

Insomnia: A sleep disorder: Its causes, symptoms and treatments

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Abstract

Insomnia is also known as sleeplessness, is a sleep disorder where people have trouble sleeping. In this paper, there is a detailed description of different types of insomnia. The causes of sleeplessness are mentioned. Various signs and symptoms of this disorder are discussed. There is a focus on the diagnosis of the sleep disorder. Risk factors of insomnia are described. The main aim of this paper is to explain the medical and other alternative treatments of insomnia and how someone can prevent from this disorder.

Keywords: Insomnia, sleep disorder

Introduction

Insomnia is the inability to get the amount of sleep we need to wake up feeling rested and refreshed. Because different people need different amounts of sleep, insomnia is defined by the quality of sleep and how we feel after sleeping—not the number of hours we sleep or how quickly we doze off. Even if we are spending eight hours a night in bed, if we feel drowsy and fatigued during the day, we may be experiencing insomnia. Insomnia includes a wide range of sleeping disorders, from lack of quality of sleep to lack of quantity of sleep.

Insomnia is the most common sleep complaint. It occurs when someone has trouble falling asleep or staying asleep even though he had the opportunity to get a full night of sleep. The causes, symptoms and severity of insomnia vary from person to person. Insomnia may include:

- Difficulty falling asleep
- Difficulty staying asleep throughout the night
- Waking up too early in the morning

Insomnia involves both a sleep disturbance and daytime symptoms. The effects of insomnia can impact nearly every aspect of the life. Insomnia negatively affects work performance, impairs decision-making and can damage relationships. In most cases, people with insomnia report a worse overall quality of life.

Insomnia is the absence of unconsciousness or the absence of oblivion that tends to take the form of an excess of something we don't want when we are trying to sleep. Insomnia is the absence of unconsciousness or the absence of oblivion that tends to take the form of an excess of something we don't want when we are trying to sleep.

Epidemiology

Between 10% and 30% of adults have insomnia at any given point in time and up to half of people have insomnia in a given year. About 6% of people have insomnia that is not due to another problem and lasts for more than a month. People over the age of 65 are affected more often than younger people. Females are more often affected than males. Insomnia is 40% more common in women than in men.

There are higher rates of insomnia reported among university

students compared to the general population.

Classification of Insomnia

Insomnia can be classified on the basis of duration of the problem. It is classified as transient, acute, or chronic.

1. Transient insomnia lasts for less than a week. It can be caused by another disorder, by changes in the sleep environment, by the timing of sleep, severe depression, or by stress. Its consequences – sleepiness and impaired psychomotor performance – are similar to those of sleep deprivation.
2. Acute insomnia is the inability to consistently sleep well for a period of less than a month. Insomnia is present when there is difficulty initiating or maintaining sleep or when the sleep that is obtained is non-refreshing or of poor quality. These problems occur despite adequate opportunity and circumstances for sleep and they must result in problems with daytime function. Acute insomnia is also known as short term insomnia or stress related insomnia.
3. Chronic insomnia lasts for longer than a month. It can be caused by another disorder, or it can be a primary disorder. People with high levels of stress hormones or shifts in the levels of cytokines are more likely than others to have chronic insomnia. Its effects can vary according to its causes. They might include muscular weariness, hallucinations, and/or mental fatigue. Chronic insomnia can cause double vision.

Causes of Insomnia

Insomnia may be the primary problem, or it may be associated with other conditions. Insomnia can be caused by physical factors as well as psychological factors. There is often an underlying medical condition that causes chronic insomnia, while transient insomnia may be due to a recent event or occurrence.

Insomnia can commonly be caused by: Electronic devices with self-luminous "backlit" displays can affect evening melatonin, which might result in delayed sleep.

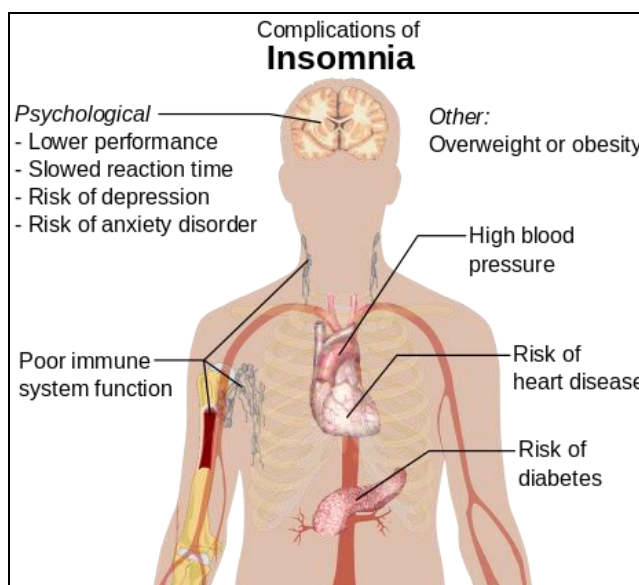
- **Disruptions in circadian rhythm:** jet lag, job shift

- changes, high altitudes, noisiness, hotness or coldness.
- **Psychological issues:** people with mood disorders, such as bipolar disorder or depression, as well as anxiety disorders or psychotic disorders are more likely to have insomnia.
- **Medical conditions:** brain lesions and tumors, stroke, chronic pain, chronic fatigue syndrome, congestive heart failure, angina, acid-reflux disease (GERD), chronic obstructive pulmonary disease, asthma, sleep apnea, Parkinson's and Alzheimer's diseases, hyperthyroidism, arthritis, Nasal/sinus allergies, Gastrointestinal problems such as reflux.

- **Hormones:** estrogen, hormone shifts during menstruation.
- **Other factors:** sleeping next to a snoring partner, parasites, genetic conditions, overactive mind, and pregnancy.

Media technology in the bedroom

Researchers from the University of Helsinki, Finland, reported that media technology in the bedroom disrupts sleep patterns in children. They found that children with TVs, computers, video games, DVD players and mobile phones in their bedrooms slept considerably less than kids without these devices in their bedrooms.



Chronic insomnia is usually a result of stress, life events or habits that disrupt sleep. Treating the underlying cause can resolve the insomnia, but sometimes it can last for years. Common causes of chronic insomnia include:

- **Stress.** Concerns about work, school, health, finances or family can keep the mind active at night, making it difficult to sleep. Stressful life events or trauma — such as the death or illness of a loved one, divorce, or a job loss — also may lead to insomnia.
- **Travel or work schedule.** The circadian rhythms act as an internal clock, guiding such things as sleep-wake cycle, metabolism and body temperature. Disrupting the patient's body's circadian rhythms can lead to insomnia. Causes include jet lag from traveling across multiple time zones, working a late or early shift, or frequently changing shifts.
- **Eating too much late in the evening.** Having a light snack before bedtime is OK, but eating too much may cause someone to feel physically uncomfortable while lying down. Many people also experience heartburn, a backflow of acid and food from the stomach into the oesophagus after eating, which may keep the patient awake.

Chronic insomnia may also be associated with medical conditions or the use of certain drugs. Treating the medical condition may help improve sleep, but the insomnia may persist after the medical condition improves.

Additional common causes of insomnia include:

- **Mental health disorders.** Anxiety disorders, such as post-

traumatic stress disorder, may disrupt asleep. Awakening too early can be a sign of depression. Insomnia often occurs with other mental health disorders as well.

- **Medications.** Many prescription drugs can interfere with sleep, such as certain antidepressants and medications for asthma or blood pressure. Many over-the-counter medications — such as some pain medications, allergy and cold medications, and weight-loss products — contain caffeine and other stimulants that can disrupt sleep.
- **Sleep-related disorders.** Sleep apnoea causes patient to stop breathing periodically throughout the night, interrupting his sleep. Restless legs syndrome causes unpleasant sensations in legs and an almost irresistible desire to move them, which may prevent the patient from falling asleep.
- **Caffeine, nicotine and alcohol.** Coffee, tea, cola and other caffeinated drinks are stimulants. Drinking them in the late afternoon or evening can keep from falling asleep at night. Nicotine in tobacco products is another stimulant that can interfere with sleep. Alcohol may help fall asleep, but it prevents deeper stages of sleep and often causes awakening in the middle of the night.

Sign and Symptoms

Sleep-onset insomnia is difficulty falling asleep at the beginning of the night. Delayed sleep phase disorder can be misdiagnosed as insomnia, as sleep onset is delayed too much later than normal while awakening spills over into daylight hours. It is common for patients who have difficulty falling

asleep to also have nocturnal awakenings with difficulty returning to sleep. Two thirds of these patients wake up in the middle of the night, with more than half having trouble falling back to sleep after a middle-of-the-night awakening. Early morning awakening is an awakening occurring earlier (more than 30 minutes) than desired with an inability to go back to sleep, and before total sleep time reaches 6.5 hours. Early morning awakening is often a characteristic of depression. Insomnia symptoms may include:



- Difficulty falling asleep at night
- Trouble getting back to sleep when waking up during the night
- Waking up too early in the morning
- Not feeling well-rested after a night's sleep
- Daytime drowsiness, fatigue, tiredness or sleepiness
- Irritability, depression or anxiety
- Difficulty paying attention, focusing on tasks or remembering
- Increased errors or accidents
- On-going worries about sleep
- Relying on sleeping pills or alcohol to fall asleep.

Mechanism

Cortisol

Cortisol is the stress hormone in humans, but it is also the awakening hormone. Analysing saliva samples taken in the morning has shown that patients with insomnia wake up with significantly lower cortisol levels when compared to a control group with regular sleeping patterns. Persons with lower levels of cortisol upon awakening also have poorer memory consolidation in comparison to those with normal levels of cortisol. A larger amount of cortisol released in the evening occurs in primary insomnia. In this case, drugs related to calming mood disorders or anxiety, such as antidepressants, would regulate the cortisol levels and help prevent insomnia.

Estrogen

Many postmenopausal women have reported changes in sleep patterns since entering menopause that reflect symptoms of insomnia. This could occur because of the lower levels

of estrogen. It can cause hot flashes, change in stress reactions, or overall change in the sleep cycle, which all could contribute to insomnia. Estrogen treatment as well as estrogen-progesterone combination supplements as a hormone replacement therapy can help regulate menopausal women's sleep cycle again.

Progesterone

Low levels of progesterone throughout the female menstruation cycle, but primarily near the end of the luteal phase, have also been known to correlate with insomnia as well as aggressive behaviour, irritability, and depressed mood in women. Around 67% of women have problems with insomnia right before or during their menstrual cycle.^[50] Lower levels of progesterone can, like estrogen, correlate with insomnia in menopausal women.

A common misperception is that the amount of sleep required decreases as a person ages. The ability to sleep for long periods, rather than the need for sleep, appears to be lost as people get older. Some elderly insomniacs toss and turn in bed and occasionally fall off the bed at night, diminishing the amount of sleep they receive.

Diagnosis

Doctors use a number of approaches to diagnose insomnia and understand a person's unique symptoms. Some of these measures can be done at home, while others require an office visit or an appointment at a sleep clinic.

There are many ways to improve sleep that involve psychological and behavioural steps. Cognitive behavioural treatments for insomnia (CBTi), relaxation techniques, and general sleep hygiene guidelines can help many people with sleep difficulties.

There is no definite test for insomnia. Doctors use many different tools to diagnose and measure insomnia symptoms, some of which involve asking the questions in the office, having fill out logs and questionnaires, performing certain blood tests, or doing an overnight sleep study. All of these tests help the doctor understand the patient's personal experience with insomnia and create the right treatment plan.

- i) **Sleep log:** A sleep log is a simple diary that keeps track of details about sleep. In a sleep log, record details like bedtime, wake up time, how sleepy one feels at various times during the day, and more. A sleep log can also help the doctor figure out what might be causing insomnia.
- ii) **Sleep inventory:** A sleep inventory is an extensive questionnaire that gathers information about personal health, medical history, and sleep patterns.
- iii) **Blood tests:** Doctor may perform certain blood tests to rule out medical conditions such as thyroid problems, which can disrupt sleep in some people.
- iv) **Sleep study:** Doctor may suggest to do an overnight sleep study, or polysomnography, to gather information about the night time sleep. In this exam, one sleeps overnight in a lab set up with a comfortable bed. During the exam the patient will be connected to an EEG, which monitors the stages of sleep. A sleep study also measures things like oxygen levels, body movements, and heart and breathing patterns. A sleep study is a non-invasive test.

Risk factors

Nearly everyone has an occasional sleepless night. But risk of

insomnia is greater if:

- **You're a woman.** Hormonal shifts during the menstrual cycle and in menopause may play a role. During menopause, night sweats and hot flashes often disrupt sleep. Insomnia is also common with pregnancy.
- **You're over age 60.** Because of changes in sleep patterns and health, insomnia increases with age.
- **You have a mental health disorder or physical health condition.** Many issues that impact your mental or physical health can disrupt sleep.
- **You're under a lot of stress.** Stressful times and events can cause temporary insomnia and major or long-lasting stress can lead to chronic insomnia.
- **You don't have a regular schedule.** Changing shifts at work or traveling can disrupt your sleep-wake cycle.

Complications

Sleep is as important to health as a healthy diet and regular physical activity. Whatever is reason for sleep loss, insomnia can affect both mentally and physically. People with insomnia report a lower quality of life compared with people who are sleeping well.

Complications of insomnia may include:

- Lower performance on the job or at school
- Slowed reaction time while driving and a higher risk of accidents
- Mental health disorders, such as depression, anxiety disorder or substance abuse
- Increased risk and severity of long-term diseases or conditions, such as high blood pressure and heart disease.

Prevention

Going to sleep and waking up at the same time every day can create a steady pattern which may help to prevent or treat insomnia. Avoidance of vigorous exercise and any caffeinated drinks a few hours before going to sleep is recommended, while exercise earlier in the day is beneficial. The bedroom should be cool and dark, and the bed should only be used for sleep. These are some of the points included in what doctors call "sleep hygiene".

Treatment

Lifestyle changes often can help relieve acute (short-term) insomnia. These changes might make it easier to fall asleep and stay asleep.

A type of counselling called cognitive-behavioural therapy (CBT) can help relieve the anxiety linked to chronic (on-going) insomnia. Anxiety tends to prolong insomnia.

Several medicines also can help relieve insomnia and re-establish a regular sleep schedule. However, if insomnia is the symptom or side effect of another problem, it's important to treat the cause.

Lifestyle Changes

If someone is suffering from insomnia, avoid substances that make it worse, such as:

- Caffeine, tobacco, and other stimulants. The effects of these substances can last as long as 8 hours.
- Certain over-the-counter and prescription medicines that can disrupt sleep (for example, some cold and allergy medicines). Talk with the doctor about which medicines won't disrupt sleep.

- **Alcohol.** An alcoholic drink before bedtime might make it easier for falling asleep. However, alcohol triggers sleep that tends to be lighter than normal.

Cognitive behavioural therapy for insomnia

Cognitive behavioural therapy for insomnia (CBT-I) can help to control or eliminate negative thoughts and actions that keep awake and is generally recommended as the first line of treatment for people with insomnia. Typically, CBT-I is equally or more effective than sleep medications.

The cognitive part of CBT-I teaches to recognize and change beliefs that affect ability to sleep. It can help to control or eliminate negative thoughts and worries that keep awake. It may also involve eliminating the cycle that can develop where someone worry so much about getting to sleep that can't fall asleep.

The behavioural part of CBT-I help in developing good sleep habits and avoid behaviours that keep from sleeping well. Strategies include, for example:

- **Stimulus control therapy.** This method helps remove factors that condition the mind to resist sleep. For example, one might be coached to set a consistent bedtime and wake time and avoid naps, use the bed only for sleep and leave the bedroom if can't go to sleep within 20 minutes, only returning when feels sleepy.
- **Relaxation techniques.** Progressive muscle relaxation, biofeedback and breathing exercises are ways to reduce anxiety at bedtime. Practicing these techniques can help to control breathing, heart rate, muscle tension and mood so that one can relax.
- **Sleep restriction.** This therapy decreases the time spend in bed and avoids daytime naps, causing partial sleep deprivation, which makes more tired the next night. Once the sleep has improved, time in bed is gradually increased.
- **Remaining passively awake.** Also called paradoxical intention, this therapy for learned insomnia is aimed at reducing the worry and anxiety about being able to get to sleep by getting in bed and trying to stay awake rather than expecting to fall asleep.
- **Light therapy.** If one fall asleep too early and then awoken too early then light should be used to push back to internal clock.

Medical Treatment

There are many different types of sleep aids for insomnia, including over-the-counter (non-prescription) and prescription medications. Determining which medication may be right for one depends on insomnia symptoms and many different health factors. This is why it's important to consult with a doctor before taking a sleep aid. Major classes of prescription insomnia medications include benzodiazepine hypnotics, non-benzodiazepine hypnotics, and melatonin receptor agonists.

Prescription sleeping pills can help get to sleep, stay asleep or both. Doctors generally don't recommend relying on prescription sleeping pills for more than a few weeks, but several medications are approved for long-term use. Examples include:

- i) Eszopiclone (Lunesta)
- ii) Ramelteon (Rozerem)
- iii) Zaleplon (Sonata)
- iv) Zolpidem (Ambien, Edluar, Intermezzo, Zolpimist)

Prescription sleeping pills can have side effects, such as causing daytime grogginess and increasing the risk of falling, or they can be habit-forming, so talk to the doctor about these medications and other possible side effects.

Alternatives to medical treatment

Ayurvedic Treatment

The useful herbs for the treatment of insomnia are:-Brahmi, Vacha, Aswagandha, Jatamansi, Valerian. Other ayurvedic medicines are: Pipplimulachurna, Swamama khshik Bhasma, Nidrodaya Rasa, Vatakulantaka.

Panchkarma Therapy

It includes Shirobasti, Shirodhara, Nasya, Abhyangam, Pada Abhyangam.

Homeopathic Treatment

These medicines are selected on the basis of symptoms, cause, family history and constitution of the person affected. Considering all these factors, homeopathic medicine may be indicated and helpful in this condition. These are: Nux vomica, Opium, Coffe acrada, Ambragrisea, Hyoscyamus niger, Sulphur, Belladonna, Chamomilla, Arsenic album, Argentumnitricum; Gelsemium, Ignatiaamara, Magnesium carbonica, Coccusindica, Aconitum napellus, Arnica Montana, Causticum, Ferrummetallicum, Muriaticumacidum, Tabacum, Seneciojacobaea; Cannabis indica, Kaliumphosphoricum.

Natural Home Remedies

Some basic home remedies are: Relax with some light yoga, exercise regularly, listen to soothing music, limit alcohol intake, and take aromatic bath. Food stuffs for better sleep are: nuts, cherry juice, honey, green leafy vegetables, cereals, banana, warm milk etc.

Prognosis

A survey of 1.1 million residents found that those that reported sleeping about 7 hours per night had the lowest rates of mortality, whereas those that slept for fewer than 6 hours or more than 8 hours had higher mortality rates. Getting 8.5 or more hours of sleep per night increased the mortality rate by 15%. Severe insomnia – sleeping less than 3.5 hours in women and 4.5 hours in men – is associated with a 15% increase in mortality. However, most of the increase in mortality from severe insomnia was discounted after controlling for co-morbid disorders. After controlling for sleep duration and insomnia, use of sleeping pills was also found to be associated with an increased mortality rate.

The lowest mortality was seen in individuals who slept between six and a half and seven and a half hours per night. Even sleeping only 4.5 hours per night is associated with very little increase in mortality. Thus, mild to moderate insomnia for most people is associated with increased longevity and severe insomnia is associated only with a very small effect on mortality. It is unclear why sleeping longer than 7.5 hours is associated with excess mortality.

Conclusion

Insomnia is the inability to get the amount of sleep we need to wake up feeling rested and refreshed. It is caused due to stress, anxiety, several diseases and many other reasons. The

person suffering from insomnia must take healthy diet and exercise regularly. The person should avoid taking too much pills and alcohol.

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