

# Sleep disorders

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## DSM-IV sleep disorders

- **Dyssomnias**
  - Primary insomnia
  - Primary hypersomnia
  - Narcolepsy
  - Breathing-related sleep disorder
  - Circadian rhythm sleep disorder
  - Dyssomnia not otherwise specified
- **Parasomnias**
  - Nightmare disorder (dream anxiety disorder)
  - Sleep terror disorder
  - Sleepwalking disorder
  - Parasomnia not otherwise specified

## DSM-IV sleep disorders

- **Sleep disorders related to another mental disorder**
  - Insomnias related to an Axis I or Axis II disorder
  - Hypersomnia related to an Axis I or Axis II disorder
- **Other sleep disorders**
  - Sleep disorder due to a general medical condition
  - Substance-induced sleep disorder

- The predominant disturbance in dyssomnias is in initiating and maintaining sleep.
- The predominant disturbance in parasomnias is an abnormal event occurring during sleep.
- A category exists for sleep disorders related to another mental disorder, such as major depression or borderline personality disorder.
- Sleep disorder related to general medical conditions

- Sleep stages are divided into rapid eye movement (REM) sleep and nonrapid eye movement (NREM) sleep. These two stages of sleep alternate with one another in a cycle that lasts between 70 and 100 minutes. There are generally four to six NREM/REM cycles nightly.
- Stage 1 is called the sleep-onset stage, because it provides a brief transition from wakefulness to sleep. (mostly alpha activity)
- Stage 2 generally represents the onset of true sleep and is dominated by theta activity.
- Stage 3 is characterized by 20%-50% delta wave activity.
- Stage 4 is defined by high-voltage delta waves mostly
- REM sleep is characterized by an EEG recording similar to that in stage 1, along with a burst of rapid conjugate eye movements and a reduced level of muscle activity. REM sleep comprises between 20% and 25% of the total sleep period and is also known as desynchronized sleep (dreams in this period).

## Neurobiological regulation

- Serotonin-containing nuclei and pathways play an important role in regulating NREM sleep, and noradrenergic systems are principally involved in the control of REM sleep. The serotonin-containing neurons are mainly located in the group of nuclei in the lower midbrain and upper pons, referred to as the raphe nuclei.
- Noradrenergic neurons are found throughout the brain stem, but achieve their highest concentration in the locus coeruleus in the pons. The locus coeruleus is thought to regulate REM sleep, this inference is primarily based on animal research in which lesions of neurons in the locus coeruleus abolish REM sleep and lead to hyperactive behavior.

### DSM-IV criteria for primary insomnia

- A. The predominant complaint is difficulty initiating or maintaining sleep, or nonrestorative sleep, for at least 1 month.
- B. The sleep disturbance (or associated daytime fatigue) causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- C. The sleep disturbance does not occur exclusively during the course of narcolepsy, breathing-related sleep disorder, circadian rhythm sleep disorder, or a parasomnia.
- D. The disturbance does not occur exclusively during the course of another mental disorder (e.g., major depressive disorder, generalized anxiety disorder, a delirium).
- E. The disturbance is not due to the direct effects of a substance (e.g., a drug of abuse) or a general medical condition.

### Sleep history outline

Elicit sleep data during assessment: obtain data from patient, chart, and nursing staff

Review medication history, including illicit drugs, alcohol, and-use of hypnotic medication

Obtain information on the following sleep characteristics:

- Usual sleep pattern
- Characteristics of disturbed sleep (for insomnia, difficulty falling asleep, difficulty staying asleep, and early-morning awakenings)
- The clinical course: onset, duration, frequency, severity, and precipitating and relieving factors

### Sleep history outline

- 24-hour sleep-wake cycle (corroborate with staff and chart)
- History of sleep disturbances, including childhood sleep pattern and pattern of sleep when under stress
- Family history of sleep disorders
- Personal history of other sleep disorders
- Sleep pattern at home as described by bed partner

### DSM-IV criteria for sleepwalking disorder

- A. Repeated episodes of rising from bed during sleep and walking about, usually occurring during the first third of the major sleep episode.
- B. While sleepwalking, the person has a blank, staring face, is relatively unresponsive to the efforts of others to communicate with him or her, and can be awakened only with great difficulty.
- C. On awakening (either from the sleepwalking episode or the next morning), the person has amnesia for the episode.

### DSM-IV criteria for nightmare disorder (dream anxiety disorder)

- A. Repeated awakenings from the major sleep period or naps with detailed recall of extended and extremely frightening dreams, usually involving threats to survival, security, or self-esteem. The awakenings generally occur during the second half of the sleep period.
- B. On awakening from the frightening dreams, the person rapidly becomes oriented and alert (in contrast to the confusion and disorientation seen in sleep terror disorder and some forms of epilepsy).
- C. The dream experience, or the sleep disturbance resulting from the awakening, causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- D. The nightmares do not occur exclusively during the course of another mental disorder (e.g., a delirium, posttraumatic stress disorder) and are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

### DSM-IV criteria for sleepwalking disorder

- D. Within several minutes after awakening from the sleepwalking episode, there is no impairment of mental activity or behavior (although there may initially be a short period of confusion or disorientation).
- E. The sleepwalking causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

## DSM-IV criteria for sleep terror disorder

- A. Recurrent episodes of abrupt awakening from sleep, usually occurring during the first third of the major sleep episode and beginning with a panicky scream.
- B. Intense anxiety and signs of autonomic arousal, such as tachycardia, rapid breathing, and sweating, during each episode.
- C. Relative unresponsiveness to efforts of others to comfort the person during the episode.
- D. No detailed dream is recalled, and there is amnesia for the episode.
- E. The episodes cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- F. This disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

## Common EEG sleep characteristics in mental disorders

Diagnosis	General sleep findings
<b>Psychoses</b>	Marked variability in sleep continuity Reduced REM sleep after REM sleep deprivation Reduced slow-wave sleep
Schizophrenia	
<b>Mood disorders</b>	Sleep continuity disturbances Decreased slow-wave sleep Shifting of REM sleep to earlier in the night
<b>Anxiety disorders</b>	Difficulty falling asleep Difficulty staying asleep Reduced total sleep time Reduced REM sleep
Panic disorder	Difficulty staying asleep Reduced total sleep time Sleep "panic attacks" may occur during stage 2 or 3 sleep

## Common EEG sleep characteristics in mental disorders

Diagnosis	General sleep findings
<b>Alcoholism</b>	Reduced wakefulness and REM sleep, with increased delta sleep in first half of the night, rebound of REM sleep, and increased wakefulness in second half of the night
<b>Acute use</b>	
<b>Chronic use</b>	Fragmented sleep with frequent arousals Continued fragmentation and reduced slow-wave sleep
<b>Abstinence</b>	
<b>Personality disorders</b>	REM sleep changes may be related to concurrent mood disorder
<b>Borderline</b>	Sleep continuity disruptions Polyphasic sleep-wake schedule
<b>Dementia</b>	

## Medical and neurological conditions and substances associated with sleep disorders

### Medical and neurological disorders

Alzheimer's disease	Muscular dystrophy
Angina	Paroxysmal nocturnal hemoglobinuria
Asthma	Peptic ulcer disease
Coronary artery disease	Pregnancy
Diabetes mellitus	Obstructive lung disease
Dysthymias	Progressive supranuclear palsy
Eczema	Pain syndromes
Gastrointestinal reflux	Shy-Drager syndrome
Hypertension	Uremia
Hyperthyroidism	
Myotonic dystrophy	

## Medical and neurological conditions and substances associated with sleep disorders

### Drugs

**Antidepressants**  
**Antipsychotics**  
**Lithium**  
**Sedative- hypnotics**  
**Anticonvulsants**  
**Opioids**  
**Psychostimulants**  
**Hallucinogens**  
**Alcohol**

## Treatment recommendations for sleep disorders

1. For accurate diagnosis, a thorough sleep history is essential including:
  - Drug use pattern
  - Use of caffeine
  - An interview with the patient's bed partner
  - For patients with insomnia, the sleep hygiene measures outlined in this chapter in the section "Primary Insomnia" are the simplest and most overlooked strategy.
  - Complaints of disturbed sleep should alert the clinician to the possibility of a major psychiatric illness. Depression and alcoholism are probably the most common causes of sleep disturbance.
  - Prescribing benzodiazepine hypnotics for patients with sleep complaints is inappropriate without having first made a diagnosis. For primary insomnia, patients should be told that the sleeping pills are for temporary use only.

## „Sleep hygiene”

- „Sleep hygiene” measures have been developed for patients with chronic insomnia. These measures include the following:
  - Waking up and going to bed at the same time every day, even on weekends
  - Avoiding long periods of wakefulness in bed
  - Not using the bed as a place to read, watch television, or work
  - Leaving the bed and not returning until drowsy if sleep does not begin within a set period (such as 20-30 minutes)
  - Avoiding napping
  - Exercising at least three or four times week (but not in the evening if this interferes with sleep)
  - Discontinuing or reducing the consumption of alcoholic beverages, beverages containing caffeine, cigarettes, and sedative-hypnotic drugs.

## Treatment recommendations for sleep disorders (Andreasen)

Temazepam and estazolam probably have the best therapeutic properties for a hypnotic: rapid absorption, lack of metabolites, and an intermediate half-life that will allow a full night's sleep. Zolpidem/zopiclon are good alternative to the benzodiazepine hypnotics.

In patients with narcolepsy or primary hyper somnia, methylphenidate is the first medication to use. Titrate up to 60-80 mg/day. Keep track of pill use, because some patients may be tempted to abuse them.

If patients have unusual sleep complaints or disorders, a referral should be made to a sleep disorders clinic for a more complete evaluation, which may include polysomnography.

## Therapy of insomnias

- A/ benzodiazepines: clonazepam, nitrazepam /long acting vs midazolam, triazolam (short acting)
- B/ selective non-BZD hypnotics (zolpidem, zopiclon zaleplon)
- C/ antidepressants: mirtazapin (Remeron)

CAVE: meprobamat: Andaxin (addictive!)  
 glutethimid: Noxyron (addictive!)  
 barbiturates (Novopan, Dorlotyn, Tardyl);  
 Heminevrin Sevenal, Hypnoval

## Commonly used benzodiazepines and benzodiazepine-like medications (*continued*)

Benzodiazepine	FDA-approved psychiatric indication(s)	Duration of action	Active metabolite	Recommended usual dosage range, mg/day
Diazepam (Valium) <sup>b</sup>	Anxiety, alcohol withdrawal	Long	Yes	2–40
Clorazepate (Tranxene) <sup>b</sup>	Anxiety, alcohol withdrawal	Long	Yes	7.5–60
Triazolam (Halcion)	Insomnia	Short	No	0.125–0.25
Temazepam (Restoril)	Insomnia	Medium–long	No	15–30
Flurazepam (Dalmane) <sup>b</sup>	Insomnia	Long	Yes	15–30
Estazolam (Prosom)	Insomnia	Short	No	1–2
Zaleplon (Sonata) <sup>c</sup>	Insomnia	Short	No	5–20
Zolpidem (Ambien) <sup>c</sup>	Insomnia	Short	No	5–10

## NARCOLEPSY main symptoms:

excessive sleepiness associated with irresistible sleep attacks – with cataplexy- sudden loss of muscle control /under srtrong emotions/

hypnagogic hallucination  
 sleep paralysis

### Therapy:

Psychostimulants

Cataplexy, hallucinations, sleep paralysis: Antidepressants (Anafranil, Floxet)

night sleep disturbance: short acting benzodiazepine

## BREATHING RELATED SLEEP DISORDER

### OBSTRUCTIVE SLEEP APNEA SYNDROM

Snoring, gasping snorting sounds, excessive body movements, night sweats

Daytime excessive sleepiness or sleep attacks, irritability  
 Cognitive symptoms, inattention, memory impairment

**Consequences:**

Hypertension, obesity  
cardiological consequences  
**STROKE**  
Polyglobulia  
Dementia  
diabetes

**Therapy:**

**Conservative:**

avoid lying on the back  
avoid hypnotics, alcohol, sedatives

**CPAP, BiPAP positive airway pressure  
prothesis**

**Surgery:**

uvulo-faringo-palato-plastic surgery, etc  
**DE: Silent OSAS**

