

Review

Relationship Between Sleep Disorders and Mental Health

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Abstract

Sleep disorders refer to a spectrum of conditions that interfere with regular sleep patterns. One of the most frequently reported clinical issues is sleep disturbance. Physiological, neurological, social, and mental well-being can be critically affected by insufficient or non-restorative sleep. Overall, health and quality of life can be impacted by sleep disorders. Mental health and sleep share a significant relationship. It has long been acknowledged that individuals with mental health disorders frequently experience sleep issues. The predominant theory has been that sleep issues are basically signs of the psychiatric disorders that they are interrelated with. The fact that sleep issues are defining characteristics of a number of psychiatric disorders and are included in the diagnostic criteria for these conditions supports this aspect. However, sleep and mental health problems are associated further in diverse ways. Emerging research evidence suggests that the relationship between mental health problems and sleep disorders is complex and includes bi-directional causation, in contrast to the long-held view of this relationship that considered sleep issues as symptoms of psychiatric disorders. An increased prevalence of mental/psychiatric disorders, including anxiety and depression, among certain others, is reported among patients with insomnia, sleep-disordered breathing, and narcolepsy, suggesting sleep disorders as a risk factor for mental health disorders. Although much has been established about the relationship between impaired mental health and sleep, further research is required to elaborately comprehend this relationship. The purpose of this research is to review the available information about the relationship between sleep disorders and mental health.

Keywords: *sleep, disorder, mental, health, relationship*

Introduction

Almost one-third of an individual's life is devoted to sleep, which is a universal function. Insufficient or poor sleep leads to various physiological dysfunctions, including endocrine, metabolic, higher cortical function, and neurological disorders. Sleep disorders are presented as insufficient or an excessive amount of perceived sleep, and abnormal movements during sleep. Sleep disorders are prevalent and can have a negative impact on an individual's well-being and quality of life (1). Sleep, which is considered to be the foundational operating state of the central nervous system, may be one of the most crucial aspects of brain function and mental health. Research studies over the years have demonstrated that sleep alterations are quite common in mental disorders and are linked to poor outcomes for interpersonal, emotional, and cognitive functioning. Novel models stress the transdiagnostic character of sleep disturbances as an indicator of brain and mental health, in contrast to older models that assumed that discrete sleep changes would map to specific mental diseases (2).

Mental disorders are widespread, with a lifetime prevalence of about 25% among the population. Significant quality of life impairments and decreased participation in work and social activities are common in patients with mental disorders (3). Patients with a spectrum of psychiatric diseases have a significant prevalence of sleep disorders, as per several research studies. A bidirectional association between sleep problems and psychiatric disorders has recently been supported by studies using longitudinal epidemiologic assessment approaches. The potential relevance of changes in sleep characteristics to the risk of developing a psychiatric disorder, the risk of relapsing after receiving treatment to the point of remission, to possible biomarkers of familial vulnerability leading to the onset of a psychiatric disorder, and to possible associations and predictors of treatment response have also been supported by a number of instances. The incidence and impact of sleep disorders on psychiatric illnesses represent a particularly important issue, despite the fact that

sleep disturbances are common and have a major negative influence on people in the general population (4).

Sleep disorders and mental health issues are significant public health concerns that have an effect on individuals as well as the community as a whole. Sleep and mental health are closely related and historically, sleep issues have been believed to be the manifestation of mental health issues. Even while this is undeniable, evidence also points to the possibility that sleep issues may play a role in both the development and ongoing persistence of mental health issues. It is currently believed that sleep issues have a bidirectional impact on mental health, possibly influencing both the onset and course of diverse mental health issues. The possibility of a causal link between sleep and mental health also presents the intriguing possibility that treatments aimed at enhancing sleep could also have a positive impact on mental health (5). The purpose of this research is to review the available information about the relationship between sleep disorders and mental health.

Methodology

This study is based on a comprehensive literature search conducted on April 17, 2023, in the Medline and Cochrane databases, utilizing the medical topic headings (MeSH) and a combination of all available related terms, according to the database. To prevent missing any possible research, a manual search for publications was conducted through Google Scholar, using the reference lists of the previously listed papers as a starting point. We looked for valuable information in papers that discussed the relationship between sleep disorders and mental health. There were no restrictions on the date, language, participant age, or type of publication.

Discussion

People with psychiatric diseases frequently have sleep disorders, and the relationship between the two is intricate. Insomnia in particular can precede and predispose to psychiatric problems, coexist with them and make them worse, and even manifest itself as a psychiatric disorder in its own right. Sleep

disturbances can be caused by psychiatric disease medication, or they can mimic psychiatric disorders. Sleep deprivation and mental health problems could be two separate symptoms of the same underlying neurobiological processes. There is a strong overlap and connection between psychiatric and sleep issues (6). Merrill described that the relationship between stress and sleep disorders is complex, frequently bidirectional, and influenced by both direct and indirect factors. Insomnia can both contribute to and result from stress, which accounts for the frequently noted positive correlation between the two conditions. Autonomic nervous system dysfunction, a physical issue, a disease, drug or alcohol addiction, or the presence of another sleep disorder such as sleep apnea can all contribute to hypersomnia. It has been hypothesized that anxiety can lead to hypersomnia, although anxiety may also unintentionally induce hypersomnia by affecting other sleep problems or substance addiction. By limiting deep sleep, obstructive sleep apnea can increase levels of the stress hormone cortisol, which in turn can increase levels of stress. Additionally, stress can lead to unhealthy/negative habits, which increase the risk of sleep apnea. Each of these sleep disorders has generally been demonstrated to be a source of stress, creating a vicious cycle that hurts both physical and mental health (7).

Krystal stated that the emerging theory holds that there are intricate connections between psychiatric diseases and sleep that are characterised by bi-directional causality. For instance, current research suggests that treating sleep disorders can have significant effects on the outcome of treating psychiatric diseases, supporting the long-held belief that treating some psychiatric conditions improves sleep. Additionally, contrary to popular belief, several sleep disorders raise the likelihood of experiencing psychiatric disorder episodes. Additionally, certain treatments are applied to the management of both mental and sleep-related diseases. Furthermore, some treatments for psychiatric diseases may cause sleep disturbances, and some treatments for sleep disorders may make psychiatric disorders more likely to occur. The fact

that sleep deprivation may have therapeutic advantages for some psychiatric disorders but may exacerbate others adds another layer of complexity to the link between sleep and psychiatric disorders (8). Palagini et al. defined that, despite the fact that sleep plays crucial regulatory roles for mental health, sleep disorders, notably insomnia, may encourage a state of allostatic excess that compromises brain neuroplasticity and stresses immunological pathways, ultimately leading to mental diseases. As a risk factor, comorbid condition, and transdiagnostic symptom for many mental diseases, including mood/anxiety disorders and schizophrenia, insomnia may be significant. A hallmark of disturbed neuroplasticity, insomnia may also contribute to the dysregulation of several neurobiological pathways implicated in these various mental illnesses (9).

The association of mental health with some common sleep disorders are briefly described below.

Insomnia

The most prevalent sign of nearly all mental disorders is insomnia. Numerous studies suggest that insomnia may also increase the likelihood of mental health issues other than depression, including anxiety and suicidal thoughts. A brain arousal profile that is linked to an elevated risk for mental disorders is the result of certain hereditary and environmental risk factor combinations. In this procedure, sleeplessness is most certainly a significant risk factor and the results showed that insomnia significantly predicts the development of depression, anxiety, alcoholism, and psychosis (3). Taylor et al. revealed in their findings that insomnia is closely related to mental health issues among the general population. Young adults with insomnia had significantly greater mental health issues than those without it (10). Similarly, Sivertsen et al. concluded in their study that short sleep duration and insomnia are closely related to a number of diseases and ailments. Mental illnesses and physical problems with some degree of psychological or psychosomatic characteristics are the two conditions with which insomnia is most strongly correlated (11).

Numerous studies have shown that having insomnia increases the chance of developing psychiatric disorders including depression, anxiety, and schizophrenia. However, it is unknown how sleeplessness can occur before the onset of psychiatric problems. Both types of insomnia have different pathophysiological mechanisms that may explain why they are related to or at risk for psychiatric disorders. For instance, it is possible that psychological factors like inadequate coping mechanisms and ruminative traits may contribute to the development of depression in insomniacs with normal sleep duration as opposed to biological factors like hyperactivity of the hypothalamic-pituitary-adrenal axis in those with objectively short sleep duration. However, these theories are yet to be tested (12). Results of a meta-analysis revealed a positive relationship between insomnia and depression. Insomnia is strongly linked to a higher chance of developing depression, which has implications for preventing depression in those who have insomnia symptoms but are not depressed (13). Benca likewise described that there are several clinically significant correlations with insomnia. Particularly, those with chronic insomnia are more likely to experience psychological and medical conditions, and insomnia is a significant contributor to the onset of depression. Additionally, insomniacs need medical services more frequently and have a lower quality of life (14).

Sleep-disordered breathing

Naqvi et al. described that obstructive sleep apnea frequently co-occurs with bipolar disorder, schizophrenia (up to 55%), and depression (17%–45%). Some psychotropic agents, such as opioids, can lead to sleep-disordered breathing, while neuroleptic agents can make it worse. Understanding these typical comorbidities may enhance the care and quality of life of psychiatric patients (15). Shoib et al. demonstrated in their study findings that an increased prevalence of anxiety and depression was observed among patients with obstructive sleep apnea (16). Findings of a systematic review exhibited that, despite significant variability and a high risk of bias, prevalence studies suggest that obstructive sleep

apnea may be more common in those with severe depressive disorder and post-traumatic stress disorder. There was limited evidence to suggest increased obstructive sleep apnea in bipolar and associated disorders, anxiety disorders other than post-traumatic stress disorder, and schizophrenia and psychotic disorders. Studies on the management of obstructive sleep apnea show improvements in the condition's symptoms, including psychiatric ones. Major depressive illness and post-traumatic stress disorder may have higher rates of obstructive sleep apnea (17).

Wheaton et al. explained that hypoxia and fragmented sleep have been proposed as potential mediators of the association between obstructive sleep apnea and an elevated risk for depression. Induced oxidative stress, inflammation, or endoplasmic reticulum stress may be the cause of the altered neuronal activity and reduced gray and white matter in the brain that are associated with episodes of obstructive sleep apnea. Correlational studies and interventional studies have provided evidence in support of these mechanisms, albeit some of the results have not been reliable. Higher depression scores were linked to measures of sleep fragmentation in some of these research studies, while trials with a limited study population demonstrated that either continuous positive airway pressure or oxygen supplementation improved general psychological well-being, but only oxygen supplementation improved depression scores. Notably, one study found that artificially induced sleep fragmentation altered mood. The authors further suggested that screening for each of these diseases while the other is present has the potential to lessen some of the burdens of undetected and untreated diseases due to the high prevalence and underdiagnosis of both sleep-disordered breathing and depression (18).

Narcolepsy

The significant co-morbidity of narcolepsy with psychiatric disorders, which is frequently cited as the reason for the delay in diagnosis, has long been noted. However, it is still unknown what causes psychiatric symptoms to manifest. It is assumed that psychiatric symptoms might either be a result of the

disease's chronic, debilitating nature or be a sign of a shared pathophysiology, or both. A better understanding of psychiatric conditions that can be associated with or related to narcolepsy may enhance therapy results. Narcolepsy should be taken into account when making a differential diagnosis for a psychiatric illness. In narcolepsy literature, depressed mood is the psychiatric symptom that is most frequently described. Up to 57% of narcoleptic patients who participated in studies using self-reported questionnaires had depression. The large overlap of symptoms, including disturbed nocturnal sleep, social withdrawal, attention deficit disorder, exhaustion, and weight gain, is usually put forth as the reason for this. As many as 53% of narcolepsy patients have been shown to have anxiety disorders, such as panic attacks and social phobias (19). Ruoff et al. concluded in their study findings that, in comparison to the general population without narcolepsy, Narcolepsy is associated with a large burden of concomitant psychiatric illnesses and a higher utilization of psychiatric medications (20). Similarly, Ohayon concluded that major depressive disorder and social anxiety disorder, which both affect over 20% of narcoleptic individuals, were the most prevalent psychiatric disorders among the narcoleptic population (21). The literature available strongly defines the association between sleep disorders and mental health, however, the clinical studies present are scarcely limited; hence, further research comprising population-based studies and surveys is needed to elaborately comprehend and highlight this relationship with evidence-based results and findings.

Conclusion

There is a significant relationship between sleep disorders and mental health and patients with sleep disorders are more likely to experience depression, suicidal thoughts, anxiety, and severe psychological distress, which highlights the urgent need to pinpoint those who are most at risk and engage them with mental health treatments. The mechanisms of sleep disorders and their direct and indirect consequences on mental health should be further studied in future research. Additionally, increase access to mental healthcare, validated use of

common screening tools for mental health in people with sleep disorders shall be promoted by clinicians.

Disclosure

Conflict of interest

There is no conflict of interest

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Data availability

Data that support the findings of this study are embedded within the manuscript.

Author contribution

All authors contributed to conceptualizing, data drafting, collection and final writing of the manuscript.

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