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Too much or too little: The U-shaped link between sleep duration and hypertension risk in Asian populations

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Dear Editor

The recent publication by Lei Yang and colleagues, titled *"Association of Sleep Duration with Hypertension in Young and Middle-Aged Adults: A Systematic Review and Meta-Analysis,"* [1] contributes significantly to the growing body of literature that redefines our understanding of cardiovascular risk factors. Their meta-analysis, which synthesizes data across multiple studies, provides compelling evidence for a U-shaped association between sleep duration and the risk of hypertension, particularly among young and middle-aged adults in Asian populations.

Hypertension has long been a global health concern, but its growing prevalence among younger individuals—especially in Asia—demands a closer examination of non-traditional risk factors [2]. Yang et al.'s findings highlight a critical, yet often overlooked, variable: sleep. Their research shows that both short (<7 hours) and long (>9 hours) sleep durations are associated with a statistically significant increase in the risk of hypertension, in comparison to the reference category of 7–8 hours of sleep per night. This U-shaped curve suggests that optimal cardiovascular health may hinge on maintaining a balanced sleep schedule—not just avoiding sleep deprivation.

From a pathophysiological perspective, the findings are consistent with known mechanisms. Short sleep duration can lead to heightened sympathetic nervous system activity, dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis, increased cortisol levels, systemic inflammation, and impaired endothelial function—all of which contribute to elevated blood pressure [3]. On the other end of the spectrum, excessive sleep may be a proxy for underlying health issues, including depression, low physical activity, and sleep disorders such as obstructive sleep apnea, which themselves are linked to increased cardiovascular risk [4].

Yang et al.'s emphasis on young and middle-aged Asian adults adds important nuance to the global conversation about cardiovascular risk. The region has witnessed the highest global increase in average blood pressure over the past three decades. Unique cultural, behavioral, and environmental factors—including high academic and occupational stress, irregular work hours, and urbanization—may contribute to both poor sleep hygiene and increased hypertension prevalence in these populations. Moreover, healthcare access and hypertension awareness remain limited in many Asian countries, compounding the risk posed by lifestyle factors such as abnormal sleep duration [5].

This study's implications are far-reaching. Clinicians should consider sleep assessment as part of routine cardiovascular risk screening, particularly for younger adults who may not yet exhibit other traditional risk factors. Public health campaigns should promote not only physical activity and healthy diets but also regular, sufficient, and high-quality sleep.

Future research would benefit from longitudinal designs and objective sleep measurements, such as actigraphy or polysomnography, to further validate these findings and explore underlying mechanisms. Nonetheless, Yang et al.'s study marks a pivotal step in recognizing sleep duration as a modifiable and independent risk factor for hypertension.

Sleep serves not only as a restorative function but also as a vital determinant of cardiovascular well-being. With hypertension increasingly affecting younger populations—particularly in Asia—there is a pressing need to incorporate sleep health into preventive cardiology strategies. Doing so could provide a timely and impactful approach to reducing cardiovascular risk across diverse populations.

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