Cognitive Behavioral
Treatment of Insomnia
Cognitive Behavioral Treatment of Insomnia
A Session-by-Session Guide

Michael L. Perlis, PhD
Sleep and Neurophysiology Research Laboratory, Behavioral Sleep Medicine Service, Department of Psychiatry, University of Rochester, Rochester, New York, USA

Carla Benson-Jungquist, MSN, FNP-C
Sleep and Neurophysiology Research Laboratory, Behavioral Sleep Medicine Service, Department of Psychiatry and School of Nursing, University of Rochester, Rochester, NY, USA

Michael T. Smith, PhD
Department of Psychiatry and Behavioral Sciences, The Johns Hopkins University, Baltimore, Maryland, USA

Donn A. Posner, PhD
Department of Psychiatry and Human Behavior, Sleep Disorders Center of Lifespan Hospitals, Brown Medical School, Providence, Rhode Island, USA

Springer
To our patients: Thank you for showing us so much we didn’t know. . . . May we serve you as well.

To Leisha Smith and Cindy Phillips: Thank you for your support and hard work, especially in the closing months of this project. Your influx of energy turned out to be an essential “counterfatigue measure.”

To my parents, Edie and Marvin Perlis: Thank you for your love and guidance.

To Wally, Dick, Donn, and Donna: Thank you for your mentorship.

Michael L. Perlis

Brian and Danielle: Thanks for so graciously sharing me with my career and for giving me inspiration to always improve myself.

Bob: I am the person I am because of you.

Carla Benson-Jungquist

To Michelle: You are in the trenches with me every day. I could not do it without you, and there is nobody I would rather have there with me. Thank you.

To Nolan and Hailey: Someday you will know how much each of you inspire me. I only hope that I do the same for you.

To my parents: I am graced to have you.

To Meaghan: You are the strongest and sweetest person I know. Thanks for being there.

Michael T. Smith

To Karen: You are my center. Without you I would surely be adrift. Thank you for being someone I can hold on to.

To Max: You bring so much joy and fun into my life. You are the best! Go Yanks!

Donn A. Posner
The treatment of insomnia has reached a milestone. Cognitive Behavior Therapy (CBT) has achieved wide-spread scientific recognition as an effective treatment for a wide variety of insomnias. This approach is made up of a number of components, including initial assessments, the integration of validated cognitive behavioral treatment interventions for insomnia, and methods for helping to ensure that patients follow through with treatment instructions between sessions as well as after treatment has been completed. The manual provides a useful discussion of assessment techniques and the role of sleep diaries, actigraphy, and polysomnography in the treatment of insomnia.

While many behaviorally oriented clinicians have experience with at least one of the components that comprise CBT, too few have used this approach with its full complement of interventions in a systematic manner. This manual is a superb tool that clinicians can use to sharpen their skills to effectively treat insomnia. The authors’ approach resonates with us in that they systematically integrate empirically validated components from the insomnia treatment literature, including stimulus control therapy, sleep restriction therapy, sleep hygiene education, and cognitive therapy into a state-of-the art treatment. The authors have not merely cobbled together a random set of techniques, but, rather, each component has been carefully selected and intergrated with the others. The authors have been in the forefront of those doing both clinical research and treatment for chronic insomnia. This manual reflects their collective experience and deep understanding of the challenges in helping patients with chronic insomnia improve their sleep.

Although, in general, manuals are most useful for beginners, this book has something for everyone. As seasoned clinicians, we found the weave of therapist–patient dialogues, treatment options, rationale, and skillful handling of potential patient resistance produced an insightful and thought provoking presentation that enlarged our understanding and appreciation of the subtlety of the clinical enterprise. There is much wisdom in this book.

One of the particularly useful features is the many sample dialogues between therapist and patient that provide examples of how components
of the treatment are introduced, how to provide the rationale for the treatment, how to answer questions that patients have, how to help ensure effective implementation, and how to prepare patients for anticipating problems and preventing relapse after treatment ends. The therapist in the dialogues is very effective. The treatment is conducted in a systematic manner, the bases for the therapeutic interventions are explained and metaphorically illustrated, and the therapist’s manner engages the patient sufficiently to garner active collaboration. In addition to the nuts and bolts of what to do and when that is the mandate of a treatment manual, we believe there is much to be learned from modeling a therapeutic approach as is done here.

As many readers will know, the two of us are identified with the development and evaluation of single behavioral components in the treatment of insomnia—stimulus control therapy (RRB) and sleep restriction therapy (AJS). It has not been lost on us that our joint writing of this foreword symbolically represents the CBT approach to insomnia (i.e., a multicomponent approach that integrates diverse components to address the multiple determinants that result in chronic insomnia). The authors of this manual are quite savvy and have used even the opportunity of the foreword to make the point that single-component approaches do not serve all clinical patients equally well. We have patients to help and this manual does a superb job in presenting the straightforward and effective approach of CBT within the framework of the complexity that is the human condition.

Richard R. Bootzin, PhD
Professor of Psychology and Psychiatry
Director, Insomnia Program
Department of Psychology and Department of Psychiatry
University of Arizona
Tucson, Arizona

Arthur J. Spielman, PhD
Professor, Department of Psychology
The City College of the City University of New York
Associate Director, Center for Sleep Medicine
Weill Medical College, Cornell University
New York, New York
Preface

There is now an overwhelming preponderance of evidence that Cognitive Behavioral Therapy for Insomnia (CBT-I) is effective (1;2), as effective as sedative hypnotics during acute treatment (4–8 weeks) (3;4), and more effective in the long term (following treatment) (3). In general, CBT-I yields an average treatment effect of about 50% improvement, with large effect sizes that are reliably around 1.0 (1;2;4). Longitudinal studies provide good evidence of sustained treatment effects for Sleep Latency (SL) and Wake After Sleep Onset (WASO) and more substantial improvement with time for Total Sleep Time (TST) (1) (2;5).

Given that CBT-I has been rigorously empirically validated, it is now time to make available a treatment manual that provides a precise guide to treatment. This manual is intended to fill this need and to provide a level of description that is sufficiently articulated as to allow:

- Clinicians from other fields and clinical students to begin the process of learning to provide empirically validated CBT-I,
- Practicing behavioral sleep medicine clinicians information that may help to refine and/or expand their CBT-I skills, and
- Clinical trialists to deliver standardized therapy.

For the first group of would-be “end users,” we strongly suggest that training in this area works best using an apprenticeship model and accordingly recommend that a series of mentored experiences be used to augment the materials presented in this manual. For trainees within clinical sleep medicine programs, arranging for mentorship may be easily accomplished. For community-based clinicians, arranging for mentorship may be more challenging, but can be accomplished by peer supervision and/or telephone consultation with established behavioral sleep medicine specialists.

This manual has seven sections. The seven sections are as follows:

- The definition of insomnia,
- A brief review of the conceptual framework for treatment,
- An overview of the components of therapy,
- A session-by-session guide,
- An extended dialogues section,
- A case example: Assessment and Eligibility for CBT-I & Sample Documentation,
- Appendices.
While the intent of the first two chapters is clear from their titles, the purpose of the five remaining chapters requires some explanation. The components of therapy chapter reviews the primary therapeutic modalities, indicates what patients are appropriate for CBT-I, makes recommendations regarding clinician credentials, discusses what constitutes the ideal clinic setting, and suggests a useful approach to charting. The session-by-session chapter delineates the tasks and goals for each session and provides some background information and dialogue examples of how treatment is delivered. The dialogues are not intended to be scripts for the clinician to memorize, but simply concrete examples of how therapy is conducted. The extended dialogues section provides a series of examples of questions that patients tend to raise and provides sample responses. The case example chapter applies our algorithm to demonstrate whether a particular patient is a candidate for CBT-I. We also provide an example of session-by-session notes that follow the patient through a course of treatment, along with treatment graphs and an example of a summary letter to the patient’s primary care physician. The appendices provide copies of some instruments that may be of use (e.g., intake questionnaires, sleep diaries, examples of chart graphs, etc.).

The organizing principles for the manual are “Who is appropriate for CBT-I?” and “What does one need to know to set up a behavioral sleep medicine service that is prepared to deliver empirically validated, data-driven and data-yielding treatment?” With respect to the issue of “who is appropriate,” the approach used in this manual is not diagnosis-based but rather indication-based. That is, we present an algorithmic approach to the decision process. One is eligible for treatment not because the person meets the criteria for certain diagnoses, but rather because the symptoms appear to be maintained by factors that are targeted by, and amenable to, CBT-I. This is not to suggest that diagnosis is irrelevant. The diagnostic process allows the clinician to determine what other factors and disease issues require treatment beyond CBT-I or whether CBT-I is contraindicated.


Michael L. Perlis, PhD
Carla Benson-Jungquist, MSN, FNP-C
Michael T. Smith, PhD
Donn A. Posner, PhD
Acknowledgments

Over the course of this project we have been fortunate to have the ability to seek input from many of the people who are active in the nascent field of Behavioral Sleep Medicine. Accordingly, we want to acknowledge and thank the following individuals for sharing their time and perspectives.

Richard Bootzin, University of Arizona
Daniel Buysse, University of Pittsburgh

Jack Edinger, Duke University
Ken Lichstein, University of Alabama
Art Spielman, City College of New York
Edward Stepanski, Rush-Presbyterian

Colin Espie, University of Glasgow
Charles Morin, Laval University

Celyne Bastien, Laval University
Allison Harvey, University of California at Berkeley

Sara Matteson, University of Rochester Sleep and Neurophysiology Research Laboratory

Wilfred R. Pigeon, University of Rochester Sleep and Neurophysiology Research Laboratory

Michael L. Perlis, PhD
Carla Benson-Jungquist, MSN, FNP-C
Michael T. Smith, PhD
Donn A. Posner, PhD
About the Authors

**Michael L. Perlis, PhD**
Dr. Perlis is an Associate Professor of Psychiatry and URMC Neurosciences Program at the University of Rochester. He is also the Director of the UR Sleep Research Laboratory and Director of the UR Behavioral Sleep Medicine Service. His clinical expertise is in the area of Behavioral Sleep Medicine. His research interests include sleep in psychiatric disorders and neurocognitive phenomena in insomnia, the mechanisms of action for CBT-I and of sedative hypnotics, and the development of alternative treatments for insomnia. He is the Sr. Editor for the first textbook for the field of Behavioral Sleep Medicine, he is on the editorial board for the Journal of Behavioral Sleep Medicine, and he was a founding member of the American Academy of Sleep Medicine’s committee for Behavioral Sleep Medicine.

**Carla Benson-Jungquist, MSN, FNP-C**
Ms. Jungquist is a Family Nurse Practitioner who specializes in pain and sleep. She works as a clinician at the UR Behavioral Sleep Medicine Service. She also serves as medical consultant for the University of Rochester Sleep Research Laboratory, and is a co-principal-investigator on a NIH funded study to evaluate Cognitive Behavioral Therapy for Insomnia in Chronic Pain Patients. She is a member of the Board of Directors for the Association of Pain Management Nurses and is a Doctoral Candidate at the University of Rochester School of Nursing.

**Michael T. Smith, PhD**
Dr. Smith is Assistant Professor of Psychiatry and Behavioral Sciences at Johns Hopkins University School of Medicine. He is a licensed clinical psychologist and is certified in Behavioral Sleep Medicine by the American Academy of Sleep Medicine. Dr. Smith conducts clinical research and practices at the Johns Hopkins Behavioral Medicine Research Laboratory and Clinic. His research specializes in the neurobehavioral causes and conse-
quences of insomnia and sleep deprivation, particularly as it occurs in chronic pain conditions.

**Donn A. Posner, PhD**

Dr. Posner is a Clinical Assistant Professor of Psychiatry and Human Behavior at the Brown Medical School. He is also the Director of the Behavioral Sleep Medicine Program for the Sleep Disorders Center of Lifespan Hospitals in Providence Rhode Island. He has been actively engaged in the treatment of sleep-disordered patients for the past sixteen years. For eleven of those years he has served as the lead supervisor and mentor for a sleep medicine rotation in the behavioral medicine track of the Brown Clinical Psychology Internship. He is a member of the American Academy of Sleep Medicine and recently became one of the first certified behavioral sleep medicine specialists recognized by that group.
Contents

Foreword by Richard R. Bootzin and Arthur J. Spielman ...................... vii
Preface ................................................................. ix
Acknowledgments ...................................................... xi
About the Authors .................................................... xiii
Featured Dialogues ..................................................... xvii

1 The Definition of Insomnia .......................................... 1
2 The Conceptual Framework for CBT-I ............................. 7
3 The Components of Therapy ....................................... 12
4 CBT-I Session by Session ......................................... 34
5 CBT-I Example Dialogues for Patient Questions and Challenges ............................................. 105
6 A Case Example ...................................................... 121

References ............................................................... 142
Glossary ................................................................. 148
appendices ............................................................. 159
1 The Calculation of Sleep Efficiency ............................... 161
2 Example of Clinic Brochure ...................................... 163
3 Example of Treatment Graphs ................................... 165
4A Medical History Checklist ...................................... 166
4B Medical Symptom Checklist .......................... 167
4C The Sleep Disorders Symptom Checklist .......... 168
4D Sleep Environment Checklist ......................... 170
4E Motivation for Change Index .......................... 171
5  Single Day Sleep Diary ................................. 172
6  “Week at a Glance” Sleep Diary ...................... 174

Index .................................................................. 175
Featured Dialogues

Dialogue 1  Patient Description of Insomnia .......................... 7
Dialogue 2  Therapist Introduces Self to Patient ....................... 35
Dialogue 3  Presentation of Treatment Options ......................... 43
Dialogue 4  Should I Continue with My Current Medications While in Treatment? ........................................... 46
Dialogue 5  Why Can’t I Start Treatment Immediately? ................. 47
Dialogue 6  Setting Expectations for Weekly Agenda ..................... 48
Dialogue 7  Discussion of the “Mismatch” Between TIB and TST .......................................................... 51
Dialogue 8  Discussion of Predisposing, Precipitating, and Perpetuating Factors ........................................... 52
Dialogue 9  Setting up Sleep Restriction and Stimulus Control .............................................................. 55
Dialogue 10 “Why Can’t I at Least Rest in Bed?” ......................... 57
Dialogue 11 Confirming Patient’s Understanding of The “To Do” List ....................................................... 59
Dialogue 12 What Happens If I Enjoy Staying Up Too Much? .......... 61
Dialogue 13 Confirming TST Is Calculated and Not Estimated ......... 64
Dialogue 14 Dealing with Noncompliance Using Cognitive Restructuring ...................................................... 67
Dialogue 15 What ... I Have to Restrict Myself More? ................. 69
Dialogue 16 Sleep Hygiene #1: Homeostat, Wake Time, and Exercise .......................................................... 71
Dialogue 17 Sleep Hygiene #2: Exercise Alternatives and Bedroom Environment ............................................. 73
Dialogue 18 Sleep Hygiene #3: Regular Meals, Fluid Restriction, and Caffeine ...................................................... 75
Dialogue 19 Sleep Hygiene #4: Alcohol and Nicotine .................... 76
Dialogue 20 Sleep Hygiene #5: Don’t Take Problems to Bed ........... 78
Dialogue 21 Sleep Hygiene #6: Don’t Try to Fall Asleep ................ 80
Dialogue 22 Sleep Hygiene #7: Clock Watching and Naps ............ 80
Dialogue 23 Discussion of Sleep State Misperception .................. 85
Dialogue 24  Setting the Stage for Cognitive Restructuring ............. 91
Dialogue 25  Calculating How Long the Patient Has Had Insomnia (in Days) ............................................. 92
Dialogue 26  Identify and Record Catastrophic Thoughts ............... 93
Dialogue 27  Assess the Patient’s Probability Estimates ................. 94
Dialogue 28  Determine the Actual Frequency of the Anticipated Catastrophes ............................................. 94
Dialogue 29  Mismatch Between the Patient’s Estimates and the Probability of Catastrophic Outcomes ................. 95
Dialogue 30  Create a Countering Mantra to the Catastrophic Thoughts ........................................................................ 96
Dialogue 31  What Happens If I Stop Sleeping Again? ..................... 102
Dialogue 32  I’m Having Trouble Filling Out the Sleep Diaries ..................... 105
Dialogue 33  Why Do I Have to Fill Out Sleep Diaries? ..................... 107
Dialogue 34  Shouldn’t We Use Fancy Equipment to Measure My Sleep? .......................................................................... 107
Dialogue 35  I Can’t Seem to Remember to Fill Out My Diary ................................................................. 109
Dialogue 36  I’m Really Nervous About Stopping My Sleeping Pills ........................................................................ 110
Dialogue 37  I Tried But Couldn’t Stop Taking My Sleeping Pills ........................................................................ 112
Dialogue 38  If I Don’t Get to Sleep, How Am I Going to Function? ......................................................... 113
Dialogue 39  No, Really, There Have Been Times When I Haven’t Functioned .................................................... 114
Dialogue 40  I’ve Already Tried Behavioral Stuff and It Doesn’t Work ........................................................................ 116
Dialogue 41  There Is No Way I Can Stay Up That Late! .............. 118
1
The Definition of Insomnia

In the early 1980s, as the sleep medicine movement was just gathering steam, there was perhaps no rallying cry as popular as “insomnia is a symptom, not a disorder.” Presumably, this position was adopted because it was genuinely believed that the polysomnographic (PSG) study of sleep was destined to reveal all the underlying pathologies that give rise to the “symptoms” of not only insomnia but fatigue and sleepiness as well. After more than two decades of sleep research and sleep medicine, it is interesting to find that “all things old are new again”: Insomnia is once again considered a distinct nosological entity. Below are the three primary definitions for insomnia, followed by some discussion regarding issues pertaining to chronicity, frequency and severity. This information is provided so that the reader can (1) have a firm grounding in “how insomnia is defined,” and (2) can appreciate some of the difficulties associated with a diagnosis based approach to the problem of insomnia.

The Three Most Common Definitions of Insomnia

**Insomnia**

The World Health Organization defines insomnia as a problem initiating and/or maintaining sleep or the complaint of nonrestorative sleep that occurs on at least three nights a week and is associated with daytime distress or impairment (6).

**Primary Insomnia**

The term “primary insomnia,” which is adopted by the American Psychiatric Association’s diagnostic nomenclature (DSM-IV) (7)), is used to distinguish insomnia that is considered to be a distinct diagnostic entity from insomnia that is a symptom of an underlying medical and/or psychiatric condition. The American Psychiatric Association specifies a duration
criteria of one month and stipulates that the diagnosis be made when the predominant complaint is difficulty initiating or maintaining sleep or non-restorative sleep. In either case, the complaint must be associated with significant distress and daytime impairment, and must not be the result of other medical, psychiatric, or sleep disorders.

**Psychophysiologic Insomnia**

Within the American Academy of Sleep Medicine’s nosology (the International Classification of Sleep Disorders-Revised [ICSD-R] (8)), primary insomnia is referred to as “psychophysiologic insomnia.” The ICSD-R definition is more directly tied to the etiologic underpinnings of the disorder. The advantage of describing the disorder with this term is that it suggests how insomnia is initiated and maintained. Psychophysiologic insomnia is described as “a disorder of somatized tension and learned sleep-preventing associations that results in a complaint of insomnia and associated decreased functioning during wakefulness” (8). “Somatized tension” refers to either the patient’s subjective sense of, or objective measures of, somatic hyperarousal while attempting to sleep. Somatic arousal is characterized by peripheral nervous system activity which is commonly marked by increased muscle tension, rapid heart rate, sweating, and so on. “Learned sleep-preventing associations” refers to the pattern of pre-sleep arousal that appears to be classically conditioned to the bedroom environment, where intrusive presleep cognitions, racing thoughts, and rumination are often taken as indicators of presleep arousal.

Interestingly, none of the nosologies formally embrace the older descriptive clinical characterizations of insomnia as initial, middle and terminal. **Initial Insomnia**, also referred to as “early,” or “sleep-onset” insomnia, describes when the patient has trouble falling asleep. **Middle Insomnia**, also referred to as “sleep-maintenance” insomnia, describes when the patient has trouble with frequent or prolonged awakenings. **Terminal Insomnia**, also referred to as “late,” or “early morning awakening” insomnia, describes when the patient awakens earlier than desired and is unable to fall back asleep. The fact that these terms do not constitute modern parlance should not keep the clinician from using the terms descriptively.

**Disease Characteristics (Duration and Severity)**

Apart from presenting a specific definition of the disorder/disease entity, there is the need to qualify the duration and severity of the defined illness. Typically, duration is framed dichotomously in terms of whether the illness is acute or chronic. Severity is, more often than not, defined solely in terms of frequency of complaint.
Duration of Illness

Insomnia lasting less than one month is generally considered “acute” and is often associated with clearly defined precipitants such as stress, acute pain, or substance abuse. Insomnia is characterized as being chronic when symptoms persist unabated for a duration of at least one month, and more typically for durations of time that are six months or greater. Please note that these cutoffs are relatively arbitrary and correspond to traditional medical definitions of what constitutes short and long periods of time. At present, no studies use risk models to evaluate the natural course of insomnia. Thus, there is no way of definitively defining “chronicity” in terms which are related to when the disorder becomes severe, persistent, and (for want of a better expression) “self-perpetuating.”

One clinical cue for differentiating between acute and chronic insomnia resides in the way patients characterize their complaint. When patients stop causally linking their insomnia to its precipitant and instead indicate that their sleep problems seem “to have a life of their own,” this change in presentation may (1) serve to define the “cut point” between the acute and chronic phases of the disorder and (2) suggest when CBT-I should be indicated.

Severity of Illness

Typically, severity is defined in terms of both symptom frequency and intensity. Both domains may be applied to insomnia, although—as noted—only symptom frequency tends to be embraced as a relevant diagnostic consideration.

Frequency

There is no fixed benchmark for what constitutes “frequent” symptoms. Most clinical researchers require that patients experience sleep problems on three or more nights per week. This cutoff may have more to do with increasing the odds of studying the occurrence of the disorder in laboratory than an inherent belief that less than three nights per week is “normal.”

The more important issue here is that defining “severity” in terms of “frequency of symptoms” tacitly acknowledges that (1) insomnia symptoms typically do not occur every night and (2) the more frequent the symptom, the more severe the disorder. While the latter seems like a tautology, and for all diseases, this is especially important for how one thinks about insomnia. If the insomnia is more episodic, the occurrence of symptoms may be less related to the factors that are thought to be responsible for Primary Insomnia and more related to social, environmental, and/or circadian variables. Thus, it may be the case that traditional CBT-I may not be indicated for less severe insomnia (less frequent). Instead, this form of the disorder
may be best managed by identifying the variables that produce the insomnia on an intermittent basis and by providing a form of treatment which directly targets the idiosyncratic factors.

Intensity

No formal diagnostic criteria exist for what constitutes “severe” within this domain. Most clinical researchers consider 30 or more minutes to fall asleep and/or 30 or more minutes of wakefulness after sleep onset to represent the threshold between normal and abnormal sleep. Recent work by Lichstein and colleagues, however, suggests that this criteria should be set at “greater than 30 minutes,” as this definition is better related to the occurrence of complaint in population studies (9). While this may seem an academic distinction, the finding speaks to the issue of what is considered normal or tolerable in our culture and what is abnormal. Moreover, the lower limit for what constitutes “severe” (i.e., 30 minutes) also may alert us to instances where there is a subjective complaint in the absence of generally accepted standards for what constitutes a sleep disturbance. For example, a patient who complains of sleep onset problems but reliably reports 15 minute sleep latencies. In these, albeit rare cases, failing to meet the standard may suggest to the clinician that some intervention other than CBT-I is indicated.

With respect to how much sleep is “normal,” many investigators are reluctant to fix a value for this parameter. Of the investigators that are inclined to define “what is too little sleep,” most set the cutoff at 6.0 or 6.5 hours per night. The reluctance to establish total sleep time parameters is due, in part, to the difficulty in establishing precisely what is abnormal. Representing what is pathological with a single number is too confounded by factors like age, prior sleep, and the individual’s basal level of sleep need. The lack of an established total sleep time cutoff is also related to the possibility that profound sleep initiation or maintenance problems may occur in the absence of sleep loss. For example, the patient who regularly takes two hours to fall asleep and extends their sleep opportunity by two or more hours may not suffer any sleep loss and will have total sleep times that are, by any yard stick, normal.

This is an important distinction because it is often assumed that insomnia is synonymous with sleep deprivation and that it is sleep loss that mediates the daytime sequelae of the disorder. While it is certainly the case that daytime symptoms might be explained by chronic sleep loss, they need not be ascribable only to lack of sleep, or for that matter to sleep continuity*.

* Sleep Continuity: Refers to the speed with which sleep is initiated and the degree to which sleep is consolidated. The five variables used to define sleep continuity are Sleep Latency (SL), Frequency of Nocturnal Awakenings (FNA), Wake After Sleep Onset (WASO) time, Total Sleep Time (TST) and Sleep Efficiency (SE%). See Glossary for further definitions of these terms.
disturbance. Instead, the quality of sleep obtained by patients with insomnia may also substantially contribute to cognitive and somatic complaints and daytime fatigue. For example, it has been shown that patients with insomnia reliably exhibit sleep micro-architectural disturbances such as enhanced high frequency EEG activity during NREM sleep (10–14). This type of activity, which appears to be independent from sleep continuity and architecture parameters, has been shown to be correlated with patient perceptions about their sleep quality and quantity (10;15;16).

Commonalities and Problems with Current Definitions

All of the above definitions show a degree of consistency, both in terms of what “is” and “is not” delineated. Common to all is that (1) insomnia is defined as a subjective complaint, (2) patients must report compromised daytime functioning, (3) there are no specific criteria for how much wakefulness is considered pathologic (prior to desired sleep onset or during the night), and (4) there are no criteria for how little total sleep must be obtained to fall outside the normal range. The latter two of these issues have already been explicated above. The former two require further discussion.

Insomnia as a Subjective Complaint

Defining insomnia as a subjective complaint without requiring objective verification of signs and symptoms has advantages and disadvantages. The advantage of having subjective criteria is that it recognizes the primacy of the patient’s experience of distress or disease. That is, ultimately patients seek, comply with, and discontinue treatment based on their perception of wellness. The disadvantage is that such measures, when used alone, do not allow for a complete characterization of either the patient’s condition or the disorder in general.

Insomnia and Daytime Impairment

The reason that daytime complaints are required for diagnosis is that in the absence of such complaints, it is possible that the phenomena of “short sleep” may be misidentified (by the clinician and/or patient) as insomnia. Frequent complaints associated with insomnia include fatigue, irritability, problems with attention and concentration, and distress directly related to the inability to initiate and/or maintain sleep.

Finally, two of the clinical nosologies (DSM-IV and the WHO definitions) allow for the complaint of nonrestorative sleep, in the absence of problems initiating or maintaining sleep, to be classified as “insomnia.” Presumably, the rationale for this is that shallow non-restorative sleep is “not good sleep,” therefore it is “not sleep,” which is technically what the term in-