

Definition, Diagnosis, Classification, and Etiology of Chronic Insomnia

Daniel J. Buysse, M.D.

Western Psychiatric Institute and Clinic and University of Pittsburgh Medical Center, Pittsburgh, PA

Definitions

The term “insomnia” can refer to either a symptom or a syndrome. The symptom of insomnia refers to a complaint of difficulty falling asleep; frequent or prolonged awakenings; or nonrestorative, poor quality sleep in an individual who has adequate opportunity and circumstances for sleep. Insomnia is not defined by sleep laboratory measures or any specific sleep duration. Because insomnia occurs only when there is adequate opportunity for sleep, it must be distinguished from sleep deprivation, in which the individual’s short sleep duration results from inadequate opportunity. The syndrome of insomnia, or insomnia disorder, refers to the presence of insomnia symptoms together with significant distress or impairment of daytime function. The most common daytime impairments associated with insomnia include complaints of fatigue, mood disturbance, and impaired cognitive function. Actual daytime sleepiness is less common among individuals with insomnia. Table 1 presents recently developed research diagnostic criteria for the insomnia syndrome.¹ The term “insomnia” is often used imprecisely in both the medical literature and lay press. It should not be used to refer to sleep symptoms or complaints in a general sense, and it must always be distinguished from sleep deprivation, which has different causes and consequences.

Diagnosis

The diagnosis of chronic insomnia rests on a detailed clinical history. In particular, the history should focus on premorbid sleep characteristics, specific sleep symptoms, chronology of the problem, exacerbating and alleviating factors, and response to previous treatments. The insomnia problem should be viewed from a 24-hour perspective covering the patient’s usual sleep and wake periods. This includes consideration of behaviors, cognitions, and environmental factors related to sleep and the sleep environment as well as the regularity of sleep hours from day to day. Other sleep-related symptoms must be assessed, including restless legs, snoring or breathing problems, and abnormal movements or behaviors during sleep. Daytime activities should be reviewed, with particular emphasis on exercise, regularity of work and daytime activities, limitations in these activities, daytime sleepiness, and napping. Finally, interviewing the patient’s bed partner may elicit

Table 1—Research Diagnostic Criteria for Insomnia Disorder¹

- A. The individual reports one or more of the following sleep related complaints:
 1. Difficulty initiating sleep.
 2. Difficulty maintaining sleep.
 3. Waking up too early.
 4. Sleep is chronically nonrestorative or poor in quality.
- B. The above sleep difficulty occurs despite adequate opportunity and circumstances for sleep.
- C. At least one of the following forms of daytime impairment related to the nighttime sleep difficulty is reported by the individual:
 1. Fatigue/malaise
 2. Attention, concentration, or memory impairment
 3. Social/vocational dysfunction or poor school performance
 4. Mood disturbance/irritability
 5. Daytime sleepiness
 6. Motivation/energy/initiative reduction
 7. Proneness for errors/accidents at work or while driving
 8. Tension headaches and/or gastrointestinal symptoms in response to sleep loss
 9. Concerns or worries about sleep

symptoms not evident to the patient.

A thorough medical and psychiatric history is also critical in the evaluation of insomnia, given the frequent occurrence of comorbid conditions. Medical conditions that cause breathing difficulty, pain, or limited mobility are especially important in evaluating insomnia complaints. Virtually any psychiatric disorder can also be associated with insomnia, including mood, anxiety, substance use, and psychotic disorders. A thorough medication and substance history is also essential and should include prescription and over-the-counter medications, substances such as caffeine and alcohol, and drugs of abuse.

Several other tools may aid the diagnostic process. Questionnaires may be useful to quantify sleep, psychiatric, and medical symptoms as well as a predisposition to worry or to have insomnia under stress. A 2-week sleep-wake diary, either in text or graphical form, allows patients to record their actual sleep hours and experiences and can help establish patterns of sleep and day-to-day variability. Actigraphy is an objective means of assessing rest-activity patterns, using a motion-sensitive device worn on the nondominant wrist. Similar to the sleep diary, actigraphy can be useful for examining temporal patterns, variability, and responses to treatment. Polysomnography (PSG), or a sleep study, is the gold standard for quantifying sleep and sleep disturbances. However, PSG is not routinely recommended for the

Disclosure: Dr. Buysse is a consultant for Actelion, Cephalon, Eli Lilly, Merck, Neurocrine, Pfizer, Respiroics, Sanofi-Synthelabo, Servier, Sepracor, and Takeda

evaluation of chronic insomnia² because, in most cases, PSG simply confirms the patient's subjective report without indicating a cause for awakenings. However, PSG may be useful in specific clinical situations, such as the suspicion of sleep apnea, periodic limb movements, or parasomnias.

Classification

Classifications for insomnia are typically based on symptoms, duration, or presumed etiology. Symptom-based classifications (i.e., sleep onset, sleep maintenance, or mixed type insomnia) are of limited value, since the specific type of sleep complaint often varies within an individual over time,³ and a majority of patients actually complain of more than one type of sleep disturbance. Duration-based classifications, such as transient (several days), short-term (up to 3 weeks), and long-term insomnia⁴ or occasional, repeated brief and continued insomnia,⁵ have had limited validation and are of questionable value given the high rate of chronicity and recurrence in insomnia. Transient and short-term insomnias are often related to specific psychosocial or environmental stresses, whereas chronic insomnia is more often related to intrinsic sleep disorders or primary insomnia.

Etiology-based classifications are the most useful for categorizing chronic insomnia. Specific classification systems include the International Classification of Disease (ICD)–9, the ICD–10,⁶ the Diagnostic and Statistical Manual–Fourth Edition (DSM–IV),⁷ and the International Classification of Sleep Disorders Second Edition (ICSD–2).⁸ In general, the ICD has the broadest, least well-described categories; the DSM–IV has somewhat more specific categories; and the ICSD–2 has the most specific, with over 40 disorders that can present with insomnia symptoms. Each of the major classification systems describes three broad categories of etiologically-defined insomnia disorders.

Etiology

The insomnia syndrome is commonly described as being secondary to other conditions, associated with other sleep disorders, or primary when no other etiology can be identified. Secondary insomnia refers to the insomnia syndrome when it is thought to be due to a medical or psychiatric disorder or to the effects or withdrawal from a substance/medication. This is the largest single group of chronic insomnia diagnoses seen in epidemiological studies and clinical samples.^{9,10} In practice, however, it is often very difficult to distinguish whether insomnia is truly caused by these other conditions or whether it is simply comorbid.^{11,12} Insomnia associated with other sleep disorders includes Restless Legs Syndrome, Obstructive or Central Sleep Apnea Syndrome, parasomnias, or other sleep disorders. Primary insomnias are those disorders in which insomnia is the major symptom, with no other disorder as a likely cause. The DSM–IV includes a single category for primary insomnia, whereas the ICSD–2 includes narrower categories of insomnia, such as psychophysiological, idiopathic, and paradoxical insomnias, which have received some support from validation studies.^{13,14}

Research Gaps and Needs

Despite its prevalence and widespread acceptance as a medical/psychiatric condition, major gaps and needs still exist in the definition and classification of chronic insomnia. These include:

(1) a more precise determination of the cause of insomnia complaints—not all poor sleepers complain of insomnia, and not all insomnia patients have objectively poor sleep,¹⁵ suggesting that sleep disturbance alone is not the sole cause; (2) a better understanding of the natural history of insomnia and its longitudinal association with medical and psychiatric conditions; (3) further validation of specific insomnia subtypes and differential treatment response; and (4) better tools for assessment and diagnosis, including consistent standards for diagnosis and reporting of results; validated assessment tools, including structured diagnostic interviews; and objective indicators of insomnia and its daytime impairments.

REFERENCES

1. Edinger JD, Bonnet MH, Bootzin RR, et al. Derivation of research diagnostic criteria for insomnia: report of an American Academy of Sleep Medicine Work Group. *Sleep*. 2004;27:1567–96.
2. Sateia MJ, Doghramji K, Hauri PJ, Morin CM. Evaluation of chronic insomnia. An American Academy of Sleep Medicine review. *Sleep*. 2000;23:243–308.
3. Hohagen F, Kappler C, Schramm E, Riemann D, Weyerer S. Sleep onset insomnia, sleep maintaining insomnia, and insomnia with early morning awakening—temporal stability of subtypes in a longitudinal study on general practice attenders. *Sleep*. 1994;17:551–4.
4. National Institutes of Health. Drugs and insomnia: the use of medications to promote sleep. National Institutes of Health Consensus Development Conference Statement Online. 1984;4:1–9.
5. Vollrath M, Wicki W, Angst J. The Zurich study. VIII. Insomnia: association with depression, anxiety, somatic syndromes, and course of insomnia. *Eur Arch Psychiatry Neurol Sci*. 1989;239:113–24.
6. World Health Organization. International Statistical Classification of Diseases and Related Health Problems. 10th ed. Geneva: World Health Organization; 1992.
7. American Psychiatric Association (APA). Diagnostic and Statistical Manual of Mental Disorders (DSM–V–TR). 4th ed. Washington, DC: 2000.
8. American Academy of Sleep Medicine. The International Classification of Sleep Disorders (ICSD–2): Diagnostic and Coding Manual. 2nd ed. 2005.
9. Buysse DJ, Reynolds CF, Hauri PJ, et al. Diagnostic concordance for DSM–IV sleep disorders: a report from the APA/NIMH DSM–IV field trial. *Am J Psychiatry*. 1994;151:1351–60.
10. Ohayon MM. Prevalence of DSM–IV diagnostic criteria of insomnia: distinguishing insomnia related to mental disorders from sleep disorders. *J Psychiatr Res*. 1997; 31:333–46.
11. Harvey AG. Insomnia: symptom or diagnosis? *Clin Psychol Rev*. 2001;21:1037–59.
12. McCrae CS, Lichstein KL. Secondary insomnia: diagnostic challenges and intervention opportunities. *Sleep Med Rev*. 2001;5:47–61.
13. Edinger JD, Fins AI, Goeke JM, et al. The empirical identification of insomnia subtypes: a cluster analytic approach. *Sleep*. 1996;19:398–411.
14. Krystal AD, Edinger JD, Wohlgenuth WK, Marsh GR. NREM sleep EEG frequency spectral correlates of sleep complaints in primary insomnia subtypes. *Sleep*. 2002;25:630–40.
15. Fichten CS, Creti L, Amsel R, Brender W, Weinstein N, Libman E. Poor sleepers who do not complain of insomnia: myths and realities about psychological and lifestyle characteristics of older good and poor sleepers. *J Behav Med*. 1995;18:189–223.