

2nd Edition (ICSD-2) elaborated numerous diagnostic subtypes. DSM-IV was prepared for use by mental health and general medical clinicians who are not experts in sleep medicine. ICSD-2 reflected the science and opinions of the sleep specialist community and was prepared for use by specialists.

The weight of available evidence supports the superior performance characteristics (interrater reliability, as well as convergent, discriminant, and face validity) of simpler, less-differentiated approaches to diagnosis of sleep-wake disorders. The text accompanying each set of diagnostic criteria provides linkages to the corresponding disorders included in ICSD-2. The DSM-5 sleep-wake disorders classification also specifies corresponding non-psychiatric listings (e.g., neurology codes) from the *International Classification of Diseases* (ICD).

The field of sleep disorders medicine has progressed in this direction since the publication of DSM-IV. The use of biological validators is now embodied in the DSM-5 classification of sleep-wake disorders, particularly for disorders of excessive sleepiness, such as narcolepsy; for breathing-related sleep disorders, for which formal sleep studies (i.e., polysomnography) are indicated; and for restless legs syndrome, which can often coexist with periodic limb movements during sleep, detectable via polysomnography.

Insomnia Disorder

Diagnostic Criteria

307.42 (F51.01)

- A. A predominant complaint of dissatisfaction with sleep quantity or quality, associated with one (or more) of the following symptoms:
 - 1. Difficulty initiating sleep. (In children, this may manifest as difficulty initiating sleep without caregiver intervention.)
 - 2. Difficulty maintaining sleep, characterized by frequent awakenings or problems returning to sleep after awakenings. (In children, this may manifest as difficulty returning to sleep without caregiver intervention.)
 - 3. Early-morning awakening with inability to return to sleep.
- B. The sleep disturbance causes clinically significant distress or impairment in social, occupational, educational, academic, behavioral, or other important areas of functioning.
- C. The sleep difficulty occurs at least 3 nights per week.
- D. The sleep difficulty is present for at least 3 months.
- E. The sleep difficulty occurs despite adequate opportunity for sleep.
- F. The insomnia is not better explained by and does not occur exclusively during the course of another sleep-wake disorder (e.g., narcolepsy, a breathing-related sleep disorder, a circadian rhythm sleep-wake disorder, a parasomnia).
- G. The insomnia is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication).
- H. Coexisting mental disorders and medical conditions do not adequately explain the predominant complaint of insomnia.

Specify if:

- With non-sleep disorder mental comorbidity, including substance use disorders
- With other medical comorbidity
- With other sleep disorder

Coding note: The code 307.42 (F51.01) applies to all three specifiers. Code also the relevant associated mental disorder, medical condition, or other sleep disorder immediately after the code for insomnia disorder in order to indicate the association.

Specify if:

Episodic: Symptoms last at least 1 month but less than 3 months.

Persistent: Symptoms last 3 months or longer.

Recurrent: Two (or more) episodes within the space of 1 year.

Note: Acute and short-term insomnia (i.e., symptoms lasting less than 3 months but otherwise meeting all criteria with regard to frequency, intensity, distress, and/or impairment) should be coded as an other specified insomnia disorder.

Note. The diagnosis of insomnia disorder is given whether it occurs as an independent condition or is comorbid with another mental disorder (e.g., major depressive disorder), medical condition (e.g., pain), or another sleep disorder (e.g., a breathing-related sleep disorder). For instance, insomnia may develop its own course with some anxiety and depressive features but in the absence of criteria being met for any one mental disorder. Insomnia may also manifest as a clinical feature of a more predominant mental disorder. Persistent insomnia may even be a risk factor for depression and is a common residual symptom after treatment for this condition. With comorbid insomnia and a mental disorder, treatment may also need to target both conditions. Given these different courses, it is often impossible to establish the precise nature of the relationship between these clinical entities, and this relationship may change over time. Therefore, in the presence of insomnia and a comorbid disorder, it is not necessary to make a causal attribution between the two conditions. Rather, the diagnosis of insomnia disorder is made with concurrent specification of the clinically comorbid conditions. A concurrent insomnia diagnosis should only be considered when the insomnia is sufficiently severe to warrant independent clinical attention; otherwise, no separate diagnosis is necessary.

Diagnostic Features

The essential feature of insomnia disorder is dissatisfaction with sleep quantity or quality with complaints of difficulty initiating or maintaining sleep. The sleep complaints are accompanied by clinically significant distress or impairment in social, occupational, or other important areas of functioning. The sleep disturbance may occur during the course of another mental disorder or medical condition, or it may occur independently.

Different manifestations of insomnia can occur at different times of the sleep period. *Sleep-onset insomnia* (or *initial insomnia*) involves difficulty initiating sleep at bedtime. *Sleep maintenance insomnia* (or *middle insomnia*) involves frequent or prolonged awakenings throughout the night. *Late insomnia* involves early-morning awakening with an inability to return to sleep. Difficulty maintaining sleep is the most common single symptom of insomnia, followed by difficulty falling asleep, while a combination of these symptoms is the most common presentation overall. The specific type of sleep complaint often varies over time. Individuals who complain of difficulty falling asleep at one time may later complain of difficulty maintaining sleep, and vice versa. Symptoms of difficulty falling asleep and difficulty maintaining sleep can be quantified by the individual's retrospective self-report, sleep diaries, or other methods, such as actigraphy or polysomnography, but the diagnosis of insomnia disorder is based on the individual's subjective perception of sleep or a caretaker's report.

Nonrestorative sleep, a complaint of poor sleep quality that does not leave the individual rested upon awakening despite adequate duration, is a common sleep complaint usually occurring in association with difficulty initiating or maintaining sleep, or less frequently in isolation. This complaint can also be reported in association with other sleep disorders (e.g., breathing-related sleep disorder). When a complaint of nonrestorative sleep occurs in isolation (i.e., in the absence of difficulty initiating and/or maintaining sleep) but all diagnostic criteria with regard to frequency, duration, and daytime distress and impairments are otherwise met, a diagnosis of other specified insomnia disorder or unspecified insomnia disorder is made.

Aside from the frequency and duration criteria required to make the diagnosis, additional criteria are useful to quantify insomnia severity. These quantitative criteria, while arbitrary, are provided for illustrative purpose only. For instance, difficulty initiating sleep is defined by a subjective sleep latency greater than 20–30 minutes, and difficulty maintaining sleep is defined by a subjective time awake after sleep onset greater than 20–30 minutes. Although there is no standard definition of early-morning awakening, this symptom involves awakening at least 30 minutes before the scheduled time and before total sleep time reaches 6½ hours. It is essential to take into account not only the final awakening time but also the bedtime on the previous evening. Awakening at 4:00 A.M. does not have the same clinical significance in those who go to bed at 9:00 P.M. as in those who go to bed at 11:00 P.M. Such a symptom may also reflect an age-dependent decrease in the ability to sustain sleep or an age-dependent shift in the timing of the main sleep period.

Insomnia disorder involves daytime impairments as well as nighttime sleep difficulties. These include fatigue or, less commonly, daytime sleepiness; the latter is more common among older individuals and when insomnia is comorbid with another medical condition (e.g., chronic pain) or sleep disorder (e.g., sleep apnea). Impairment in cognitive performance may include difficulties with attention, concentration and memory, and even with performing simple manual skills. Associated mood disturbances are typically described as irritability or mood lability and less commonly as depressive or anxiety symptoms. Not all individuals with nighttime sleep disturbances are distressed or have functional impairment. For example, sleep continuity is often interrupted in healthy older adults who nevertheless identify themselves as good sleepers. A diagnosis of insomnia disorder should be reserved for those individuals with significant daytime distress or impairment related to their nighttime sleep difficulties.

Associated Features Supporting Diagnosis

Insomnia is often associated with physiological and cognitive arousal and conditioning factors that interfere with sleep. A preoccupation with sleep and distress due to the inability to sleep may lead to a vicious cycle: the more the individual strives to sleep, the more frustration builds and further impairs sleep. Thus, excessive attention and efforts to sleep, which override normal sleep-onset mechanisms, may contribute to the development of insomnia. Individuals with persistent insomnia may also acquire maladaptive sleep habits (e.g., spending excessive time in bed; following an erratic sleep schedule; napping) and cognitions (e.g., fear of sleeplessness; apprehensions of daytime impairments; clock monitoring) during the course of the disorder. Engaging in such activities in an environment in which the individual has frequently spent sleepless nights may further compound the conditioned arousal and perpetuate sleep difficulties. Conversely, the individual may fall asleep more easily when not trying to do so. Some individuals also report better sleep when away from their own bedrooms and their usual routines.

Insomnia may be accompanied by a variety of daytime complaints and symptoms, including fatigue, decreased energy, and mood disturbances. Symptoms of anxiety or depression that do not meet criteria for a specific mental disorder may be present, as well as an excessive focus on the perceived effects of sleep loss on daytime functioning.

Individuals with insomnia may have elevated scores on self-report psychological or personality inventories with profiles indicating mild depression and anxiety, a worrisome cognitive style, an emotion-focused and internalizing style of conflict resolution, and a somatic focus. Patterns of neurocognitive impairment among individuals with insomnia disorder are inconsistent, although there may be impairments in performing tasks of higher complexity and those requiring frequent changes in performance strategy. Individuals with insomnia often require more effort to maintain cognitive performance.

Prevalence

Population-based estimates indicate that about one-third of adults report insomnia symptoms, 10%–15% experience associated daytime impairments, and 6%–10% have symptoms

that meet criteria for insomnia disorder. Insomnia disorder is the most prevalent of all sleep disorders. In primary care settings, approximately 10%–20% of individuals complain of significant insomnia symptoms. Insomnia is a more prevalent complaint among females than among males, with a gender ratio of about 1.44:1. Although insomnia can be a symptom or an independent disorder, it is most frequently observed as a comorbid condition with another medical condition or mental disorder. For instance, 40%–50% of individuals with insomnia also present with a comorbid mental disorder.

Development and Course

The onset of insomnia symptoms can occur at any time during life, but the first episode is more common in young adulthood. Less frequently, insomnia begins in childhood or adolescence. In women, new-onset insomnia may occur during menopause and persist even after other symptoms (e.g., hot flashes) have resolved. Insomnia may have a late-life onset, which is often associated with the onset of other health-related conditions.

Insomnia can be situational, persistent, or recurrent. Situational or acute insomnia usually lasts a few days or a few weeks and is often associated with life events or rapid changes in sleep schedules or environment. It usually resolves once the initial precipitating event subsides. For some individuals, perhaps those more vulnerable to sleep disturbances, insomnia may persist long after the initial triggering event, possibly because of conditioning factors and heightened arousal. The factors that precipitate insomnia may differ from those that perpetuate it. For example, an individual who is bedridden with a painful injury and has difficulty sleeping may then develop negative associations for sleep. Conditioned arousal may then persist and lead to persistent insomnia. A similar course may develop in the context of an acute psychological stress or a mental disorder. For instance, insomnia that occurs during an episode of major depressive disorder can become a focus of attention, with consequent negative conditioning, and persist even after resolution of the depressive episode. In some cases, insomnia may also have an insidious onset without any identifiable precipitating factor.

The course of insomnia may also be episodic, with recurrent episodes of sleep difficulties associated with the occurrence of stressful events. Chronicity rates range from 45% to 75% for follow-ups of 1–7 years. Even when the course of the insomnia has become chronic, there is night-to-night variability in sleep patterns, with an occasional restful night's sleep interspersed with several nights of poor sleep. The characteristics of insomnia may also change over time. Many individuals with insomnia have a history of "light" or easily disturbed sleep prior to onset of more persistent sleep problems.

Insomnia complaints are more prevalent among middle-age and older adults. The type of insomnia symptom changes as a function of age, with difficulties initiating sleep being more common among young adults and problems maintaining sleep occurring more frequently among middle-age and older individuals.

Difficulties initiating and maintaining sleep can also occur in children and adolescents, but there are more limited data on prevalence, risk factors, and comorbidity during these developmental phases of the lifespan. Sleep difficulties in childhood can result from conditioning factors (e.g., a child who does not learn to fall asleep or return to sleep without the presence of a parent) or from the absence of consistent sleep schedules and bedtime routines. Insomnia in adolescence is often triggered or exacerbated by irregular sleep schedules (e.g., phase delay). In both children and adolescents, psychological and medical factors can contribute to insomnia.

The increased prevalence of insomnia in older adults is partly explained by the higher incidence of physical health problems with aging. Changes in sleep patterns associated with the normal developmental process must be differentiated from those exceeding age-related changes. Although polysomnography is of limited value in the routine evaluation of insomnia, it may be more useful in the differential diagnosis among older adults because the etiologies of insomnia (e.g., sleep apnea) are more often identifiable in older individuals.

Risk and Prognostic Factors

While the risk and prognostic factors discussed in this section increase vulnerability to insomnia, sleep disturbances are more likely to occur when predisposed individuals are exposed to precipitating events, such as major life events (e.g., illness, separation) or less severe but more chronic daily stress. Most individuals resume normal sleep patterns after the initial triggering event has disappeared, but others—perhaps those more vulnerable to insomnia—continue experiencing persistent sleep difficulties. Perpetuating factors such as poor sleep habits, irregular sleep scheduling, and the fear of not sleeping feed into the insomnia problem and may contribute to a vicious cycle that may induce persistent insomnia.

Temperamental. Anxiety or worry-prone personality or cognitive styles, increased arousal predisposition, and tendency to repress emotions can increase vulnerability to insomnia.

Environmental. Noise, light, uncomfortably high or low temperature, and high altitude may also increase vulnerability to insomnia.

Genetic and physiological. Female gender and advancing age are associated with increased vulnerability to insomnia. Disrupted sleep and insomnia display a familial disposition. The prevalence of insomnia is higher among monozygotic twins relative to dizygotic twins; it is also higher in first-degree family members compared with the general population. The extent to which this link is inherited through a genetic predisposition, learned by observations of parental models, or established as a by-product of another psychopathology remains undetermined.

Course modifiers. Deleterious course modifiers include poor sleep hygiene practices (e.g., excessive caffeine use, irregular sleep schedules).

Gender-Related Diagnostic Issues

Insomnia is a more prevalent complaint among females than among males, with first onset often associated with the birth of a new child or with menopause. Despite higher prevalence among older females, polysomnographic studies suggest better preservation of sleep continuity and slow-wave sleep in older females than in older males.

Diagnostic Markers

Polysomnography usually shows impairments of sleep continuity (e.g., increased sleep latency and time awake after sleep onset and decreased sleep efficiency [percentage of time in bed asleep]) and may show increased stage 1 sleep and decreased stages 3 and 4 sleep. The severity of these sleep impairments does not always match the individual's clinical presentation or subjective complaint of poor sleep, as individuals with insomnia often underestimate sleep duration and overestimate wakefulness relative to polysomnography. Quantitative electroencephalographic analyses may indicate that individuals with insomnia have greater high-frequency electroencephalography power relative to good sleepers both around the sleep onset period and during non-rapid eye movement sleep, a feature suggestive of increased cortical arousal. Individuals with insomnia disorder may have a lower sleep propensity and typically do not show increased daytime sleepiness on objective sleep laboratory measures compared with individuals without sleep disorders.

Other laboratory measures show evidence, although not consistently, of increased arousal and a generalized activation of the hypothalamic-pituitary-adrenal axis (e.g., increased cortisol levels, heart rate variability, reactivity to stress, metabolic rate). In general, findings are consistent with the hypothesis that increased physiological and cognitive arousal plays a significant role in insomnia disorder.

Individuals with insomnia disorder may appear either fatigued or haggard or, conversely, overaroused and “wired.” However, there are no consistent or characteristic abnormalities on physical examination. There may be an increased incidence of stress-

related psychophysiological symptoms (e.g., tension headache, muscle tension or pain, gastrointestinal symptoms).

Functional Consequences of Insomnia Disorder

Interpersonal, social, and occupational problems may develop as a result of insomnia or excessive concern with sleep, increased daytime irritability, and poor concentration. Decreased attention and concentration are common and may be related to higher rates of accidents observed in insomnia. Persistent insomnia is also associated with long-term consequences, including increased risks of major depressive disorder, hypertension, and myocardial infarction; increased absenteeism and reduced productivity at work; reduced quality of life; and increased economic burden.

Differential Diagnosis

Normal sleep variations. Normal sleep duration varies considerably across individuals. Some individuals who require little sleep ("short sleepers") may be concerned about their sleep duration. Short sleepers differ from individuals with insomnia disorder by the lack of difficulty falling or staying asleep and by the absence of characteristic daytime symptoms (e.g., fatigue, concentration problems, irritability). However, some short sleepers may desire or attempt to sleep for a longer period of time and, by prolonging time in bed, may create an insomnia-like sleep pattern. Clinical insomnia also should be distinguished from normal, age-related sleep changes. Insomnia must also be distinguished from sleep deprivation due to inadequate opportunity or circumstance for sleep resulting, for example, from an emergency or from professional or family obligations forcing the individual to stay awake.

Situational/acute insomnia. *Situational/acute insomnia* is a condition lasting a few days to a few weeks, often associated with life events or with changes in sleep schedules. These acute or short-term insomnia symptoms may also produce significant distress and interfere with social, personal, and occupational functioning. When such symptoms are frequent enough and meet all other criteria except for the 3-month duration, a diagnosis of other specified insomnia disorder or unspecified insomnia disorder is made.

Delayed sleep phase and shift work types of circadian rhythm sleep-wake disorder. Individuals with the delayed sleep phase type of circadian rhythm sleep-wake disorder report sleep-onset insomnia only when they try to sleep at socially normal times, but they do not report difficulty falling asleep or staying asleep when their bed and rising times are delayed and coincide with their endogenous circadian rhythm. Shift work type differs from insomnia disorder by the history of recent shift work.

Restless legs syndrome. Restless legs syndrome often produces difficulties initiating and maintaining sleep. However, an urge to move the legs and any accompanying unpleasant leg sensations are features that differentiate this disorder from insomnia disorder.

Breathing-related sleep disorders. Most individuals with a breathing-related sleep disorder have a history of loud snoring, breathing pauses during sleep, and excessive daytime sleepiness. Nonetheless, as many as 50% of individuals with sleep apnea may also report insomnia symptoms, a feature that is more common among females and older adults.

Narcolepsy. Narcolepsy may cause insomnia complaints but is distinguished from insomnia disorder by the predominance of symptoms of excessive daytime sleepiness, cataplexy, sleep paralysis, and sleep-related hallucinations.

Parasomnias. Parasomnias are characterized by a complaint of unusual behavior or events during sleep that may lead to intermittent awakenings and difficulty resuming sleep. However, it is these behavioral events, rather than the insomnia per se, that dominate the clinical picture.

Substance/medication-induced sleep disorder, insomnia type. Substance/medication-induced sleep disorder, insomnia type, is distinguished from insomnia disorder by the fact that a substance (i.e., a drug of abuse, a medication, or exposure to a toxin) is judged to be etiologically related to the insomnia (see “Substance/Medication-Induced Sleep Disorder” later in this chapter). For example, insomnia occurring only in the context of heavy coffee consumption would be diagnosed as caffeine-induced sleep disorder, insomnia type, with onset during intoxication.

Comorbidity

Insomnia is a common comorbidity of many medical conditions, including diabetes, coronary heart disease, chronic obstructive pulmonary disease, arthritis, fibromyalgia, and other chronic pain conditions. The risk relationship appears to be bidirectional: insomnia increases the risk of medical conditions, and medical problems increase the risk of insomnia. The direction of the relationship is not always clear and may change over time; for this reason, comorbid insomnia is the preferred terminology in the presence of coexisting insomnia with another medical condition (or mental disorder).

Individuals with insomnia disorder frequently have a comorbid mental disorder, particularly bipolar, depressive, and anxiety disorders. Persistent insomnia represents a risk factor or an early symptom of subsequent bipolar, depressive, anxiety, and substance use disorders. Individuals with insomnia may misuse medications or alcohol to help with nighttime sleep, anxiolytics to combat tension or anxiety, and caffeine or other stimulants to combat excessive fatigue. In addition to worsening the insomnia, this type of substance use may in some cases progress to a substance use disorder.

Relationship to International Classification of Sleep Disorders

There are several distinct insomnia phenotypes relating to the perceived source of the insomnia that are recognized by the *International Classification of Sleep Disorders, 2nd Edition (ICSD-2)*. These include *psychophysiological insomnia*, *idiopathic insomnia*, *sleep-state misperception*, and *inadequate sleep hygiene*. Despite their clinical appeal and heuristic value, there is limited evidence to support these distinct phenotypes.

Hypersomnolence Disorder

Diagnostic Criteria	307.44 (F51.11)
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- A. Self-reported excessive sleepiness (hypersomnolence) despite a main sleep period lasting at least 7 hours, with at least one of the following symptoms:
 - 1. Recurrent periods of sleep or lapses into sleep within the same day.
 - 2. A prolonged main sleep episode of more than 9 hours per day that is nonrestorative (i.e., unrefreshing).
 - 3. Difficulty being fully awake after abrupt awakening.
- B. The hypersomnolence occurs at least three times per week, for at least 3 months.
- C. The hypersomnolence is accompanied by significant distress or impairment in cognitive, social, occupational, or other important areas of functioning.
- D. The hypersomnolence is not better explained by and does not occur exclusively during the course of another sleep disorder (e.g., narcolepsy, breathing-related sleep disorder, circadian rhythm sleep-wake disorder, or a parasomnia).
- E. The hypersomnolence is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication).

- F. Coexisting mental and medical disorders do not adequately explain the predominant complaint of hypersomnolence.

Specify if:

With mental disorder, including substance use disorders

With medical condition

With another sleep disorder

Coding note: The code 307.44 (F51.11) applies to all three specifiers. Code also the relevant associated mental disorder, medical condition, or other sleep disorder immediately after the code for hypersomnolence disorder in order to indicate the association.

Specify if:

Acute: Duration of less than 1 month.

Subacute: Duration of 1–3 months.

Persistent: Duration of more than 3 months.

Specify current severity:

Specify severity based on degree of difficulty maintaining daytime alertness as manifested by the occurrence of multiple attacks of irresistible sleepiness within any given day occurring, for example, while sedentary, driving, visiting with friends, or working.

Mild: Difficulty maintaining daytime alertness 1–2 days/week.

Moderate: Difficulty maintaining daytime alertness 3–4 days/week.

Severe: Difficulty maintaining daytime alertness 5–7 days/week.

Diagnostic Features

Hypersomnolence is a broad diagnostic term and includes symptoms of excessive quantity of sleep (e.g., extended nocturnal sleep or involuntary daytime sleep), deteriorated quality of wakefulness (i.e., sleep propensity during wakefulness as shown by difficulty awakening or inability to remain awake when required), and sleep inertia (i.e., a period of impaired performance and reduced vigilance following awakening from the regular sleep episode or from a nap) (Criterion A). Individuals with this disorder fall asleep quickly and have a good sleep efficiency (>90%). They may have difficulty waking up in the morning, sometimes appearing confused, combative, or ataxic. This prolonged impairment of alertness at the sleep-wake transition is often referred to as *sleep inertia* (i.e., sleep drunkenness). It can also occur upon awakening from a daytime nap. During that period, the individual appears awake, but there is a decline in motor dexterity, behavior may be very inappropriate, and memory deficits, disorientation in time and space, and feelings of grogginess may occur. This period may last some minutes to hours.

The persistent need for sleep can lead to automatic behavior (usually of a very routine, low-complexity type) that the individual carries out with little or no subsequent recall. For example, individuals may find themselves having driven several miles from where they thought they were, unaware of the “automatic” driving they did in the preceding minutes. For some individuals with hypersomnolence disorder, the major sleep episode (for most individuals, nocturnal sleep) has a duration of 9 hours or more. However, the sleep is often nonrestorative and is followed by difficulty awakening in the morning. For other individuals with hypersomnolence disorder, the major sleep episode is of normal nocturnal sleep duration (6–9 hours). In these cases, the excessive sleepiness is characterized by several unintentional daytime naps. These daytime naps tend to be relatively long (often lasting 1 hour or more), are experienced as nonrestorative (i.e., unrefreshing), and do not lead to improved alertness. Individuals with hypersomnolence have daytime naps nearly everyday regardless of the nocturnal sleep duration. Subjective sleep quality may or may not be reported as good. Individuals typically feel sleepiness developing over a period of time, rather than

experiencing a sudden sleep “attack.” Unintentional sleep episodes typically occur in low-stimulation and low-activity situations (e.g., while attending lectures, reading, watching television, or driving long distances), but in more severe cases they can manifest in high-attention situations such as at work, in meetings, or at social gatherings.

Associated Features Supporting Diagnosis

Nonrestorative sleep, automatic behavior, difficulties awakening in the morning, and sleep inertia, although common in hypersomnolence disorder, may also be seen in a variety of conditions, including narcolepsy. Approximately 80% of individuals with hypersomnolence report that their sleep is nonrestorative, and as many have difficulties awakening in the morning. Sleep inertia, though less common (i.e., observed in 36%–50% of individuals with hypersomnolence disorder), is highly specific to hypersomnolence. Short naps (i.e., duration of less than 30 minutes) are often unrefreshing. Individuals with hypersomnolence often appear sleepy and may even fall asleep in the clinician’s waiting area.

A subset of individuals with hypersomnolence disorder have a family history of hypersomnolence and also have symptoms of autonomic nervous system dysfunction, including recurrent vascular-type headaches, reactivity of the peripheral vascular system (Raynaud’s phenomenon), and fainting.

Prevalence

Approximately 5%–10% of individuals who consult in sleep disorders clinics with complaints of daytime sleepiness are diagnosed as having hypersomnolence disorder. It is estimated that about 1% of the European and U.S. general population has episodes of sleep inertia. Hypersomnolence occurs with relatively equal frequency in males and females.

Development and Course

Hypersomnolence disorder has a persistent course, with a progressive evolution in the severity of symptoms. In most extreme cases, sleep episodes can last up to 20 hours. However, the average nighttime sleep duration is around 9½ hours. While many individuals with hypersomnolence are able to reduce their sleep time during working days, weekend and holiday sleep is greatly increased (by up to 3 hours). Awakenings are very difficult and accompanied by sleep inertia episodes in nearly 40% of cases. Hypersomnolence fully manifests in most cases in late adolescence or early adulthood, with a mean age at onset of 17–24 years. Individuals with hypersomnolence disorder are diagnosed, on average, 10–15 years after the appearance of the first symptoms. Pediatric cases are rare.

Hypersomnolence has a progressive onset, with symptoms beginning between ages 15 and 25 years, with a gradual progression over weeks to months. For most individuals, the course is then persistent and stable, unless treatment is initiated. The development of other sleep disorders (e.g., breathing-related sleep disorder) may worsen the degree of sleepiness. Although hyperactivity may be one of the presenting signs of daytime sleepiness in children, voluntary napping increases with age. This normal phenomenon is distinct from hypersomnolence.

Risk and Prognostic Factors

Environmental. Hypersomnolence can be increased temporarily by psychological stress and alcohol use, but they have not been documented as environmental precipitating factors. Viral infections have been reported to have preceded or accompanied hypersomnolence in about 10% of cases. Viral infections, such as HIV pneumonia, infectious mononucleosis, and Guillain-Barré syndrome, can also evolve into hypersomnolence within