Classification of Sleep Disorders

By CONSTANTIN R. SOLDATOS, MD, JOYCE D. KALES, MD, TJIAUW-LING TAN, MD, and ANTHONY KALES, MD

In one of the first comprehensive reviews on sleep disorders, eight individual conditions were included: insomnia, narcolepsy, sleep apnea, hypersomnia, sleepwalking, night terrors, nightmares, and enuresis. The review contained a clinical description of each disorder, which could be used by the physician for diagnostic purposes. Since then, there have been a number of attempts at classifying sleep disorders with increasing reliance on detailed descriptions and clinical diagnostic criteria for each sleep disorder. This article provides a critique of the previous classifications of sleep disorders; an overview of the classification of sleep disorders as it appears in the Diagnostic and Statistical Manual of Mental Disorders—Third Edition—Revised (DSM-III-R); and a detailed description of nosology and diagnostic criteria for sleep disorders in the International Classification of Diseases—Tenth Revision (ICD-10).

The requirement of sleep laboratory testing for the diagnosis of sleep disorders may lead to neglect of the important psychobehavioral dimensions of the patient’s problem.

The requirement of sleep laboratory testing for the diagnosis of sleep disorders may lead to neglect of the important psychobehavioral dimensions of the patient’s problem.

PREVIOUS SLEEP DISORDERS CLASSIFICATIONS

ICD-9-CM. The first official clinical classification of sleep disorders, which first appeared in 1978, is that of the ICD-9-CM. In that classification, a total of 18 diagnoses are listed in two separate sections: ten in the section of psychiatric disorders and eight in the section of ill-defined conditions.

A major strength of the ICD-9-CM is that it has a relatively simple and straightforward format, which is generally compatible with the DSM-III principle of allowing multiple diagnoses. This classification, however, does not provide specific diagnostic criteria. Moreover, it includes some clinically irrelevant diagnoses, such as “repetitive intrusions of sleep” and “dysfunctions of sleep stages or arousal from sleep.” Another problem relates to an artificial fusing of diagnoses. For example, “insomnia with sleep apnea” and “hypersomnia with sleep apnea” are the only diagnoses referring to the condition of sleep apnea. Although sleep apnea is often associated with hypersomnia and rarely with insomnia, it is a separate sleep disorder and warrants independent nosologic status.

ASDC. In 1979, another classification of sleep disorders was developed by the Association of Sleep Disorders Centers (ASDC) whose membership includes both physicians and nonphysicians. This group attempted to establish more precise and objective diagnostic criteria through the use of sleep laboratory testing. In this attempt to establish objective criteria, however, the classification relied too heavily on sleep laboratory findings, therefore making it better suited for research stud-
ies than for clinical practice. Further, this classification is unnecessarily complex, with a total of about 70 specific diagnoses for only a few broad categories of disturbed sleep.

In general, the ASDC diagnoses are not well substantiated in the scientific literature. Many of the diagnoses refer to physiological findings from the laboratory whose clinical relevance has not been demonstrated. For example, three diagnoses: "insomnia with repeated REM sleep interruptions," "insomnia with atypical polysomnographic features," and "asymptomatic polysomnographic findings" imply that certain electrophysiological findings have clinical significance without adequate documentation.

Unlike the DSM-III and the ICD-9-CM, the format of the ASDC classification does not allow multiple diagnoses. Many of the diagnoses constitute a fusion of a general sleep disorder with another distinct medical or psychiatric condition. Such a fusion is not only contrary to the requirement of the multiaxial model of diagnosing each disorder separately, but may imply a cause-and-effect relationship that is incorrect. For example, the diagnosis of "persistent insomnia associated with chronic alcoholism" may obscure the fact that the two conditions are caused by a common factor such as an underlying personality disorder, thereby affecting treatment outcome.

There also is a strong trend in this classification system to require sleep laboratory testing for the diagnosis of sleep disorders. This minimizes the use and value of clinical skills and may lead to neglect of the important psychobehavioral dimensions of the patient's problem, which are frequently relevant for the diagnosis and treatment of the sleep disorder.

For all of these reasons, a very low degree of diagnostic validity has been demonstrated across a number of sleep centers for the ASDC classification. For example, there was an extremely large range in the prevalence of insomnia across a number of sleep disorder centers: "insomnia associated with psychiatric conditions" ranged from 3.9% to 66.8% and "insomnia associated with sleep apnea" from 0.0% to 28.7%.

**DSM-III-R: SLEEP DISORDERS CLASSIFICATION**

The initial proposed version of the DSM-III-R classification of sleep disorders was not suitable for use by psychiatrists primarily because it required the use of the sleep laboratory for the diagnosis of virtually every sleep disorder. Following presentations to and discussions with the American Psychiatric Association's Ad Hoc Committee on DSM-III-R, that committee expressed "grave concern about the excessive dependence on sleep laboratories" and asked for the sleep disorders classification to be modified to become "more understandable to the average psychiatrist."12

In the completed DSM-III-R, sleep disorders are divided into two major subgroups: the Dyssomnias (predominant disturbance is in the amount, quality, or timing of sleep) and the Parasomnias (predominant disturbance is an abnormal event during sleep). As shown in Table 1, the Dyssomnias include: a) insomnia disorders; b) hypersomnia disorders; and c) sleep-wake schedule disorders. The Parasomnias include: a) sleepwalking disorder; b) sleep terror disorder; and c) dream anxiety or nightmare disorder. Nocturnal enuresis in DSM-III-R is still included with childhood disorders.

Overall, the sleep disorders classification in DSM-III-R has several important advantages, which make it usable in the psychiatrist's office setting. The diagnostic terms used are straightforward and understandable to clinicians: the diagnostic criteria provided are clinical; and all the diagnoses are compatible with a multiaxial format.

Several problems remain, however. The terms "primary insomnia" and "primary hypersomnia" can be misunderstood to denote that these conditions are independent of any other known physical or mental condition. The term "primary" may also imply that the condition has always been present or that somehow it is more important than other conditions belonging to the same overall diagnostic category. Another problem is the inclusion of three subtypes of sleep/wake schedule disorders when the clinical value of the overall category itself has yet to be established. A lesser problem in the diagnostic groupings is the separation of sleepwalking from night terrors when a considerable body of research shows that these disorders are part of the same pathophysiology and nosologic continuum (sleepwalking being the milder expression and night terrors the more intense manifestation).13-16

In the introduction to the section on sleep disorders, the need for sleep laboratory studies is mentioned for some sleep disorders patients. This is inconsistent with the format of the DSM-III-R, where laboratory tests are generally not recommended for the diagnosis of psychiatric conditions. For example, the dexemethasone suppression test is not recommended for diagnosing depressed patients in spite of the fact that its utility.
### TABLE 2
**Sleep Disorders in ICD-10**  
(Proposed Classification)

<table>
<thead>
<tr>
<th>Category</th>
<th>Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primarily Psychogenic</strong></td>
<td>Insomnia</td>
</tr>
<tr>
<td></td>
<td>Psychogenic Hypersomnia</td>
</tr>
<tr>
<td></td>
<td>Psychogenic Sleep-Wake</td>
</tr>
<tr>
<td></td>
<td>Schedule Disorder</td>
</tr>
<tr>
<td></td>
<td>Secondary Enuresis</td>
</tr>
<tr>
<td><strong>Developmental or Psychogenic</strong></td>
<td>Sleepwalking</td>
</tr>
<tr>
<td></td>
<td>Night Terrors</td>
</tr>
<tr>
<td></td>
<td>Nightmares</td>
</tr>
<tr>
<td><strong>Dysfunctions of Organic Origins</strong></td>
<td>Narcolepsy</td>
</tr>
<tr>
<td></td>
<td>Non-psychogenic Hypersomnia</td>
</tr>
<tr>
<td></td>
<td>Non-psychogenic Sleep-Wake</td>
</tr>
<tr>
<td></td>
<td>Schedule Disorder</td>
</tr>
<tr>
<td></td>
<td>Nocturnal Myoclonus</td>
</tr>
<tr>
<td></td>
<td>Sleep Apnea</td>
</tr>
</tbody>
</table>

Although still controversial, is much more substantiated than the use of sleep laboratory recordings in patients with sleep disorders associated with mental conditions.

The text of the DSM-III-R includes minimal information pertaining to the strong relationship between insomnia and psychopathology, despite the overwhelming body of data that supports this relationship. In comparison, the text for "insomnia related to a known organic factor," sleep apnea and myoclonus nocturnus are discussed at length as though they are major causative factors in insomnia, whereas this relationship has not been substantiated. Perhaps this contrast in minimizing the role of psychopathology and overly stressing organic factors reflects the trend in psychiatry toward biologic reductionism.

### SLEEP DISORDERS IN ICD-10

The World Health Organization (WHO) is in the process of preparing the Tenth Edition of the International Classification of Diseases (ICD-10). As shown in Table 2, the following classification of sleep disorders has been proposed: Primarily Psychogenic, Developmental or Psychogenic, and Dysfunctions of Organic Origin. The first two groups of sleep disorders are included in the Psychiatric Section of ICD-10. The rationale for including various sleep disorders in these two groups is based on extensive clinical findings: psychopathology is primary in patients with insomnia, psychogenic hypersomnia, psychogenic sleep-wake schedule disorder, and secondary enuresis. While sleepwalking, night terrors, and nightmares in childhood are predominantly developmental in origin, when present in adults these disorders are primarily related to psychopathology. Because primary enuresis has been previously included among Behavioral Disorders with Onset Usually Occurring in Childhood, it was not categorized within the Developmental or Psychogenic group of sleep disorders.

The sleep disorders of narcolepsy, non-psychogenic hypersomnia, non-psychogenic sleep-wake schedule disorder, nocturnal myoclonus, and sleep apnea are clearly disorders of organic origin and, therefore, are all included in the third group of sleep disorder diagnoses (Dysfunctions of Organic Origin). This third group of diagnoses is incorporated into either the sleep neurology section (Narcolepsy, Non-psychogenic Hypersomnia, Non-psychogenic Sleep-Wake Schedule Disorder, and Nocturnal Myoclonus) or the section on Respiratory Diseases (Sleep Apnea).

For those sleep disorders that are included in the psychiatric section, specific diagnostic criteria have been proposed. For example, for the diagnosis of insomnia, in addition to complaints of difficulty falling asleep or difficulty staying asleep, a complaint of poor quality of sleep is considered valid. Another important diagnostic feature is a requirement of a certain degree of severity and chronicity before the condition of insomnia is granted independent nosologic status, rather than being simply a symptom of another condition. Thus, as in DSM-III-R, the complaint has to be more frequent than three times per week and present for longer than one month. Also, it should be associated with preoccupation with sleeplessness and cause distress or interference with daytime functioning. Similar diagnostic criteria are proposed for each of the other sleep disorders included in the psychiatric section of ICD-10.

Whether a sleep complaint is granted independent diagnostic status depends not only on its clinical presentation and course, but also on whether it constitutes the target of therapeutic priority in a given case. It also should be kept in mind that any co-existing diagnoses (either psychiatric or physical) can be listed along with a diagnosis of a sleep disorder. Actually, multiple diagnosing is encouraged, as it is in DSM-III, to describe the clinical presentation of a patient more accurately.

At this time it is difficult to evaluate the ICD-10 classification because it is still in the developmental stage. One modification, however, may be clinically useful. It is important to differentiate between primary and secondary enuresis because the former is predominantly associated with developmental factors and the latter predominantly with psychogenic factors. Accordingly, enuresis with its two subtypes could be placed effectively into the group of sleep disorders titled Developmental or Psychogenic.

### SUMMARY

In this article we review the evolution of the diagnostic classification of sleep disorders. The initial classifications provided a framework for categorizing diagnoses of sleep disorders. Understandably, these early instruments had a number of limitations. They either lacked diagnostic criteria or criteria based on clinical data together with an over-reliance on physiologic findings. Thus, many of the diagnoses were not well substantiated and lacked clinical relevance. Finally, because of a fusing of diagnoses there was an incompatibility with a multiaxial format.

The ICD-10 and, for the most part, continued on page 457
the DSM-III-R include clinically-based diagnostic classifications for sleep disorders. Furthermore, these classification systems include diagnostic criteria and are fully compatible with a multiaxial format. In addition, the ICD-10 allows for differentiation of psychogenic, developmental, and organic factors. Finally, both classification systems can be fully applied in the office setting and make maximal use of the psychiatrist’s interviewing and assessment skills to finalize the diagnoses and to implement the treatment plan. Thus, both of these classification systems reinforce strongly the doctor-patient relationship. They facilitate the consideration of the patient’s problems in a truly biopsychosocial perspective and, because of this multidimensional focus, do not result in either biologic or psychologic reductionism.

REFERENCES

Dr. J. Kales is Associate Director of the Sleep Research and Treatment Center and Professor of Psychiatry, Department of Psychiatry, Pennsylvania State University College of Medicine in Hershey, Pennsylvania.

Dr. A. Kales is President of both the Academy of Sleep Disorders Medicine and the American Board of Sleep Disorders Medicine and Professor and Chairman, Department of Psychiatry, Pennsylvania State University College of Medicine in Hershey, Pennsylvania.

Dr. Tan is Associate Professor of Psychiatry and Director of the Inpatient Psychiatric Unit, Department of Psychiatry, Pennsylvania State University College of Medicine in Hershey, Pennsylvania.