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The Role of Sleep Quality in Physical and Mental Health: A Comprehensive Review of Evidence (2018–2022)

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Abstract **Review Article**

Background: Sleep quality plays a vital role in maintaining physical and mental health. Poor sleep has been linked to cardiometabolic diseases, mood disorders, and cognitive decline (1,2,3). ***Objective:*** To review the scientific evidence from 2018 to 2022 examining the impact of sleep quality on adult health. ***Methods:*** A narrative review of meta-analyses, RCTs, and cohort studies using PubMed and Scopus. Keywords included "sleep quality," "insomnia," "depression," "cardiovascular risk," and "cognition." ***Result:*** Sleep disturbances were associated with a 48% increase in cardiovascular disease (4), a 2–3x increased risk of depression and anxiety (1,6), and poor executive function (9). Cognitive behavioral therapy for insomnia (CBT-I) showed moderate-to-strong effects (2,5). ***Conclusion:*** Addressing sleep quality is essential for prevention and management of chronic conditions.

Keywords: sleep quality, insomnia, depression, cognitive decline, cardiovascular disease.

INTRODUCTION

Sleep quality is now considered a central pillar of health, on par with nutrition and physical activity. Numerous studies have highlighted that insufficient or disturbed sleep is associated with a wide range of adverse outcomes including cardiovascular disease, metabolic syndrome, depression, anxiety, and cognitive decline [1,2,3]. The mechanisms by which sleep influences these systems are complex, involving neuroendocrine, immunologic, and behavioral pathways.

METHODS

A structured narrative review was performed using PubMed and Scopus databases. The search included literature from January 2018 to June 2022 using the keywords: "sleep quality," "insomnia," "depression," "cardiovascular risk," "cognitive decline," and "intervention." Articles selected were systematic reviews, randomized controlled trials (RCTs), and cohort studies involving adults.

Sleep and Mental Health

Insomnia has been associated with a two- to three-fold increased risk of depression and anxiety [1,6,10]. Freeman *et al*. (2020) confirmed that sleep disturbances predict worsening of psychiatric symptoms over time [6]. CBT-I has been shown to significantly improve both sleep quality and comorbid depression symptoms [2,5].

Sleep and Physical Health

A meta-analysis showed that individuals with less than 6 hours of sleep per night had a 48% greater risk of cardiovascular events [4]. Inflammation is one of the mediating pathways, with elevated C-reactive protein (CRP) and interleukin-6 (IL-6) seen in poor sleepers [3,7]. Short sleep is also associated with insulin resistance, obesity, and increased risk of type 2 diabetes [7].

Cognitive and Neurological Outcomes

Scullin and Bliwise (2015) found that fragmented sleep was linked with poorer performance on attention and working memory tasks [8]. Krause *et al*. (2017) demonstrated that sleep deprivation leads to hypoactivation of the prefrontal cortex and impaired decision-making [9].

Interventions and Clinical Strategies

Cognitive Behavioral Therapy for Insomnia (CBT-I) remains the gold standard treatment and has

shown effectiveness in reducing depressive and anxiety symptoms alongside improving sleep [2,5]. Melatonin has demonstrated modest benefits. Mindfulness-based interventions have also yielded improvements [2,6].

Limitations

This review is limited to English-language studies and those available in full text. Many studies rely on self-report rather than objective data like actigraphy or polysomnography.

CONCLUSION

Sleep quality significantly affects both mental and physical health outcomes. The evidence base between 2018 and 2022 highlights the need for clinicians to prioritize sleep screening and treatment.

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