Understanding Sleep and Sleep Disorders

Society for Women's Health Research

SLEEP ACROSS THE LIFESPAN

The Importance of Sleep

On average, individuals spend 26 years of their lives asleep, 7 years trying to fall asleep, and 33 years in bed. Sleep is an essential function for overall health and well-being and aids in the body's ability to maintain proper brain function and physical health. Poor sleep and sleep disorders are considered a global public health issue, but they are often unrecognized and under-reported and incur high economic burden.

70 million
Americans suffer from chronic sleep disorders[1]

80%
of sleep disorders go undetected or undiagnosed[2]

$411 billion
is lost in productivity due to sleep disorders each year[3]

Emerging research points to a relationship between poor sleep and morbidity and mortality. Poor sleep has been linked to 7 of the 15 leading causes of death in the United States, including:

- Cardiovascular disease
- Cancer (malignant neoplasms)
- Cerebrovascular diseases (problems with blood flow and vessels in the brain)
- Accidents
- Diabetes
- Sepsis (bacterial blood poisoning)
- Hypertension

Poor sleep is associated with reduced physical activity, obesity, and increased smoking. Individuals who experience poor sleep are also more likely to report chronic health conditions, mood disorders, and neurodegeneration.

How Much Should You Sleep?

Sleep duration gradually declines over the lifespan—from more than 14 hours for newborns to 9 hours during adolescence, and as few as 7 hours later in life. The recommended amount of sleep that someone should get in a 24-hour period varies across different stages of life.[1]

58% of middle school students and 73% of high school students report sleeping less than the recommended 8 hours per night for adolescents.[4]

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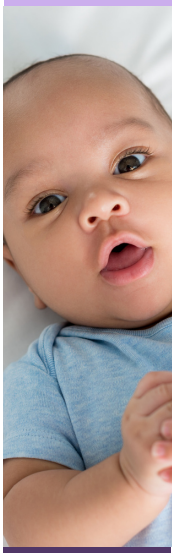
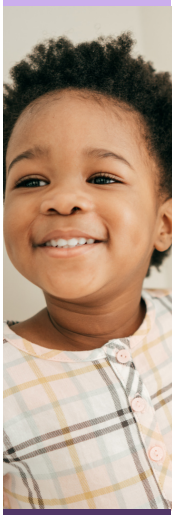
Recommended Hours of Sleep[4]

Newborn (0-3 months)	Infant (4-12 months)	Toddler (1-2 years)	Preschool (3-5 years)	School Age (6-12 years)	Teen (13-18 years)	Adult (18-64 years)	Older Age (65+ years)
							
14-17 hours	12-16 hours	11-14 hours	10-13 hours	9-12 hours	8-10 hours	7-9 hours	7-8 hours

While it is recommended that adults get at least 7 consecutive hours of sleep, people are increasingly subjected to shorter and poorer quality sleep due to factors, such as:

- Shift work
- Long work hours
- Daylight savings time adjustments
- Jetlag due to distance travel
- Living in urban and fast-paced environments
- Excessive screen time

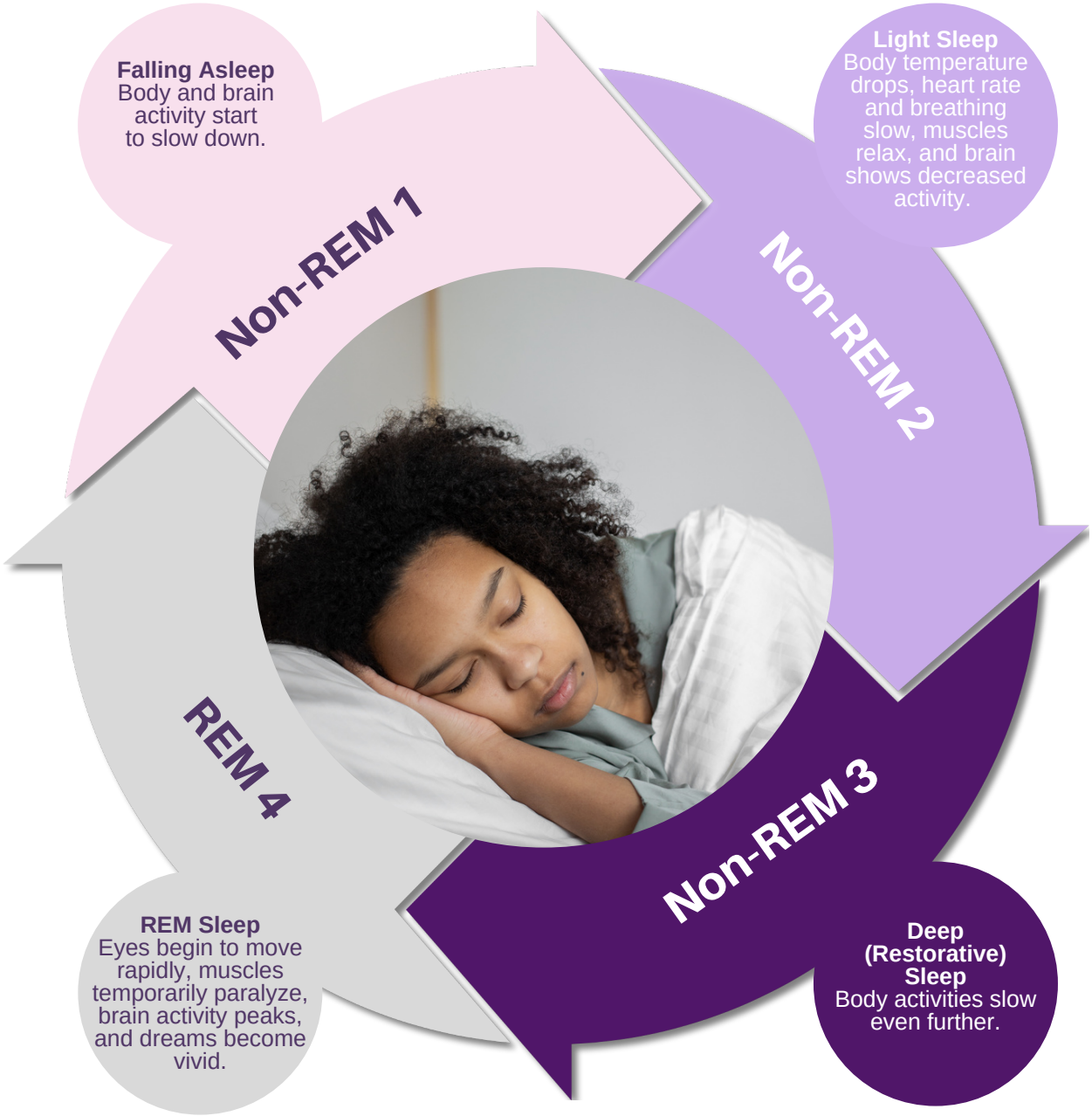
15 million individuals in the U.S. work jobs with non-traditional hours. 32% of night shift workers experience excessive daytime sleepiness. Women who work night shifts have a greater risk of developing breast cancer and cardiovascular disease; and are more likely to have irregular menstrual cycles.[4,5]

Many individuals report getting less than 7 hours of sleep per night[4]

Native Hawaiian/Pacific Islander	46%
African Americans	46%
American Indian/Alaska Native	40%
Asian	38%
Hispanic	35%
White	33%

Understanding Sleep Patterns

There are four stages of sleep – each of which plays an important role in allowing the brain and body the time and opportunity to rest and develop.



REM, on average, makes up **25%** of the sleep cycle[4]

Individuals with a normal sleep pattern will transition through the four stages of sleep 4 to 6 times throughout the night. With each full cycle, the non-REM stages get shorter, and the REM stage gets longer.

*REM = rapid eye movement

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SLEEPINESS VS FATIGUE

Although the terms are often used interchangeably, **sleepiness** and **fatigue** are two distinct symptoms – each of which has different health implications and could be indicative of different underlying conditions.

Sleepiness

Sleepiness is the desire to fall asleep. **Excessive daytime sleepiness (EDS)** is characterized by having difficulty staying awake or alert, along with an intense need to sleep during the day. EDS can have a negative impact on relationships, work, cognition, and overall quality of life, and although it is not a disorder, it could be indicative of one. For example, EDS could be indicative of **sleep apnea** or **narcolepsy**.

50% of Americans report feeling sleepy during the day at least 3x per week[4]

Fatigue

Fatigue is extreme exhaustion, a general lack of energy, and weariness. Fatigue can also indicate signs of a sleep disorder, such as insomnia or sleep apnea, or it could be a result of lifestyle habits, certain medications or treatments, or an underlying health condition (e.g., a thyroid disorder, heart disease, or diabetes).

Unfortunately, sleepiness and fatigue have become normalized and can often be dismissed by women as part a regular part of daily life, rather than a sign of a larger health issue. For example, women are more likely to report sleepiness than men, but are less likely to report that their sleepiness affects their relationships or physical activity.

Do not ignore the signs of persistent sleepiness or fatigue. It is important to listen to your body and consult a health care professional when your energy levels are negatively affecting your day-to-day activities. See the **Questions to Ask Your Health Care Provider** in the SWHR Narcolepsy Toolkit for guidance on how to talk to your doctor about your sleep concerns.

SLEEP DISORDERS IN WOMEN

Women generally sleep for longer durations than men, but are more likely to report:

- Higher levels of sleepiness
- Increased use of sleep medications
- Lower quality sleep

1/3 of women get less than the recommended number of hours of sleep[4]

Certain chronic pain conditions that can impact sleep, such as migraine, tension headaches, heartburn, arthritis, and fibromyalgia, also occur more frequently in women than men.

Sleep disorders disproportionally and differently affect women, in part, due to natural biological processes, such as menstruation, pregnancy, and menopause.

Menstruation

Women who experience premenstrual syndrome (PMS) are 2x more likely to report insomnia-like symptoms. Up to 1/3 of women experience cramps, headaches, and bloating that disrupt their sleep during their menstrual cycle.[4]

Pregnancy and Postpartum

Sleep problems, such as restless legs syndrome and obstructive **sleep apnea**, are common during pregnancy, and especially during the third trimester. During the postpartum period, women can experience sleep disruptions due to the sudden decline in hormones and the unpredictable sleep patterns that come with caring for a newborn.

Menopause

During menopause, hot flashes and night sweats can make a good night's sleep nearly impossible for some women. In other cases, trouble sleeping could be the result of underlying conditions that developed during the perimenopausal years, such as insomnia, restless legs syndrome, and obstructive sleep apnea.

Sleep Disorders to Consider

Insomnia is a sleep disorder that makes it difficult to fall asleep or stay asleep. Insomnia is the most common sleep disorder in the United States – 1 in 3 adults experience periodic insomnia, and 30 million adults suffer from chronic insomnia. Women, and especially menopausal women who experience disruptive vasomotor symptoms, are up to 40% more likely to have insomnia.[4,7]

Sleep Apnea is a disorder in which breathing repeatedly starts and stops during sleep, often due to an obstruction that causes the airway to be partly or completely collapsed during sleep. Twenty-five million adults in the United States have a form of sleep apnea. While men are more likely to have sleep apnea, cases increase significantly for women after age 50.[4,9]

Restless Legs Syndrome, also known as Willis Ekbom disease, is an uncomfortable sensation (i.e., itching, prickling) that creates an irresistible urge to move the legs after extended periods of inactivity, such as sitting or sleeping. Restless legs syndrome affects 5-10% of adults, and women are 2 times more likely to have this sleep disorder, with pregnant women and women with multiple children at even higher risk.[4]

Circadian rhythm sleep disorders occur when the body's internal clock is out of sync with the 24-hour light-dark cycle. These sleep-wake cycle disorders can be caused by different factors, such as jet lag, shift work, or melatonin levels, resulting in difficultly falling and staying asleep, waking up, and overall poor-quality sleep. 10% of adults and 16% of adolescents experience circadian rhythm sleep disorders, with an increased likelihood to occur in women.[6]

Obstructive sleep apnea is under-reported and under-diagnosed in women because of gender differences in symptom presentation. While men commonly report snoring and gasping, women report fatigue and depression.[8]

Narcolepsy is a chronic sleep disorder that is characterized by persistent and **excessive daytime sleepiness**, an inability to regulate sleep-wake cycles, and in some cases, **cataplexy** (sudden change of muscle tone, which can be triggered by strong emotions). Although narcolepsy affects men and women equally and similarly, women are diagnosed an average of 12 years later than men after symptom onset.[10,11]

Idiopathic hypersomnia (IH) is a neurological sleep disorder that results in excessive daytime sleepiness, despite sleeping longer than normal hours (i.e., 10+ hours per day). IH affects 20-50 per 1 million individuals, both men and women alike. Those with IH experience trouble waking up and a prolonged feeling of grogginess, even after a long sleep or nap.[12]

For more information about sleep disorders that affect women, see SWHR's **Women and Sleep: A Guide for Better Health.**