



## The role of behavioral sleep medicine in the assessment and treatment of sleep disordered breathing

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### Abstract

With the dramatic rise in obesity in the United States, comorbid medical issues, such as sleep apnea and other forms of sleep disordered breathing (SDB), are becoming increasingly prevalent. Individuals with SDB have impairments in social, cognitive, and emotional functioning and an overall reduction in quality of life. Continuous positive airway pressure (CPAP) is the first-line treatment for SDB. CPAP use is associated with improvements in psychosocial functioning when individuals use the machine regularly. Unfortunately, CPAP adherence rates are often low. Patients sometimes discontinue CPAP therapy due to undesirable side effects, such as anxiety, insomnia, and nasal discomfort, or inconvenience.

The goal of this review is to highlight the growing role of behavioral sleep medicine in the assessment and treatment of SDB and psychosocial impairments comorbid with SDB. More than any other health specialty, psychologists with behavioral sleep medicine experience are in the best position to treat psychiatric symptoms exacerbated by SDB-related sleep disturbances. Behavioral sleep medicine specialists also possess the expertise to address psychological obstacles to CPAP use. The assimilation of behavioral sleep medicine specialists into sleep clinics is likely to improve the overall quality of care for patients with SDB.

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The prevalence rates of sleep apnea and other forms of sleep disordered breathing (SDB) are most likely growing with the dramatic, nationwide rise in obesity, hypertension, and diabetes mellitus (Wolk, Shamsuzzaman, & Somers, 2003). While hypertension and diabetes are commonly recognized as

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consequences of obesity, SDB is often forgotten (Carden & Fogel, 2004). The rate of recognition and diagnosis of SDB and other sleep disorders in outpatient healthcare settings is extremely low despite high rates of sleep complaints from patients (Rosen, Zozula, Jahn, & Carson, 2001).

These low recognition rates are thought to result from the lack of formal sleep medicine training among healthcare providers (Rosen et al., 1998). Sleep medicine courses are rarely offered in mental health curricula. Mental health trainees are often taught to assess insomnia within the framework of the Diagnostic and Statistical Manual of Mental Disorders, where sleep disturbances are generally considered symptoms of mental illness (American Psychiatric Association, 2000). Mental illness is seldom conceptualized as a potential symptom of sleep disturbance (Kaplan, 1992). Dissemination of behavioral sleep medicine methods among mental health providers is clearly needed.

The purpose of this review is to address this need by reviewing the clinical characteristics of one of the most common sleep disorder categories in the adult population, sleep disordered breathing. This review begins with an overall introduction to SDB, including diagnostic criteria, clinical features of SDB, and assessment strategies. Next, three main areas are reviewed that have particular relevance to mental health clinicians, namely: (1) psychosocial consequences of SDB, (2) effectiveness of SDB treatment on psychosocial outcomes, and (3) psychosocial issues affecting treatment adherence. Through an examination of these areas, this review highlights mental health consequences of SDB in adults and identifies the growing role for behavioral sleep medicine specialists in the treatment of this often-debilitating disturbance.

## **1. Introduction to sleep disordered breathing**

### *1.1. Diagnosis*

A spectrum of sleep disorders are classified within the broad category of sleep disordered breathing (SDB). All SDB syndromes are characterized by cessation or partial cessation of airflow causing multiple arousals from sleep. Two sleep apnea syndromes, obstructive sleep apnea (OSA) and central sleep apnea, are the most severe disturbances in the SDB continuum. Upper airway resistance syndrome (UARS) is a mild version of SDB; breathing events are less severe in UARS than they are in sleep apnea.

The severity of SDB is determined by the respiratory distress index (RDI). The RDI is the sum of the number of apneas, hypopneas, and respiratory effort-related arousals (RERAs). An apnea is a cessation of airflow, and a hypopnea is a 30–50% reduction in airflow. RERAs are arousal events characterized by increasing respiratory effort, which do not qualify as apneas or hypopneas. Apneas, hypopneas, and RERAs must last a minimum of 10 seconds (Loubé et al., 1999). Each of these events concludes with a transient arousal, or an abrupt shift in electroencephalographic frequency, in which the individual gasps for air. Arousals in sleep apnea often do not result in behavioral awakening but are responsible for fragmented sleep and subsequent daytime sleepiness.

The pathophysiology and diagnostic criteria (including RDI specifications) for each SDB syndrome are reviewed below.

#### *1.1.1. Obstructive sleep apnea (OSA)*

The most common type of sleep apnea is obstructive sleep apnea, which is caused by an obstruction of the upper respiratory tract. The location and cause of the obstruction in OSA varies. The most

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