

This chapter is both a primer on how to evaluate insomnia and a reference guide to the array of assessment tools currently available. We first review major theories of the origins and maintenance of insomnia to highlight the importance of keeping a comprehensive formulation in mind as details are gathered. We then review essential data-gathering techniques, including self-administered questionnaires, sleep logs, the initial interview, and other clinical sources. Using sleep logs, we depict common insomnia subtypes and apply the 3P<sup>1,2</sup> model that categorizes case material into predisposing, precipitating, and perpetuating factors. The resulting analyses demonstrate how clinical case material may be organized to enhance understanding of insomnia and target its treatment.

This chapter discusses various methods by which clinicians evaluate the complaint of insomnia (for an additional perspective see Chapter 77). Although insomnia is extremely common, it can still be a difficult problem to evaluate, let alone to treat, because it is a symptom of a wide variety of disorders, has a number of different manifestations, and often follows a variable course. The clinician must avoid focusing on the particulars of last night's sleep problem and instead address the major factors underlying the symptom. The methods discussed here have evolved to address this challenge. Although few investigators will apply this list exhaustively, a working knowledge of these methods will prove very helpful when the clinician is confronted with the inconstancy and persistence of insomnia.

Certain methods of assessment are beyond the scope of this chapter. We omit specialized techniques that have been developed to assess sleep disturbance in children, and we forgo discussion of assessments that have been devised to further research protocols, even though some of these techniques have been proposed as potentially useful in the clinical setting. Our aim is to address the needs of the practicing clinician rather than listing all esoteric research methodologies. Finally, we do not cover the various methods of assessing daytime sleepiness, which is a major complaint of only a subgroup of insomniac patients (see Chapter 143).

## MODELS OF THE PATHOGENESIS OF INSOMNIA

The assessment of any disorder is typically directed toward identifying the factors producing and maintaining the condition, as well as toward gauging a person's predisposition to the disorder. Although this model is often applied to insomnia, the fit is not always comfortable. Despite careful inquiry, the cause and pathogenesis of a substantial proportion of insomnia cases often remain unsettled. By contrast, the characteristics and consequences of a par-

ticular case of insomnia, as well as factors maintaining the disturbance, can usually be well delineated. Effective treatments for insomnia target these features. The clinician therefore often works on multiple levels, addressing current maladaptations while building a case for pathogenesis that can direct longer-term treatment interventions. With this in mind, we briefly review the major models proposing mechanisms responsible for the insomnia disorders.

### *Psychiatric and Psychological Conditions*

Insomniacs, clinicians, and normally good sleepers have long recognized the close connection between psychological distress and poor sleep. Correlative research has shown that excessive anxiety, depression, and severe psychopathology are associated with sleep disturbance.<sup>3-7</sup> A series of studies has delineated personality patterns associated with insomnia, and a theory has been put forward that internalization of conflicts produces physiologic arousal in vulnerable persons.<sup>8,9</sup> Concomitant helplessness has also been identified as a key contributing factor.<sup>10-12</sup>

Organic factors associated with psychiatric conditions or acute states that promote wakefulness or impair sleep have also been identified; these factors include the lack of cortisol suppression, enhanced cholinergic mechanisms, and reduced slow-wave sleep (see Section 10).<sup>13-15</sup>

The findings from six studies showing that insomnia is a risk factor for developing depression has reminded clinicians not to reflexively attribute insomnia to depression.<sup>16-20</sup> Notwithstanding the recent *International Classification of Sleep Disorders*, 2nd edition, *Diagnostic and Coding Manual (ICSD-2)* nosology, it is the current consensus of the field to describe insomnia in the presence of depression as "comorbid insomnia,"<sup>21</sup> conveying the understanding that insomnia may be either secondary to or independent of depression. Two studies bearing on this issue show that successful treatment of major depression does not completely relieve insomnia: Sleep disturbance and fatigue were the most common residual symptoms after successful treatment of depression.<sup>22</sup> Although sleep quality improves with treatment of depression, sleep remains disturbed compared to normal controls.<sup>23</sup>

### *Learned Insomnia and the Vicious Circle*

Experiencing poor sleep night after night promotes an association between sleeplessness and both activities preceding bedtime and the setting where sleep is being sought.<sup>24</sup> Once these connections are established, bedtime rituals and the bedroom itself become cues for poor sleep. Worries about sleeplessness that gather force as the night approaches then become a self-fulfilling prophecy. Animal studies showing classic conditioning of sleep and wakefulness support this learning model of insomnia.<sup>25,26</sup>

### *Physiologic Arousal*

A global reduction in metabolism as well as relative deactivation of a broad range of other physiologic processes are hallmarks of the transition to sleep. It is therefore not surprising that heightened physiologic arousal, indexed by such changes as increased body temperature, heart rate, fast EEG activity, and muscle tension, is incompatible with sleep.<sup>27-29</sup> Patients may be unaware of their hyperarousal, posing a problem for the diagnostician. Furthermore, there is not yet a clinically practical, valid, and objective method of assessing arousal.

### *Inadequate Sleep Hygiene*

Aspects of everyday living have long been known capable of promoting or preventing sleep.<sup>30</sup> It is common knowledge that keeping regular bedtimes and avoiding caffeine in the evening enhances the likelihood of good-quality sleep. On the other hand, conventional wisdom can be misleading. For example, many people, insomniac or not, believe that alcohol promotes sleep. In fact, although the sedating properties of alcohol can hasten sleep onset, subsequent sleep may be more disrupted. Similarly, some persons make the mistake of trying to “tire themselves out” with strenuous activity before bedtime, leading to hyperarousal instead of sleep. Practices of good and poor sleep hygiene have been the subject of systematic focus.<sup>1,31,32</sup> It has been found that they are often jettisoned in the pursuit of short-term relief. For example, napping and caffeine may be deployed against the effects of sleep loss, only to lead to more difficulties sleeping the next night.

### *Cognitive Factors: Arousal and Beliefs*

The buzz of an overactive mind can block sleep onset or can awaken the sleeper.<sup>33-37</sup> Sometimes insomnia can be readily attributed to worries and cares, but benign planning and reflections on the day or jumping from one uncompleted thought to another can also cause sleeplessness. Because substantial mental processing occurs subconsciously, the irritating thought might not even be available for scrutiny.

The poor sleeper also learns to anticipate the daytime consequences of insomnia, such as cloudy consciousness, fatigue, and irritability, leading to a fresh round of worry and arousal. Anticipatory anxiety resulting from past insomnia has become the cause of future sleep disturbance, completing the vicious circle. Beliefs and self-attribution can also act like self-fulfilling prophecies.

The insomniac patient who assumes that mild sleep loss eventually leads to an impaired immune system, disease, and even death has greatly raised the stakes on falling asleep. Similarly, labeling oneself an insomniac may be a depressing thought that is damaging to the self. The label itself becomes worrisome and interferes with sleep.

### *Primary Sleep Disorders*

Polysomnography (PSG) has illuminated physiologic processes taking place under cover of dark. Such monitoring has revealed that some persons with insomnia complaints have arousals induced by sleep-disordered breathing; in others, brief arousals or awakenings are triggered by periodically occurring movements.<sup>37,38</sup> Less commonly, other

medical problems such as nocturnal seizures and cardiac arrhythmias may be confined to sleep and therefore initially manifest as sleep disorders.

### *Sleep Disorders Secondary to Medical Conditions*

Trouble sleeping can also be the result of the pain, discomfort, and pathophysiology associated with medical conditions (see Section 10). Such secondary insomnia does not always remain linked to the patient's illness. The patient may be taking medications that interfere with sleep, or a learned association can develop between sleeplessness and bedroom cues. The patient might spend too much time in bed to “rest and get healthy,” leading to a weakening of the circadian sleep-wake cycle, or might begin using hypnotic medication on a regular basis and then have difficulty stopping because of anticipatory anxiety and the physiologic effects of withdrawal. Regardless of the specific route, troubled sleep initiated by medical illness can readily lead to chronic insomnia.

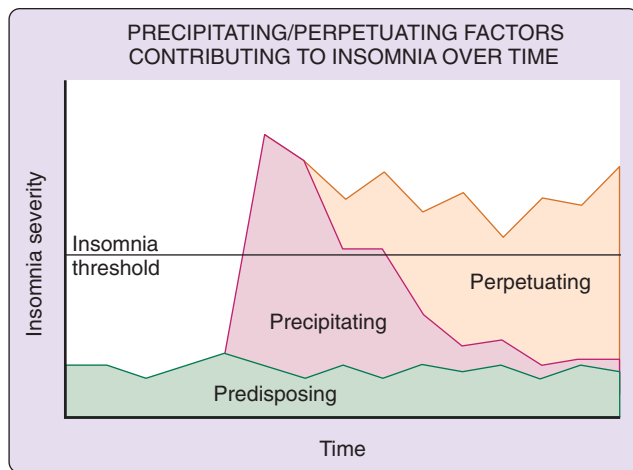
### *Circadian Rhythm Disorders*

Discovery of endogenous timing mechanisms regulating biological and behavioral processes has enhanced understanding of normal and abnormal sleep.<sup>39-40</sup> Although the periodic occurrence of the sleep-wake cycle reflects this endogenous pacemaker, its expression has been shown to be susceptible to the timing, duration, and intensity of time cues. The ability of the most salient time cue, bright light, to shift the times of sleep onset and offset has suggested that aberrant clock mechanisms or poorly timed cue delivery may be implicated in some insomnia disorders.

### *Predisposing, Precipitating, and Perpetuating Factors*

A simple conceptual model, known as the 3P model, organizes the multiple determinants of insomnia just reviewed into predisposing, precipitating, and perpetuating factors (Figs. 144-1 and 144-2).<sup>1,2</sup> Clinical evaluation of all three components allows treatment to address the current conditions producing and sustaining the insomnia as well as a person's vulnerability to future bouts of sleep disturbance.

A recent line of work has investigated whether there is a trait of stress-related vulnerability to insomnia.<sup>41-43</sup> One questionnaire predicts which persons without a current complaint of insomnia are prone to develop insomnia in stressful situations. This nine-item Likert-type questionnaire, the Ford Insomnia Response to Stress Test, has been shown to predict trouble sleeping on the first night in the sleep laboratory and increased difficulty falling asleep when administered caffeine.<sup>42,43</sup> In terms of precipitating factors, one study examined the relationship between life stresses and the triggering of insomnia.<sup>44</sup> It found that sleep in younger persons is more prone to disturbance due to work or school stress, and sleep in older adults is more sensitive to stress associated with health. Finally, perpetuating factors have long been a major focus of the evaluation of insomnia (see Chapter 77 for a list of assessments for perpetuating factors). Historically, arousal was one of the first domains attracting attention for evaluation and treatment. The multiple facets of sleep hygiene have also been



**Figure 144-1** Conceptual model of the development of chronic insomnia and the changing factors that play a role over the course of the disorder. In this particular case, at the onset of the insomnia, precipitating factors predominate. When the insomnia becomes chronic, perpetuating factors become the main feature contributing to the sleep disturbance. (Adapted from Spielman AJ, Caruso L, Glovinsky PB. A behavioral perspective on insomnia. *Psychiatr Clin North Am* 1987;10:541-553). This depiction of the 3P model was improved by the contribution of Max Hirshkowitz, PhD. We acknowledge his help in making the changes over time look dynamic and dimensional rather than fixed and categorical.

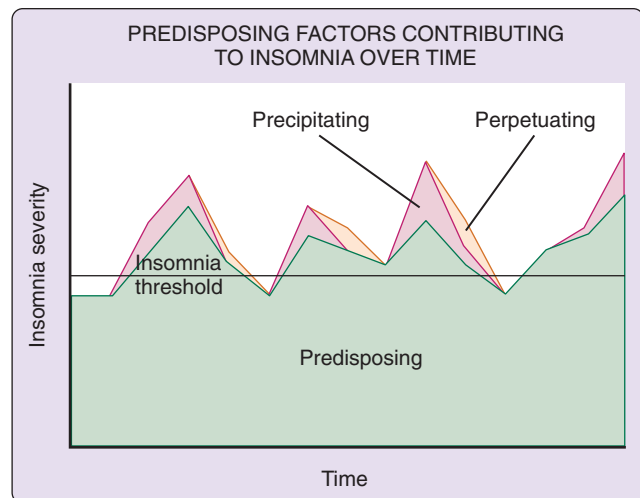
a central focus. With the ascendance of the cognitive view of insomnia and its treatment, beliefs and attitudes, worry, attentional bias, sleep effort, and safety behavior have all become key issues to assess.

In Figure 144-1 we illustrate the maintenance of chronic insomnia by perpetuating factors. In this case, predisposing factors such as hyperarousal or susceptibility to depression do not figure prominently. Loss of a job precipitates a bout of sleeplessness. As our patient with new insomnia begins to cope with unemployment, this factor plays less of a role. He speaks to colleagues, lines up interviews, and believes his prospects are good. Determined to be at his best, he tries to get more sleep by spending more time in bed, and he drinks more coffee to maintain acuity. He begins to worry about how his sleep problem will affect his performance at interviews. Eventually the contribution of the precipitating factor is barely present. Perpetuating factors of poor sleep hygiene and worry about sleeplessness are now the main reasons the sleep problem persists.

In Figure 144-2 the person has a strong predisposition to insomnia. He is generally hyperaroused, overreactive to challenges, and a night owl. He often has trouble falling asleep and attaining an adequate amount of sleep. Although precipitating factors such as interpersonal conflicts, money problems, and health concerns trigger exacerbations of the sleep problem, the main ingredient producing the insomnia remains his underlying predisposition.

## ASSESSMENT METHODS OF SLEEP DISORDERS CENTERS

To obtain a sense of evaluation procedures for insomnia, we conducted a quasirandom telephone survey of 40 sleep



**Figure 144-2** The conceptual model of insomnia applied to a case in which predisposing factors are prominent and are the single most important determinant of the insomnia. Precipitating factors episodically activate the predisposing factors (Adapted from Spielman AJ, Caruso L, Glovinsky PB. A behavioral perspective on insomnia. *Psychiatr Clin North Am* 1987;10:541-553).

disorders centers for the first version of this chapter. At the time of the fourth edition of this book, this sample represented more than 10% of the centers certified by the American Sleep Disorders Association.

We learned that a majority of centers used structured rating scales and questionnaires as adjuncts in the evaluation of patients complaining of insomnia. More than two thirds of the centers send questionnaires to the patient before the initial visit. Although virtually all centers use sleep logs, only about one third of patients fill out a sleep log before the sleep consultation. About three fourths of centers formally evaluate some of their patients for depression, whereas fewer than half evaluate their patients for anxiety. Although only a handful of centers use a separate instrument to assess beliefs and attitudes about sleep, this domain is often measured in sleep questionnaires. Two thirds of patients fill out a sleep and medical history questionnaire, and a similar percentage are evaluated by the clinician with the use of a semistructured interview. Half of the insomniac patients have an evaluation by a psychologist or psychiatrist. After the initial consultation, a fourth of patients undergo nocturnal PSG. In the four centers that use actigraphy, only about 10% of patients receive this type of evaluation.

Unfortunately, most of the sleep logs, sleep history questionnaires, and semistructured interviews are unpublished and are unique to each center. The lists that follow include published and unpublished methods. We refer to an instrument as published when the reference includes either a blank questionnaire or all the items, responses, and scoring necessary for use. Scales referred to as available on request can be purchased or obtained from the authors. The material in the tables is listed by date, except for Table 144-3 (assessment of specific causes), which groups according to categories.

**Table 144-1** Sleep Quality Questionnaires

SCALE NAME (SOURCE)	NO. OF ITEMS	FORMAT
<b>Published</b>		
Pittsburgh Sleep Quality Index <sup>61</sup> (pp. 298-213)	24	Severity and frequency ratings Mainly symptom checklists
<b>Global Score Composed of a Number of Categories</b>		
Insomnia Severity Index <sup>51</sup>	7	Frequency, severity ratings Mainly symptom checklists
<b>Available on Request</b>		
Insomnia Symptom Questionnaire <sup>81</sup>	13	Visual analogue scales

\*All scales assess the quality and adequacy of sleep. None survey etiologic factors.

### Questionnaires, Diaries, and Logs

Some of the best methods for obtaining a balanced, comprehensive overview of a complaint of persistent insomnia involve having patients fill out retrospective questionnaires, inventories of current status, and prospective sleep diaries or logs.

### Retrospective Instruments

A main benefit of adopting a guided retrospective approach to the assessment of insomnia is that it aids in forming an accurate picture of the sleep disturbance. Provided prompts to recognition memory as opposed to relying solely on recall, the patient is helped to gain a broader perspective on the problem. There is less need to focus only on those aspects that, in the judgment of the patient, would justify clinical attention. A systematic review of available assessment instruments and recommendations for a standard evaluation of insomnia for research studies has been published.<sup>45</sup>

## SLEEP AND MEDICAL HISTORY QUESTIONNAIRES

There are two types of sleep history questionnaire. One assesses the adequacy and quality of sleep, and the other, more comprehensive type also includes a survey of potential etiologic factors (Table 144-1). Most useful if filled out by the patient before the first visit, sleep and medical history questionnaires can broach potentially sensitive topics for the patient's consideration in privacy, while also giving notice that the inquiry will necessarily be a broad one if the patient's complaint is to be adequately addressed. Questionnaires also have the benefit of introducing the long view and of moving the patient from the role of hapless victim of the vagaries of sleep into that of a coinvestigator.<sup>32,33</sup> Committing his or her experience to paper gives the patient the opportunity for reflection and revision common to all writing processes, which fosters a more-considered and more-reliable assessment.

These methods do generate problems. The most obvious is that they often take a fair amount of the clinician's time to review. One such example is the venerable Cornell Medical Index, which contains 195 items, yielding a comprehensive survey.<sup>46</sup>

In addition to reviewing the patient's past medical history and current symptoms, it is essential to carefully consider the effects of all medications administered over the course of the insomnia disorder. This is partly accomplished with the sleep diary (see later), which asks the patient to list medication use. However, because the patient starts filling out the diary after the evaluation has begun, it does not yield information on the effect of drugs during the development of the insomnia. The clinical interview is the best way to weave together the features of medication use (e.g., type, amount, time of administration, frequency, side effects, withdrawal effects on discontinuation, and degree of drug tolerance) with other treatments and coping strategies in order to gauge the effects of these approaches on sleep.

There are subtle problems associated with the use of questionnaires. They can create a false sense, on the part of both patient and clinician, that the inquiry has been comprehensive. There is a danger that in the interests of expediency, the clinician may choose not to cover the same ground as the questionnaire. Alternatively, due to the patient's positive response bias, the clinician may be obliged to follow up more intensively than would be otherwise necessary merely to rule out various diagnostic possibilities, and the interview will be prolonged. In other cases, patients simply are not capable of providing a faithful account by these means. However, even when a well-designed questionnaire is completed accurately, there is ample opportunity for confusion.

For these reasons, leaving the history taking to the form is tantamount to leaving out the history altogether. Rather than being misused in this way, questionnaires are properly used to structure the ensuing inquiry, to serve as an outline, and to guarantee that attention will be paid to all relevant areas as well as to the particular flags raised by the patient's responses.

## PSYCHOPATHOLOGY AND PERSONALITY QUESTIONNAIRES

Although insomnia can result from a wide array of medical, environmental, and chronobiological conditions, the high prevalence of psychopathology in patients with insomnia makes careful attention to this domain particularly important. Specific disorders such as depression, anxiety disorder, chaotic personality organizations, and psychoses can play a direct role in the genesis of insomnia. Even when overt psychopathology is not present, certain types of personality configuration can predispose toward insomnia. For example, detail-oriented perfectionists might not allow themselves a respite from the day's challenges, instead bringing these into bed for further reflection. Persons with ruminative personalities can become caught in a cycle of misgivings or strategizing rather than settling into sleep.

Screening for psychopathology and personality typing are readily accomplished through the use of assessment instruments (Table 144-2). A large number of tests have



**Table 144-2** Assessment of Psychopathology and Personality

SCALE NAME (SOURCE)	NO. OF ITEMS	FORMAT	SCALE DESCRIPTION
<b>Published</b>			
Hamilton Rating Scale of Depression <sup>82</sup> (pp. 61-62)	21	Clinician rating of severity based on patient interview	Semistructured interview for depression Clinician needed for administration
Beck Depression Inventory (pp. 561-571) I <sup>83</sup> , II <sup>49</sup>	21	Four levels of severity description	Assesses depressive state with a cognitive emphasis
Self-Rating Depression Scale <sup>84</sup> (p. 65)	20	Four-point frequency ratings	Depression survey
<b>Available on Request</b>			
Symptom Checklist Revised <sup>85</sup>	90	Five-point frequency ratings	Psychiatric symptoms and descriptions Norms for different samples Nine primary symptom dimensions and three global indices Narrative interpretation may be obtained
Profile of Mood Scales <sup>86</sup>	65	Five-point severity ratings	Adjectives that describe mood states Norms published
State-Trait Anxiety Inventory <sup>50</sup>	40	Four-point severity ratings	Separate scales measure current and long-standing anxiety

been developed that permit valid inferences to be drawn about a patient's psychological makeup. Some cast a wide net and are useful in characterizing a broad range of pathology<sup>47</sup>; others have a more specific focus. In any case, the use of psychological assessments does not relieve the clinician of responsibility for evaluating the patient's mental status. Often, clinical judgment is confirmed and treatment can proceed with greater assurance, whereas at other times, discrepancies between these forms of assessment can lead to fruitful new avenues of inquiry.

Two instruments—the Beck Depression Inventory<sup>48,49</sup> and the Spielberger State-Trait Anxiety Scale<sup>50</sup>—deserve mention, because they are in widespread use in sleep disorders centers, are relatively easy to administer and interpret, and target the most common types of psychopathology associated with insomnia: depression and anxiety. Because they offer a quick assessment of the intensity of depression or anxiety, these scales allow rapid intervention in patients who may be at risk for serious psychological distress.

When choosing a scale, the clinician must become familiar with the content of the items that yield the scaled score, because different instruments can focus on different aspects of a disorder. For example, one depression scale might emphasize the biological features of the disturbance, whereas another might focus on cognitive abnormalities. As with all questionnaires, these inventories are susceptible to response bias on the part of the patient. Some people tend to deny or minimize, others aim to give the clinician what he or she is thought to expect, others are careless in responding, and still others harbor some motivation to exaggerate their symptoms.

## INVENTORIES OF COGNITIVE AND SOMATIC AROUSAL

Cognitive style often determines whether a person is predisposed to develop insomnia. Although everyone must deal with some degree of stress in their lives, there is a great deal of variation in how this coping is accomplished. Some lucky souls can literally “sleep on it” when confronted with a problem, but many people obsess over

issues until they are too aroused to fall asleep. When the particular problem to be overcome is lack of sleep, the consequences can be especially pernicious. Several authors have described a vicious circle in which concern over the possibility of not sleeping, underscored by previous experience, leads to hyperarousal as evening approaches, reaching such a peak that by bedtime, sleep is truly impossible.<sup>5,33,51</sup>

Many patients insist with bewilderment that there is nothing particularly upsetting that they are dealing with in their lives. Their thoughts range initially over all sorts of seemingly trivial issues, eventually gravitating to the fact that sleep is not occurring. It may in fact be that the contents of one's thoughts do not necessarily lead directly to arousal; rather, the problem might lie with the thought process itself. Half-completed thoughts, racing, and the repetition of themes might represent operating characteristics of a mind that is temporarily incapable of sleep. One reason hyperarousal so effectively forestalls sleep is that once it is triggered, baseline conditions of arousal are not reestablished for a long time. It has been noted that the response to a perceived threat is rapid, which makes sense from an evolutionary perspective, whereas the “fall time” to a level of calm that would be conducive to sleeping is prolonged.<sup>52</sup>

Several inventories gauge the extent to which cognitive and somatic hyperarousal are interfering with sleep (Table 144-3). Muscle tension, psychomotor agitation, and heart pounding are reported by some insomnia patients, and the role of treatments based on dearousal suggests that an assessment of this domain is relevant to a comprehensive evaluation of sleep disturbance. Sleep-related beliefs are commonly identified via the Dysfunctional Beliefs and Attitudes about Sleep Scale. The original version contains 30 items regarding beliefs about the consequences of sleep loss, control and expectation of sleep, sleep need, attribution of insomnia, and sleep-promoting activities.<sup>51</sup> Three short versions with 7<sup>53</sup> or 10<sup>54,55</sup> items were developed for research and clinical purposes. By targeting the tendency to catastrophize the consequences of poor sleep and fostering instead a more detached, dispassionate attitude,

**Table 144-3** Assessment of Specific Causes

SCALE NAME (SOURCE)	NO. OF ITEMS	FORMAT	SCALE DESCRIPTION
Morningness–Eveningness <sup>56</sup> (pp. 100-103)	19	Four-point severity ratings	Feeling and functioning best rhythm Time of day ratings
Munich ChronoType Questionnaire <sup>87</sup>	23+	Mainly fill in the blank	Feeling and functioning best rhythm Development and family assessed
Sleep Hygiene Awareness and Practice Scale <sup>12</sup> (pp. 75-76)	31+	Frequency and effect on sleep ratings	Activities, practices, and circumstances of the day that affect sleep
Sleep-related Behaviours Questionnaire <sup>88</sup>	58	Five-point ratings	Safety behavior
Presleep Arousal Scale <sup>89</sup> (p. 266)	16	Five-point severity ratings	Assesses cognitive and somatic arousal at bedtime
Sleep Disturbance Questionnaire <sup>90</sup> (p. 153)	12	Five-point severity ratings	Assesses sleep hygiene and cognitive and somatic arousal
Dysfunctional Beliefs and Attitudes about Sleep Scale <sup>53,54,55</sup>	30,10,7	Ten-point scale	Surveys dysfunction about sleep-related and performance-related cognition

examination of beliefs and attitudes about sleep can help interrupt the vicious circle of insomnia. The clinician should be aware, however, of the potential for confrontation that can occur by implying that a patient's beliefs are "faulty" or "unrealistic."

### ASSESSMENT OF SLEEP HYGIENE AND PREFERRED SLEEP PHASE

The nature of the hours spent before bedtime often determines whether sleep will come easily. The amount of physical activity, bed rest, and light exposure obtained during the day affect one's propensity for sleep, the timing of that sleep, and its quality. Exposure to dreadful evening news stories, extended periods of reading in bed, and other aspects of poor sleep hygiene ultimately prove counterproductive, whereas regular bedtimes and an evening buffer period in which to wind down from the day's events will over time be beneficial. Several authors have developed scales that assess these factors (see Table 144-3).

The timing of the propensity for sleep and activity differs among individuals, often on a constitutional basis. Understanding the circadian tendency of patients can help in the formulation of behavioral strategies to align and maintain their endogenous circadian phase with work and school demands. Disposition toward a morning lark or a night owl pattern is assessed by a number of circadian-typing scales (see Table 144-3).<sup>56,57</sup>

### SLEEP DISTURBANCE, WAKE DISTURBANCE, AND FATIGUE

The Patient-Reported Outcomes Measurement Information System (PROMIS) is a collaboration between the National Institutes of Health and primary research sites at six American universities.<sup>57</sup> The principal aim of PROMIS is to develop standardized item banks and questionnaires to assess, from the perspective of the patient, both baseline status and the outcomes of interventions for a broad range

of chronic illness. The PROMIS program is currently in its first 5-year development cycle. Its initial focus has been coverage of five specific domains: pain, fatigue, emotional distress, physical function, and social function. To date, several groups of calibrated items directly applicable to insomnia research and to sleep research in general have been developed with the use of item response theory, including items covering sleep disturbance, wake disturbance, and fatigue.

### PROSPECTIVE SLEEP DIARIES

Retrospective instruments have the advantage of being able to quickly summarize events occurring over a long period. However, they inevitably introduce distortion due to the collapse and distillation of information. Memories are often incomplete or selective. In the case of insomnia, there is a natural tendency to focus on the worst experiences and perhaps to amplify their importance. These pitfalls can be countered through the use of a prospective sleep diary or sleep log (Table 144-4). Sleep logs have an intuitive appeal, are user friendly, and allow prospective monitoring of target behavior. Filling out a sleep log directs the patient's attention to aspects of behavior that might otherwise be overlooked.

Some sleep logs present information in a graphic format that allows the clinician to quickly survey and appreciate patterns in large amounts of data. On the other hand, more-precise information is obtained from fill-in-the-grid or question-type formats. A work group of experts in the field is in the process of developing a sleep diary that, it is hoped, can serve as a standard format.<sup>58</sup> This group has decided to use a question-type format, based on the need to gather precise information for research purposes. Because our aim is to guide clinicians in the evaluation of insomnia we recommend a graphical format (see later).

Sleep logs do have potential drawbacks. Some obsessive patients feel compelled to provide such accurate and complete information that the very act of logging clock times of various events interferes with sleep. Even in less-extreme

**Table 144-4** Sleep Diaries

SCALE NAME (SOURCE)	NO. OF ITEMS	FORMAT
<b>Published</b>		
Sleep Diary <sup>51</sup> (p. 210)	10	Five-point severity ratings Fill in the blanks
Pittsburgh Sleep Diary <sup>†</sup> (pp. 113-114)	24	Five-point frequency ratings Visual analogue scales Fill in the blanks
Sleep Log <sup>91</sup> (p. 140)	9	Graphical depiction of sleep over time Five-point severity ratings Fill in the blanks
<b>Available on Request</b>		
Sleep Log <sup>†</sup>	12	Graphical depiction of sleep over time Fill in the blanks

\*All diaries assess sleep pattern and quality as well as presleep activities and practices.

<sup>†</sup>Spielman AJ, Glovinsky PB. The diagnostic interview and differential diagnosis for complaints of insomnia. In Pressman MR, Orr WC, editors. *Understanding sleep: the evaluation and treatment of sleep disorders*. Washington, DC: American Psychological Association; 1997. p. 125-160.

<sup>†</sup>Metrodesign Associates/Charles Pollak, MD, 90 Clinton Street, Homer, NY 13077, 1989.

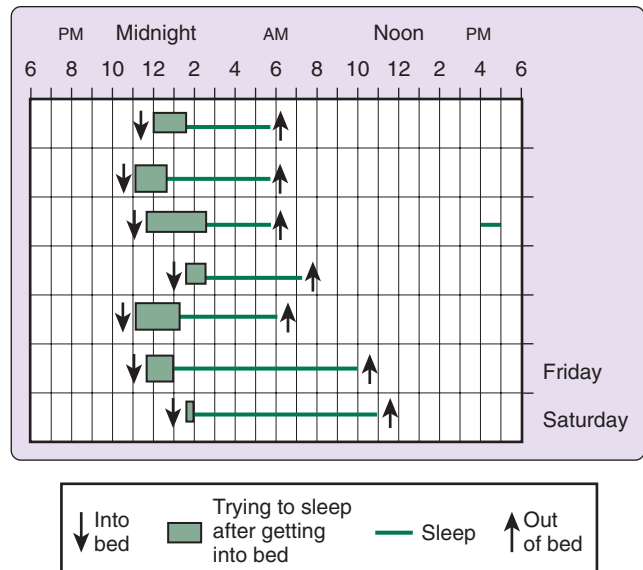
cases, the act of logging information on a night-by-night basis often works against the therapeutic goal of instilling in the patient a longer view toward the sleep disturbance. This tendency may be countered by drawing attention to week-to-week changes shown on the logs, as opposed to focusing on nightly variations.

### Case Illustrations

The following cases illustrate the use of sleep logs (based on actual cases but redrawn for clarity) in assessing and treating insomnia. They also demonstrate how application of the predisposing, precipitating, and perpetuating model of insomnia enhances understanding of the disorder.

#### Case 1

Figure 144-3 shows the key features of delayed sleep phase syndrome. Before the onset of her sleep problems, this 16-year-old was a late-night type, but she did not have trouble falling asleep by 11 PM and getting up early for school. During the summer she began to fight with her parents over staying out late; her bedtime drifted to 1 AM and her rising time to 10 AM or later. When school resumed in the fall, she needed to get up at 6 AM to make her bus. In November she was still complaining of trouble falling asleep whenever she went to bed before 1 AM, and she had difficulty getting up in the morning. She was habitually late for school and slept in on the weekends. Groggy in the morning, she would become progressively more alert through the day, except for a dip in alertness around 4 PM. She got a second wind in the evening, and was not in the least bit sleepy at her former 11 PM bedtime.



**Figure 144-3** Delayed sleep phase syndrome. Complaint: very hard to fall asleep, easier to fall asleep if bedtime is later, hard to wake in the morning, late to school, sleeps late on weekends. Predisposing factor: late night type, rebellious adolescent. Precipitating factor: start of school in the fall with an early start time. Perpetuating factor: late wake-up time on weekends.

#### Case 2

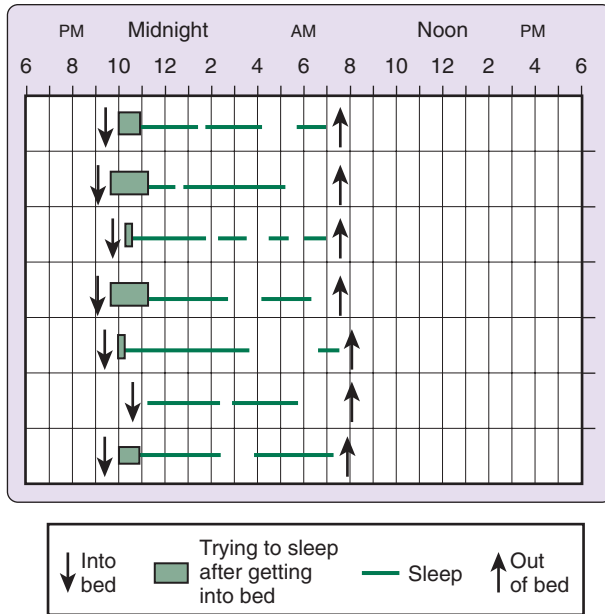
The patient depicted in Figure 144-4 is depressed as a result of the miscarriage of her first pregnancy. She is spending too much time in bed, which is also contributing to her sleeping difficulties. In bed for 10 hours, she is achieving only 6 hours of fragmented sleep. Treatment required addressing both the insomnia's triggering event, her miscarriage, as well as the perpetuating factor, excess time in bed.

#### Case 3

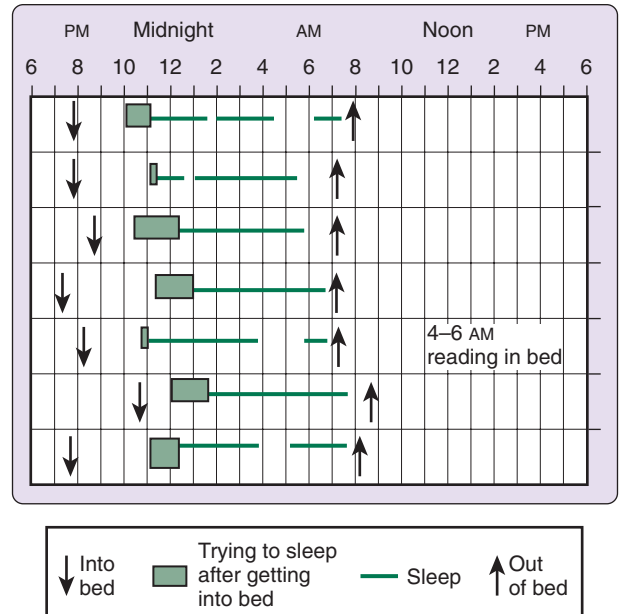
Bed was the hub of evening activity for the patient depicted in Figure 144-5. When she turned the lights off around 11 PM, she often had trouble falling asleep. Habitual association of the bed with waking activities conditioned her insomnia. The bed was no longer a clear signal for falling asleep, but instead it was perpetuating the sleep-onset problem.

#### Case 4

Never a good sleeper, the patient portrayed in Figure 144-6 developed a medication strategy to prevent the development of drug tolerance. He used a different sleep medication each night at bedtime, and he usually took a second dose during the night. He felt desperate for sleep and unable to function if he did not get an adequate amount nightly. The onset of insomnia in early life often suggests a weak sleep-generating system. Hypnotic dependence was apparent in this patient's case, as was his preoccupation with sleep.



**Figure 144-4** Depression and inadequate sleep hygiene. Complaint: trouble falling and staying asleep; onset after miscarriage. Predisposing factor: unknown. Precipitating factors: postpregnancy depression and hormonal changes. Perpetuating factor: too much time in bed.



**Figure 144-5** Psychophysiologic insomnia or inadequate sleep hygiene. Complaint: mainly trouble falling asleep; snacks, talks on phone, watches television, and reads in bed; stays in bed during awakenings. Predisposing factor: unknown. Precipitating factor: started to come home early after quitting second job in the evening. Perpetuating factor: engages in sleep-incompatible activities in bed.

**Case 5**

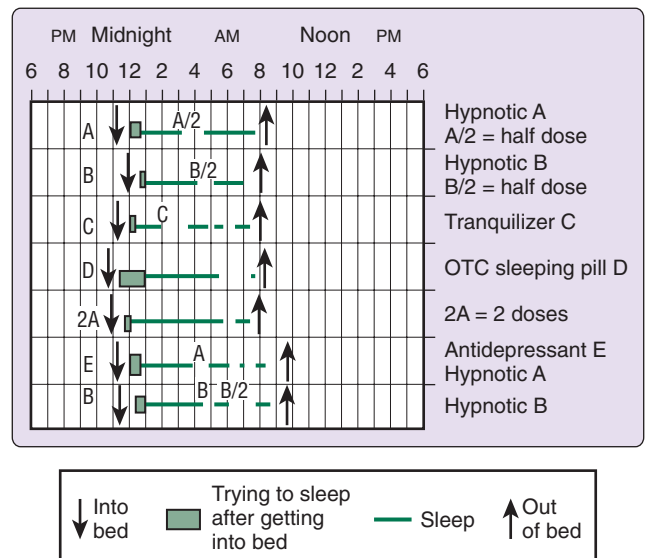
Figure 144-7 depicts a pattern of short sleep on weekdays and catch-up sleep on weekends. This somewhat agitated and overly stressed man was physiologically and cognitively hyperaroused. He was not able to wind down properly during weekday evenings. However, the discharge of his sleep debt on weekends was also perpetuating his poor weekday sleep pattern.

**Case 6**

The patient with the variable sleep schedule depicted in Figure 144-8 was quite reactive physiologically. She had a robust startle response to loud noises, and her heart often raced during the day. She woke up abruptly in the middle of the night and had great difficulty going back to sleep. She felt she needed to seize sleep whenever she could get it and therefore avoided plans that might interfere with her sleep.

**Case 7**

Figure 144-9 depicts a log of consistently solid sleep that was truncated after 4 hours. Wide awake in the middle of the night, the patient found that getting out of bed, working on his computer, and eating helped him get back to sleep for an hour or so in the morning. He did not use an alarm in the morning so that he could capture the last drop of sleep. This patient never required much sleep and was always an early riser. These traits predisposed him to early-morning awakenings. Perpetuating factors included conditioned arousal secondary to working on the computer and eating in the middle of the night, variable arising time, and allowing too much time for sleep.

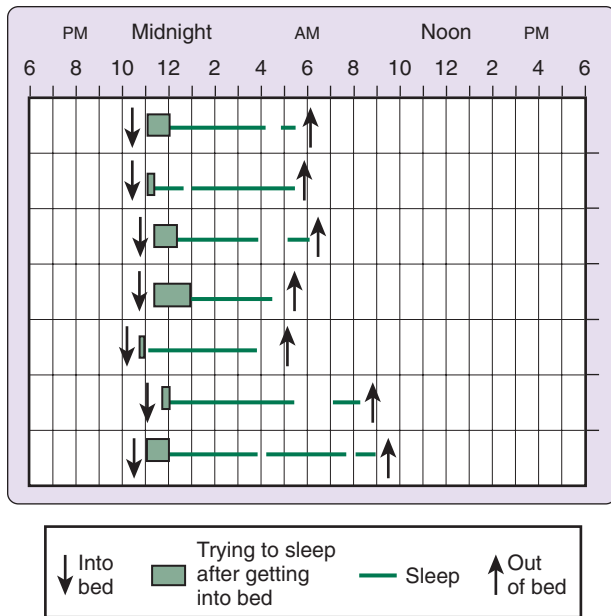


**Figure 144-6** Insomnia associated with dependence on hypnotics. Complaint: light sleeper since childhood, can't sleep without medication; must sleep in order to function. Predisposing factor: possible weak central nervous system sleep drive. Precipitating factor: none. Perpetuating factors: dependence on hypnotics, cognitive distortions, overly focused on sleep.

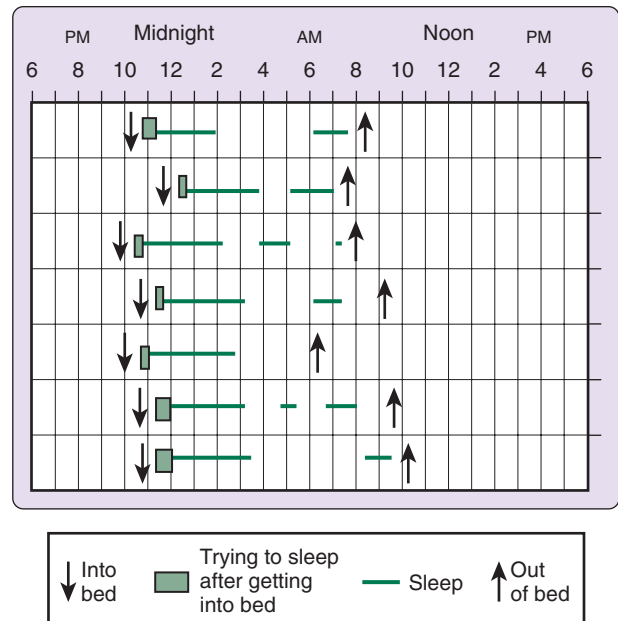
*Recommendations for a Standard Research Assessment of Insomnia*

An expert panel of 25 insomnia researchers was convened to review existing insomnia assessment tools and develop a consensus regarding what would constitute essential and recommended components of insomnia assessment in

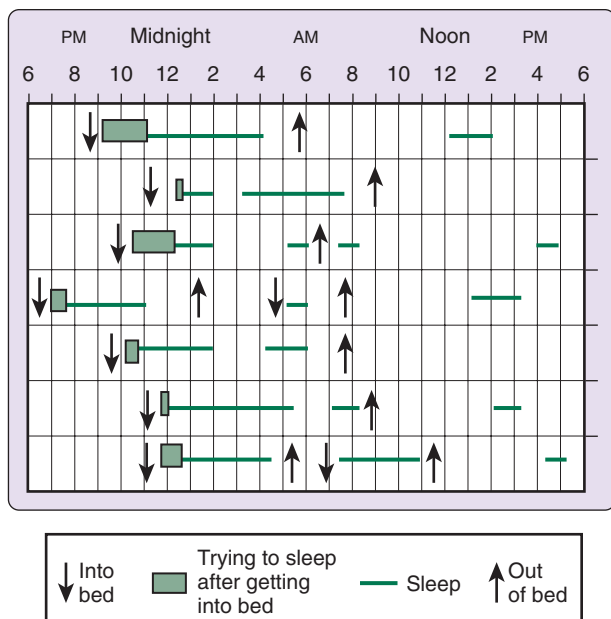




**Figure 144-7** Inadequate sleep hygiene or psychophysiologic insomnia. Complaint: too little sleep; hard-driving businessman, catches up on sleep on weekends. Predisposing factor: hyperarousal. Precipitating factor: unknown. Perpetuating factors: unequal distribution of sleep across 7 days, irregular wake-up time.



**Figure 144-9** Psychophysiologic insomnia. Complaint: trouble staying asleep, long awakening after 3 to 4 hours of solid sleep during which he works up on the computer, gets refreshing sleep in the morning. Predisposing factor: significant morning type, short sleeper. Precipitating factor: unknown. Perpetuating factors: variable morning rise time, too much time in bed, awakenings have become conditioned and associated with activating tasks.



**Figure 144-8** Irregular sleep-wake schedule. Complaint: “I can’t depend on my sleep, I wake up abruptly, I try to sleep whenever I can.” Predisposing factors: robust autonomic arousal response, dependent personality. Precipitating factor: started freelance work, irregular work schedule. Perpetuating factors: irregular sleep-wake schedule, napping at different times of day for long periods of time, too much time in bed, overconcern about sleep.

research settings.<sup>45</sup> This panel was charged with specifying both instruments to employ and reporting guidelines. Their effort responded to the problem that varying methodologies and differing inclusionary and exclusionary criteria were hampering the ability to compare insomnia research results and pool data for meta-analyses. Standardized assessments were suggested for three domains: the diagnosis of insomnia and comorbid conditions, sleep measurements, and waking correlates and consequences of insomnia.

The panel concluded that the diagnosis of insomnia should be made through a clinical history and questionnaires that yield ICSD-2 diagnoses. The potential usefulness of several published semistructured interviews was noted, although to date these were still seen to await sufficient documentation of reliability and validity. The employment of recently developed research diagnostic criteria for insomnia<sup>59</sup> was also recommended as essential in research settings. Comorbid medical and psychiatric disorders should be assessed through clinical histories and well-validated instruments. Specifically, the use of the structured clinical interview for the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, text revision (DSM-IV-TR)<sup>60</sup> was recommended for psychiatric evaluation. Sleep measurement should include the assessment of global insomnia symptoms through instruments such as the Pittsburgh Sleep Quality Index<sup>61</sup> and the Insomnia Severity Index<sup>62</sup> as well as a 1- or 2-week sleep diary.

Finally, evaluation of the waking correlates and consequences of insomnia was seen to be aided by a number of

psychometrically validated instruments. Some of these specifically consider the precursors or consequences of insomnia, such as the Dysfunctional Beliefs and Attitudes About Sleep Scale<sup>51</sup> or the Ford Insomnia Response to Stress Test.<sup>42</sup> Given their relatively narrow focus, they are seen as quite useful in selected settings but not required for routine clinical assessment. Other instruments have established their utility in a broad variety of clinical settings, such as the Fatigue Severity Scale,<sup>63</sup> the Beck Depression Inventory-II,<sup>49</sup> the State-Trait Anxiety Inventory<sup>50</sup> and the Medical Outcomes Study Short Form-36 (SF-36).<sup>64</sup> These are seen as essential in documenting the waking consequences of insomnia.

### Initial Consultation

Questionnaires and prospective logs certainly have their role in the assessment of insomnia, but it is in the face-to-face setting of the consultation that the clinician's skills and knowledge find full expression. Questionnaires do not ask follow-up questions. They cannot achieve the degree of nuance that is often necessary to decide, for example, whether episodes of awakening with gasping and palpitations likely represent a nocturnal anxiety attack or an apneic disturbance. They cannot probe for further examples or establish context. It is up to the clinician, too, to recognize internal inconsistencies in a patient's history and encourage a more-accurate reconstruction. Finally, in consultation there might arise facets of the history that were not previously apparent to the patient and that would likely be wholly overlooked on a questionnaire.

The consultation interview is critical for establishing the trust and working alliance that will be necessary to carry the patient successfully through the treatment phase, especially when that treatment might involve changes in habits or lifestyle that are difficult to implement. The clinician must demonstrate caring, openness, and an ability to listen and understand, while bearing in mind that the patient is by definition in distress and likely to focus more on extreme experiences to garner aid.

A standard history-taking format usually serves well to elicit the essential features of insomnia. However, an empirical study has shown that a clinician who is not a sleep specialist asks few pertinent questions of the insomnia patient.<sup>65</sup> The skilled clinician starts close to the patient's experience, allowing opportunity to expound the gist of the presenting problem with sufficient idiosyncratic detail to ensure that the experience does not fit too neatly and quickly into a preconceived diagnostic category—a potential pitfall for both patient and clinician. As these details emerge, the clinician develops hypotheses regarding the genesis of the insomnia and the factors that are maintaining it. These hypotheses are then tested via further questioning. For example, if it appears that a sleep-onset difficulty relates to concerns about performance at work, the clinician might ask about patterns in the severity of the disturbance and find that it is exacerbated on Sunday night, whereas the patient has experienced some asymptomatic periods during vacations.

After a working formulation has been established and a preliminary differential reached, the clinician generally

performs a survey of the various domains potentially bearing on the problem, such as the past medical history, family history, current psychosocial context, and so on. Even when the clinician is fairly certain of the cause of a patient's insomnia and confident of an appropriate course of treatment, it still is important to piece together a comprehensive picture of the background conditions from which the disturbance evolved. There may be other ancillary or independent problems that also require attention. Several semistructured interviews have been developed to guide the evaluation of insomnia (Table 144-5). They have the advantage of cueing the clinician to cover relevant domains, and they include a survey of sleep hygiene practices. As with the use of any interview framework, the skilled clinician will be alert to instances where departures from the guide must be made to fully follow up on the patient's experience.

### Duke Structured Interview for Sleep Disorders

The report of the working group of the American Academy of Sleep Medicine charged with developing research diagnostic criteria for insomnia noted that “variable insomnia definitions have encumbered studies concerning the pathophysiology, clinical characteristics, and treatment of this form of sleep disturbance.”<sup>59</sup> The Duke Structured Interview for Sleep Disorders represents a comprehensive

**Table 144-5** Semistructured Sleep Interviews

SCALE NAME (SOURCE)	NO. OF ITEMS	FORMAT
<b>Published</b>		
Structured Sleep History Interview <sup>12</sup> (pp. 66-69)	53+	Open-ended questions
Insomnia Interview Schedule <sup>51</sup> (pp. 195-198)	77	Open-ended questions Yes/no Severity ratings Fill in the blanks
CCNY Insomnia Interview <sup>79</sup> (pp. 421-426)	41+	Open-ended questions Symptom checklists Severity ratings Rating of the degree to which factors covary with sleep disturbance Diagnostic entities linked to particular questions
<b>Available on Request</b>		
Duke Structured Interview for Sleep Disorders <sup>66</sup>	30+	Lists of comorbidities Branch-tree logic Rate four choices Past/present Derives DSM-IV-TR or ICSD-2 diagnostic codes

\*All interviews survey a wide range of symptoms and etiologic factors.

CCNY, City College of New York; DSM-IV-TR, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, text revision; ICSD-2, *International Classification of Sleep Disorders*, 2nd ed: *Diagnostic and Coding Manual*.

approach toward systematizing the elicitation of clinical information, with an aim to more reliably classify patients with regard to the major sleep disorders and their subtypes.<sup>66</sup>

The Duke interview is organized in a series of modules that function as decision trees. It directs the proceedings to various branches representing sleep-related diagnostic categories based on the text revision of the DSM-IV (DSM-IV-TR),<sup>60</sup> and their equivalents (or more fine-grained subtypes) from the ICSD-2.<sup>21</sup> The interviewer is supplied the order of question presentation, along with specific wording (or a list of alternatives when a range of responses would indicate a positive response). Most critically, the interviewer is given explicit criteria to consider for every question when evaluating patient responses with one of four possible scores—insufficient information; absent (no); subthreshold (uncertain); threshold (yes)—both at the present time and in the past. These scores are then transferred to a scoring table, which links the scores to specific items within the structured interview to the various diagnostic categories. Finally, a ranking table is used to determine which specific DSM-IV-TR or ICSD-2 diagnostic codes appear most applicable to the response pattern elicited.

The use of a structured interview, whether the Duke version or another of the handful of published examples, yields clear benefits in terms of standardization, comprehensiveness, and documentation of the response pattern that warranted a particular diagnosis. In the clinic, it also poses special challenges in terms of maintaining a therapeutic alliance with insomnia patients. The interview might represent the patient's first meeting with a sleep specialist, perhaps after several encounters with generalists whose take on sleep was considered perfunctory. Patients might understand on an intellectual level that accurate diagnosis is certainly in their best interests, but they also will want to leave the consultation feeling that their idiosyncratic histories have been fully appreciated, that their particular concerns have registered, that the reassurance they are hearing is not of the blanket variety. Thus the successful use of a structured interview in clinical settings may in fact require more rather than less expertise.

A physical examination has been recommended for the standard assessment of insomnia by a number of evidence-based review papers.<sup>67,68</sup> The physical examination might detect disorders comorbid with insomnia. We are unaware of any empirical demonstration of the diagnostic yield of this evaluation.

### Testing and Referrals

Sleep specialists in almost all cases accumulate information from the broad categories just covered: retrospective questionnaires, prospective logs, and interviews. Referrals for testing or evaluation by another specialist are generally made more judiciously, based on the information gathered during the evaluation process. Sometimes the history will be sufficiently strong to warrant PSG testing to confirm or rule out physiologic disturbance during sleep, such as sleep apnea or periodic limb movement disorder, before any treatments are applied. Similarly, further clinical evaluation may be indicated if the history suggests psy-

chiatric disturbance or specific disorders, such as hyperthyroidism or cardiac arrhythmia, that may be accompanied by insomnia. In other cases, testing or referral to a specialist takes place after a poor response to initial treatment is documented, to widen the base of potentially helpful information.

### Nocturnal Polysomnogram

The nocturnal PSG is the standard objective measure of sleep (see Chapter 141). Since the 1970s, a large body of research and clinical experience has accumulated regarding both normal sleep parameters and variants seen in disordered sleep. Evaluation with PSG allows the clinician to objectively compare the patient's sleep characteristics with normative data and with data gathered within various clinical populations to clarify the diagnosis. The PSG is also helpful in uncovering covert disorders, such as periodic limb movement disorder, that might otherwise escape detection, especially if there is no bed partner available to observe sleep.

In addition to characterizing sleep, PSG affords the clinician several indices of arousal that can prove especially helpful in characterizing and addressing cases of insomnia. These include such measures as the percentage of non-rapid eye movement (NREM) stage 1 (N1) transitional sleep, the number of transient arousals, the number of stage changes across the record, and the intrusion of alpha wave activity into deeper sleep. PSG also allows the clinician to compare objective parameters—such as total sleep time or the number of awakenings exceeding a specified duration—with the patient's subjective estimate of these same parameters. Sometimes, a large discrepancy between objective parameters and their corresponding subjective estimates characterizes the core of the presenting problem.<sup>69,70</sup>

The nocturnal PSG does have drawbacks. One is its expense, reflecting both its labor-intensive character and the investment in costly technology. A consequence of this expense is that only one or two nights of data are typically obtained, resulting in a very limited sample of sleep. Given the increased night-to-night variability of sleep typically seen in insomnia, this can result in a biased estimate. The effect of sleeping in a sleep laboratory can also result in an inaccurate representation of the patient's sleep, either exaggerating sleep difficulties—the classic “first night effect”<sup>71</sup>—or, paradoxically, resulting in better sleep than that typically obtained at home—the “reverse first-night effect.”<sup>72</sup> This latter effect can occur when associations have been established between the insomniac patient's bedroom environment and the experience of sleeping poorly. These maladaptive cues are missing from the sleep laboratory, so sleep is improved there. Because of these drawbacks, nocturnal PSG is not indicated as a first-line diagnostic tool for assessing insomnia according to American Academy of Sleep Medicine guidelines.<sup>73</sup>

### Actigraphy

Actigraphy is a relatively low-cost method of estimating sleep parameters, such as total sleep time and the timing and duration of prolonged awakenings (see Chapter 147).<sup>25,74-77</sup> An actigraph is a device that records gross

motor movements. Not much bigger than a wristwatch, it is attached to a limb and can be worn day or night without interfering with normal sleep or daily functioning. It can record motor activity (or in the case of sleep, the lack thereof) across many days and nights, employing various sampling rates. The collected data are usually downloaded to a computer for analysis.

The cost-effectiveness of actigraphy allows multiple nights of sampling, avoiding the sampling error associated with the nocturnal PSG. However, it can overestimate the amount of sleep obtained in insomniac patients who do not move much during the night, even when they are awake. Furthermore, the various actigraphs available commercially have not been standardized. They have different sensitivities to the detection of movement and differing algorithms for converting raw data points into estimates of sleep and wakefulness.

### Laboratory Urinalysis and Blood Work

Analyses of urine and blood samples routinely conducted by commercial laboratories at the behest of physicians in general medical practice can also prove helpful in assessing selected patients complaining of insomnia with clinical evidence of comorbid medical conditions. Levels of thyroid-stimulating hormone and follicle-stimulating hormone and blood count profiles will help in evaluating whether hyperthyroidism, menopause, or infection is playing a role in the sleep disturbance. A survey of the methods used to assess the numerous medical conditions associated with insomnia is beyond the scope of this chapter (see Section X). We will comment on tests pertinent to the assessment of the conditions of restless legs syndrome (RLS) and periodic limb movement disorder (PLMD). Although the pathophysiology of these conditions is still under investigation, a subset of patients might have reduced iron stores or vitamin B<sub>12</sub> levels; the former can be assessed by obtaining ferritin levels.<sup>78</sup> Obtaining a set of blood panels on every insomnia patient is not recommended because of the low yield; however, when there is sufficient reason to suspect an underlying medical cause of insomnia, and testing proves negative, blood panels allow behavioral interventions to be applied with more confidence and persistence.

### Commonplace Technologies

Ubiquitous devices such as telephone answering machines or digital watches can be helpful in assessing insomnia. Patients complaining that they “get no sleep at all, or at best, just 1 or 2 hours” can be instructed to call on an hourly basis into a telephone answering machine equipped with a time stamp when they are unable to sleep. This provides an objective record of at least intermittent wakefulness across the night and may be useful in cases of sleep state misperception, also known as paradoxical insomnia. Digital watches that have an hourly chime function can be used to cue the patient to rate alertness or mood. Audio-tape or videotape recordings can be useful as screening tools in cases where sleep-maintenance difficulties are suspected of being secondary to a physiologic disturbance such as sleep apnea.

### Trial Treatment as Assessment

There are times when even a thorough evaluation yields only provisional understanding of a patient’s complaint of insomnia. In these cases, the most expeditious means of verifying that supposition may be through the application of a trial treatment. Of course, reasoning that a diagnostic impression is correct because improvement follows treatment is not necessarily valid; just because a cold improves after a few days of drinking chamomile tea does not mean that chamomile deficiency caused the cold in the first place. Similarly, good sleep hygiene practices are helpful for all sleepers, not just those whose sleep difficulties stem specifically from poor sleep hygiene. Therefore, if poor sleep hygiene is suspected as a causative factor, instruction in better practices can efficiently treat those who are correctly targeted, while not doing harm to those whose insomnia arises from other causes.

Another condition that deserves mention in this regard is sleep-maintenance insomnia due to suspected PLMD during sleep.<sup>21</sup> Very often, this condition responds to treatment with dopamine agonists or opioid drugs. These drugs are not of general benefit in other types of sleep-maintenance insomnia; therefore, if a patient with suspected PLMD shows a positive response to these drugs, this response can usually be taken as indirect evidence that PLMD was the underlying culprit. Note that a positive response to one of the sedative-hypnotic medications, which can also be helpful in treating cases of insomnia due to PLMD, would not yield information regarding the presence of PLMD. This class of drug would be expected to benefit many different types of insomnia whether it is due to PLMD or not.

### Other Reviews

For those interested in further reading on this topic, we recommend a chapter we have written<sup>79</sup> and two publications of the American Academy of Sleep Medicine that review the evaluation of chronic insomnia.<sup>73,80</sup>

## SUMMARY

Very few medical or psychological disorders are associated with as diverse an array of diagnostic procedures as those summarized here in connection with the assessment of insomnia. This heterogeneity mirrors the multiple facets of the complaint, which range through physical discomfort, psychological distress, cognitive deficiencies, behavior impairment, and social disruption. Full evaluation of the complaint requires a multidimensional approach because those aspects of the sleep disorder that are most salient or distressing to the patient—and the facets where it might prove most amenable or recalcitrant to treatment—vary among individual patients. The clinician who is prepared to meet a complaint of insomnia on its own terms, drawing from the range of diagnostic methods described in this chapter, will come to a more complete understanding of the problem and be better able to formulate effective recommendations for its treatment.



### ❖ Clinical Pearls

The factors that increase risk for insomnia and those that trigger the onset of an episode are typically not the same as factors that maintain the disorder once it is established. Even if predisposing factors cannot be readily altered and precipitating factors are never positively identified, substantial relief from insomnia may be attained by addressing perpetuating factors.

Evaluation of insomnia is a multitiered process. It should virtually always make use of prospective sleep diaries and specialized questionnaires. A face-to-face clinical consultation is required to follow up responses on these instruments in order to articulate idiosyncratic features of the problem, establish a therapeutic alliance, and inform treatment decisions. Although overnight PSG may be beneficial, especially in cases where covert sleep disorders are suspected, it is not considered a front-line diagnostic tool for insomnia.

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