

Poor Sleep with Age



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KEYWORDS

• Sleep evaluation • Children • Adolescence • Adults • Elderly

KEY POINTS

- Understanding normal changes that occur with respect to sleep during the aging process, including changes to sleep architecture as well as napping patterns, is important when evaluating sleep complaints.
- A multidisciplinary approach to the clinical evaluation of sleep complaints, including diagnostic questions, pertinent systems during examination, and various studies, is recommended.
- Understanding the diagnosis and management of common sleep disorders that are prevalent in different stages of life can help with narrowing the possible differential diagnoses.

INTRODUCTION

Sleep is an essential biological function and is dynamic process that has psychological and physiologic effects throughout the lifespan. The symptoms that are frequently present as well as the sleep disorders that often manifest vary as an individual ages. During childhood, behavioral sleep issues often contribute to poor sleep. As an individual moves into adolescence and there is a physiologic phase delay in sleep timing, circadian rhythm disorders are more likely. During adulthood, there is a predominance of insomnia complaints as well as a higher prevalence of breathing and movement disorders. In the elderly, a large contributing factor to poor sleep is commonly polypharmacy as well as the high prevalence of medical and psychiatric comorbidities. Sleep complaints, when persistent, can result in daytime sleepiness, which can lead to morbidity in elderly patients, such as impaired cognition, delirium, disorientation, dementia, as well as increase the risk of falls. Another concern is the bidirectional relationships between sleep disorders and many medical disorders. Patients with sleep disorders are often more likely to develop cardiovascular and cerebrovascular disorders, and individuals with a history of these disorders are often at a higher risk of developing sleep disorders. During this review, the

evaluation of sleep complaints is discussed along with presentation and management options of common sleep disorders encountered in the 4 major stages of life mentioned earlier.

SLEEP CHANGES WITH AGING

Sleep Architecture

When evaluating sleep complaints, it is first important to understand normal age-related changes that can occur in sleep parameters. Ohayon and colleagues¹ conducted a meta-analysis based on data from 3577 subjects aged 5 years to 102 years and demonstrated that several changes occur in both sleep architecture as well as sleep parameters throughout the lifespan.¹ These changes include a reduction in total sleep time, sleep efficiency, and slow-wave sleep as well as an increase in wake after sleep onset as an individual ages (**Table 1**). There is also a reduction in REM sleep percentages, whereas the percentage of stage N1 and stage N2 sleep increases. Given that the electrical resistance of the skull increases with age, it is important to note that the reduction in slow-wave sleep may result from a reduction in the electroencephalogram amplitude rather than a true reduction in slow-wave frequency. When only older adults (aged >60 years) were evaluated, only sleep efficiency was found to decline, whereas the

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Table 1
Summary of significant sleep changes during the lifespan

	Child to Adolescent	Young Adult to Old Adult	Old Adult to Elderly
Sleep latency	← →	← →	← →
Sleep efficiency	← →	↓	↓
Stage 1 sleep	← →	↑	↑
Stage 2 sleep	↑	↑	↑
Slow-wave sleep	↓	↓	↓
REM sleep	↑	↓	↓
Wake after sleep onset	↓	↑	↑

Child, 5–12 years; adolescent, 13–18 years; young adult, 18–40 years; old adult, 40–60 years; elderly, greater than 60 years.

↓, decrease; ↑, increase; ← →, no change.

Data from Ohayon MM, Carskadon M, Guilleminault C, et al. Meta-analysis of quantitative sleep parameters from childhood to old age in healthy individuals: developing normative sleep values across the human lifespan. *Sleep* 2004;27:1255–73.

other sleep measures did not reveal any age-related changes. Therefore, it seems that most of the age-related changes in sleep occurs during 19 to 60 years of age. This consideration may be important when determining whether a patient's complaint may be caused by normal aging or is a symptom of an underlying disorder.

Napping

In the newborn, sleep is primarily distributed equally across the day and night. By 6 months of age, an infant has typically developed the ability to sleep through the night. Napping during the day is common in infants and may often last until 3 to 5 years of age. A common misconception regarding sleep in elderly patients is that there is a reduction in the total sleep requirement. Although the duration of sleep during the nocturnal period is reduced, this seems to be offset by an increase in daytime napping. The overall prevalence of daytime napping has been reported to range between 22% and 61%.^{2–4} Buysse and coworkers² evaluated napping patterns between older (mean age = 78 years) and younger (mean age = 30 years) adults and found that older adults reported taking more naps than their younger counterparts (3.4 naps vs 1.1, respectively). The National Sleep Foundation's 2003 Sleep in America poll on sleep and aging found that 10% of individuals aged between 55 and 64 years reported taking 4 to 7 naps a week, whereas 24% of individuals aged 75 to 84 years reported napping the same frequency.³ These studies suggest that the prevalence of napping increases with age. When documenting daytime napping, it is important to pay close attention to whether the naps are intentional or unintentional. Napping that is unintentional is more likely to be

related to an underlying sleep disorder than planned napping.

Clinical Evaluation of Sleep Complaints

The clinical evaluation of sleep complaints should begin with a comprehensive history and physical examination. The evaluation should include a detailed history and examination, the use of sleep surveys, and objective testing.

Sleep History

When considering sleep complaints in patients, the clinician should gather a comprehensive sleep history (**Box 1**). If need be, it may be important to also obtain history from the patients' spouse, children, parents, bed partner, or caregiver to help to corroborate the patients' sleep complaints. These individuals may also provide useful information regarding sleep complaints that patients may be unaware of, such as snoring or periodic limb movements. The evaluation often begins with the patients' chief complaint. This also often serves to help in the formulation of a differential diagnosis of possible causes for the complaint (**Box 2**).

A detailed account of the patients' sleep schedule should be obtained with information regarding sleep and wake time during the week and on weekends. It is also important to pay attention to the patients' sleep schedule during school versus a holiday in school-aged children and to ask about varying work and sleep schedules in a shift worker. Information about the patients' typical latency to sleep as well as the number and length of awakenings during the night can help to establish baseline sleep efficiency.

If patients have prolonged sleep latency, the clinician should ask how the patients spend this

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