Insufficient Sleep Duration Affects Cognitive Decline in Middle-aged and Older Adults

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In today's world, insufficient sleep duration has become a burgeoning issue, affecting approximately 35% of people in the US. The proliferation of technology and lifestyle modifications has made it increasingly challenging for many individuals to obtain adequate sleep. The lack of sleep has a negative impact on cognitive function, including attention, memory, language, perception, and problem-solving, which can increase the risk of cognitive disorders like dementia and Alzheimer's disease, thereby affecting overall health. Given the conflicting studies on the impact of sleep duration on cognitive health, this review aims to discern whether insufficient sleep specifically affects cognitive decline in middle-aged and older adults, shedding light on whether it is solely the lack of sleep, sleeping too much, or potentially both that may contribute to cognitive impairments. This review explores mechanisms such as harmful protein buildup (e.g., beta-amyloid, which is associated with Alzheimer's disease), alterations in hormones and neurotransmitters (cortisol, melatonin, acetylcholine), and the impact of sleep duration on brain structure and function. Our results reveals that both insufficient and excessive sleep duration have a significant impact on cognitive decline in middle-aged and older adults, increasing the risk of cognitive impairment and disorders like Alzheimer’s disease. Recognizing the importance of sleep for cognitive health, adopting better sleep habits (e.g., consistent scheduling, relaxing bedtime routine, limited electronic use), can prevent cognitive problems. Adequate sleep positively impacts attention, memory, and problem-solving, supporting overall brain health.