Int J Biol Med Res. 2025; 16(3): 8175-8179

Contents lists available at BioMedSciDirect Publications

International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com

Review Article

An overview of sleep disorder: Causes, types, and impacts

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ARTICLEINFO

Keywords:
Sleep cycle,
sleep disorder,
types of sleep disorder,
factors affecting sleep

ABSTRACT

Sleep is a complicated neurological condition that is essential for rest, energy restoration, and maintaining overall health. A proper sleep cycle is critical to ensure physical and mental recovery. Sleep disorders are common among adults and often stem from factors such as inadequate or poor sleep quality. These disorders can lead to significant negative consequences, including an elevated risk of depression, accidents, and increased mortality rates. Various types of sleep disorders, such as insomnia, sleep apnea, and restless legs syndrome, can have a profound impact on individuals' well-being. Factors affecting sleep, such as stress, lifestyle, and medical conditions, further exacerbate these issues. Addressing sleep disorders with effective treatments is crucial for improving quality of life. Raising public awareness about the importance of a healthy sleep cycle and the impact of sleep disorders should be a key component of health promotion initiatives to ensure timely intervention and support.

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Introduction

Sleep is a naturally occurring state that is characterised by almost all voluntary muscles being inactive, diminished or absent consciousness, and somewhat suspended sensory activity. Additionally, it has been defined as a behavioural state characterised by a distinctive immobile position [1]. Although there is a great deal of variance among people, the amount of sleep that each person needs is often constant [2]. When evaluating a person who has a sleep complaint, getting a thorough medical history that includes past medical and mental conditions, neurological conditions, drug and alcohol misuse disorders, and family history is the most crucial step. A variety of illnesses that interfere with regular sleep patterns and harm both physical and mental health are referred to as sleep disorders. Emotional stability, cognitive performance, and general well-being all depend on getting enough good sleep.

The fundamental theory behind treating sleep problems is to identify the underlying cause of the disruption and then aggressively address any co-occurring conditions that are contributing to it [3]. Insomnia, sleep walking, snoring, sleep talking, teeth grinding, nightmarish, motor control excitation disorders (NOCTURIA), sleep paralysis, hypersomnia, parasomnia, and so on are examples of general sleep disorders.Neglecting sleep issues and disorders can result in relationship tension, poor health, accidents, and decreased productivity at work. Furthermore, getting enough sleep is essential, not optional. Each type of sleep disturbance has different symptoms. Everyone occasionally has trouble getting enough sleep, but for some people, the problem can become chronic and ongoing. The severity and length of symptoms determine the course of treatment for sleep disorders.

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Fortunately, sleep disturbances can be treated with certain therapies [4]. People who suffer from sleep disturbances may experience several negative effects, such as, Chronic illnesses including diabetes, heart disease, obesity, and cardiovascular disease can all be made more likely by sleep disturbances. Additionally, they may raise the chance of death [5], anxiety and depression can result from sleep disturbances. Additionally, they may result in mental distress, mood problems, and a lower quality of life [6], unusual motions during sleep It is thought that the REM stage of sleep is crucial for disinhibition, which is frequently linked to sleep disturbances [7], pregnant women who suffer from mild sleep apnoea may be at higher risk of miscarriage.For efficient diagnosis, treatment, and enhancement of general health outcomes, it is essential to comprehend the many types of sleep disorders and their underlying causes. The processes, risk factors, and treatment modalities related to these sleep disorders will be further examined in this review.

Sleep cycle:

Sleep occurs in two categories with four stages. The initial three phases are classified as non-REM (rapid eye movement) sleep. REM sleep is the fourth stage. Just fallen asleep in stage one and are beginning the transition to stage two, which entails a further slowdown in bodily and cognitive activity. During these early phases of the sleep cycle, waking up is considerably simpler. The darkest phase of NREM sleep is stage 3. Your body and muscles continue to relax throughout this phase, and your brain waves exhibit a distinct pattern of slowed activity that differs significantly from waking brain activity.

Deep sleep is thought to be crucial for both physical recovery and efficient memory and thought processes. The only REM sleep stage is stage four. Most of the body, with the exception of the eyes and respiratory muscles, temporarily becomes paralysed during this period, while brain activity increases dramatically. While dreams can occur at any stage of sleep, REM sleep is when the most intense dreaming occurs. It is common to spend a larger proportion of the night in REM sleep, with the majority of this happening in the second half of the night. Sleep architecture is the arrangement of an individual's sleep cycles and phases.

Issues focussing or remembering things, having trouble sleeping at night, daytime tiredness, Nightime awakenings, An early wake-up time, lack of sleep following a night's are the reasons of poor sleep. Although there are more significant increases in activity levels during deep sleep and REM sleep, researchers think that each stage contributes to a healthy sleep architecture that produces high-quality sleep [8].

Types of Sleep disorder:

1. Insomnia: Insomnia is characterised by difficulties falling asleep, staying asleep, or waking up early and is linked to compromised daytime functioning, such as mood swings,exhaustion, or decreased cognitive function [9]. Many times, insomnia is a sign of anotherissue, such stress, worry, despair, or a medical condition. Lifestyle decisions such asmedication use, inactivity, jet lag, or even coffee consumption might also contribute to it [10]. General fatigue or sleepiness, Daytime fatigue or drowsiness, Anger, despair, or anxiety, Difficulty concentrating, paying attention, or remembering, A rise in mistakes or mishaps [11].

2. Sleep walking: There are multiple cycles of both REM and non-REM sleep per night[12]. It may happen in the early morning during REM sleep. Although the exact reason of children's sleep walking is typically unknown, it may be connected to exhaustion, previous sleep loss, etc [13]. Behaving confused or disoriented upon awakening, acting aggressively when someone else wakes, having an expressionless face, opening the eyes while asleep, failed to recall the sleep walking incident after waking up,talking, and saying nonsensical things while asleep, strolling while asleep[14].

3. Snoring: Snoring is a noisy, rattling sound produced during sleep. During inspiration, air passes via the tonsils, uvula, tongue, and soft palate on its journey to the lungs. To keep these structures in place and stop them from collapsing and vibrating in the airway, the muscles in the back of the throat contract while the person is awake producing sound [15]. Snoring is a common sleep disturbance that is typically experienced by middle-aged people. It can result in obstructive sleep apnoea (OSA), a major health issue[16]. This illness is caused by a number of predisposing factors, including obesity, a sedentary lifestyle, genetics, alcohol [16]. Symptoms include waking up in morning with dry mouth and headache, tiredness and drowsiness during day.Experiencing fatigue upon waking up, even after achieving the minimal amount of seven hours of sleep recommended by that the American Academy of Sleep Medicine (AASM) [17], issues with concentration, memory, and attention[18].

4. Sleep talking: Also known as somniloquy, sleep talking is a subset of a broader family of "sleep utterances," which also includes mumbling, laughing, groaning, and whistling when asleep. It is thought that children are more likely than adults to engage in sleep talking. Sleep talking is occasionally categorised as one of the involuntary behaviours that might occur while asleep. Teeth grinding, sleepwalking, individuals may hurt themselves or their bed partner by unintentionally [19]. On the other hand, sleep talking is usually rather harmless and does not need to be treated[20]. After going to bed, while half of all children between the ages of 3 and 10 continue to do so while they are asleep[21]. Additionally, sleep talking may run in families, according to specialists.[21].

5. Teethgrinding: Bruxism is another name for teeth grinding. To put it simply, bruxism is the clenching and grinding of teeth while the person is not eating or chewing. It is regarded as the most prevalent of the dentofacial system's several parafunctional behaviours [22]. Although bruxism seldom results in major difficulties, in extreme circumstances it can cause temporomandibular disorders, tension-type headaches, facial or jaw pain, and damage to teeth [23]. Bruxism can be classified as secondary when it results from a medical or mental health issue, or primary when there is no underlying medical disease that causes it [23].

Static clenching, grinding, or a combination of the two can be symptoms of bruxism. About one-third of sleep bruxists experience noise in conjunction with this practice[24]. Therefore, it is crucial to properly diagnose and treat bruxism in order to avoid consequences[25].

6. Nightmares: Defined as intensely emotional and terrifying dreams that cause the dreamer to awaken immediately, nightmares are characterised by intense emotions. Once awake, the dreamer is able to describe the dream and the feelings experienced throughout the nightmare.There are several common motifs in nightmares, including falling, being hunted, becoming paralysed, being late and losing loved one. Seventy to ninety percent of young adults say they experienced nightmares [26,27].

7. Nocturia: The frequency with which a person wakes up to urinate and goes back to sleep in a single night is known as nocturia.[28]. Instead of being a symptom of another condition, nocturia is acknowledged as a urine problem. Men and women are equally affected, and its prevalence rises with age[29]. As a result, nocturia is more prevalent in older adults [30]. Numerous studies continue to state that the symptoms are just an unavoidable and are due t0 ageing for which there is no cure, despite the noticeable disruption in people's lives[31]. When women go from the premenopausal to the postmenopausal stage, urinary symptoms play a crucial role [32].

Nocturia can be linked to a number of conditions, such as ageing, overactive bladder (OAB), symptoms of the lower urinary tract that may indicate benign prostatic hyperplasia (BPH), behavioural or psychological changes, changes in sleep patterns, or the amount of sleep spend in bed. More clinical research is necessary to fully understand the overall effects of nocturia. One overlooked feature of nocturia is its correlation with sleep disturbance, which is problematic and widespread, impacting both mental and physical health[34].

Most common reason for sleep disturbance is nocturia. More severe effects, such depression, may also result from sleep disturbance [35]. Symptoms include, awakening twice or more during the night to urinate. This happens because of peeing sofrequent urination can disrupt your normal sleep schedule.

8. Sleep paralysis: A person with sleep paralysis (SP), a dissociative disorder, cannot move his body when he goes to sleep or wakes up [36]. It is also frequently accompanied by vivid, awake dreams [37]. Sleep paralysis is a type of paralysis related to sleep that can happen to healthy people or be linked to hypnologic hallucinations, narcolepsy, and cataplexy[38]. A sleep ailment called sleep paralysis causes people to develop a spiritual belief in evil and this state may also make you feel less confident [39].

9. Parasomnia: This category of sleep disorders is defined by unusual, disagreeable verbal, motor, or behavioural occurrences during sleep or the transition from wakefulness to sleep. [40].Parasomnias are generally harmless. However, they could be upsetting or annoying. In certain situations, parasomnia may be a sign of an underlying medical issue or pose a risk to the sleeper or their bed mate [41] Parkinson's disease, spinocerebellar ataxia, other sleep-related illnesses, trauma, and mental illness can all contribute to insomnia. Parasomnia overlap syndrome is the term used to describe the co-occurrence of REM and NREM parasomnias. To rule out the differentials and make a definitive diagnosis of parasomnia, a thorough sleep history and diagnostic workup, including polysomnography, are essential. To rule out the differentials and make a definitive diagnosis of parasomnia, a thorough sleep history and diagnostic workup, including polysomnography, are essential [42].

Symptoms include recurrent instances of feeling paralysed when falling asleep and waking up, Frequent nightmares and unpleasant dreams, behaving in a dreamlike manner. dozing off or waking up in different parts of the house or room, in the morning, unexplained bruises and injuries, waking up with loud shouting and a scared expression. wetting the bed.

Factors affecting sleep:

1. Screen Exposure in children: Extended use of various gadgets, including cell phones, tablets, televisions, computer monitors, and video games, leads to children engaging in discretionary screen time. Screen culture is an essential component of human behaviour and culture, and it is a global phenomenon. Avoiding the use of gadgets without screens in daily activities is quite challenging. Overuse of screens interferes with sleep, leading to sleep restriction. Interaction with these screens takes place during sleep-related time [43]. Screen light increases sleep delay by stimulating the brain and inhibiting the generation of melatonin [44]. A television in the bedroom is not conducive to a healthy and restful night's sleep. [45].

2. Environment: The surroundings can either help or hurt sleep. Any alteration, like background noise, can make it harder to fall asleep. People may have trouble falling asleep if they are unable to sleep due to the presence of unfamiliar stimuli or the absence of familiar ones. Sleep can be impacted by environmental temperature discomfort (such as being too hot or cold) and inadequate ventilation. Another impact may be the amount of light. The size and comfort of the bed are further factors. A person may also experience issues if their partner snores, has different sleeping habits, or has other sleep-related issues [46].

3. Caffeine: One of the most used psychoactive substances is caffeine. Caffeine has been demonstrated to reduce electroencephalographic signals linked to the reduction of homeostatic sleep pressure because it is an adenosine antagonist [47]. Caffeine has been demonstrated to fight sleepiness and to restore alertness and performance in smokers who have more trouble falling asleep [48]. Caffeine intake in the evening has been demonstrated to reduce stage two sleep, length, and efficiency in young and middle-aged individuals while increasing sleep latency [49]. Middle and high school students who consume more caffeine each night are also more likely to multitask with electronic media devices before bed [50]. Ninety-five percent of a high school sample consumed caffeine throughout the two weeks of the survey, which examined trends in teen caffeine intake as well as the causes and expectations of this behaviour [51].

4. Alcohol: It has been demonstrated that youth alcohol consumption rises with time. Alcohol's effects on sleep are widely known. According to PSG recordings in young adults, consuming a high concentration of alcohol in the evening decreased sleep efficiency and latency while increasing wake time during the night [52]. For women, these effects were more noticeable. Beyond its impact on sleep, alcohol caused hangovers and decreased performance the next morning on tasks that required speed and sustained attention.

5. Smoking:

Cigarette smoking has been recognized as a behavior that interferes with sleep. Laboratory and to restore alertness and performance in smokers experience more difficulty falling asleep and more sleep fragmentation than non-smokers, probably due to the stimulant effects of nicotine [53,54]. Night smokers reported more sleep disturbances and a higher prevalence of poor sleep than non-night smokers in a study evaluating smoking habits and sleep quality [55]. Sleep bruxism has been found to be more common among smokers than nonsmokers[56].

6. Stress, Anxiety, and Depression: It has been demonstrated that stress and affective distress influence the quality of sleep, and that all three variables predict the degree of weariness. However, there has not been much research done on the probable indirect mediational connections between stress, affective discomfort. In a brief survey, 229 members of a community sample were asked about their recent experiences with stress, affective discomfort, rumination, sleep, and exhaustion. More ruminative thinking was linked to high levels of stress, anxiety, and depression. This in turn was linked to poor sleep quality, which was a predictor of worse exhaustion. Poor sleep quality was made up of subjective sleep quality, daytime dysfunction, sleep latency, and sleep disturbance[57].

7. Lifestyle: Lifestyle trends is closely linked to the elements that intensify these processes. Modern society has been able to travel across the world, work around the clock, and use a wide range of electronic gadgets like computers, televisions, and cell phones because to technological breakthroughs. There is mounting evidence that these developments negatively impact human functioning and health by affecting the quantity, quality, and timing of sleep. Weight increase, a lack of physical activity, and the use of drugs like caffeine, alcohol, and nicotine are other behavioural lifestyle factors linked to poor sleep. [58].

Treatment:

1. Self-Help for Sleep Disorders: Although some sleep disorders may need consulting a sleep specialist, many sleeping issues can be resolved on one's own. Finding and closely monitoring symptoms and sleep patterns is the first step towards solving a sleep issue.

2. Sleep Disorder and Sleeping Pills: Sleeping pills can help with sleep issues if taken for a short time under a doctor's care. However, they are only a short-term fix. Sleeping medications are ineffective in treating insomnia. In actuality, sleeping drugs frequently exacerbate insomnia over time. Generally speaking, sleeping tablets and other sleep aids work best when taken infrequently and for brief periods of time, like while travelling between time zones or recuperating from medical procedures. In order to prevent reliance and tolerance, it is recommended that long-term users take their drugs "as needed" rather than regularly [59].

Conclusion:

A vital component of total health, sleep is necessary for emotional stability, cognitive function, physical recovery, and general quality of life. Sleep disturbances include insomnia, sleepwalking, sleep talking, teeth grinding, nocturia, and nightmares can have a serious negative influence on both long-term health and daily productivity. In addition to their effects on the individual, these diseases may have wider societal consequences, such as a decline in productivity at work and an increase in the likelihood of accidents. It's critical to spread knowledge about the value of sound sleep habits and the consequences of untreated sleep disorders. Sleep quality and general health outcomes can be greatly enhanced by public education, early diagnosis, and comprehensive management techniques, such as lifestyle changes, cognitive behavioural therapy, and the right medication interventions. To encourage improved sleep hygiene, further research and preventive health initiatives are required and reduce the global burden of sleep disorders.

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