represent the general population, these findings do highlight that irregular sleep patterns are strongly associated with an increased risk of major adverse cardiovascular events, regardless of whether individuals meet recommended sleep durations.

Study researchers believe that sleep regularity may be more relevant than sufficient sleep duration in modulating the risk of major adverse cardiovascular events (MACE). They emphasise that public health guidelines and clinical practices should place greater emphasis on sleep regularity due to its potential impact on cardiovascular health.

Source: [Journal of Epidemiology and Community Health](#)

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