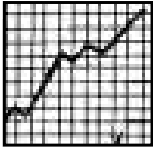




SLEEP DISORDERS

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Prevalence

The percentage of the population that reports “**trouble with sleeping**” *often* is dependent on both age and sex.¹ Between ages 20-30 years only about 9% report problems. In the mid life age group (30-50 years) up to 16% indicate problems, with more females than males experiencing sleep difficulties. About 20% of all people over 60 years old report chronic problems with sleep. In recognition of this, we have included a special section on *sleep hygiene*.

Apart from problems initiating and/or maintaining sleep (insomnia), another common sleep disorder a GP is likely to encounter is **sleep apnoea**, with a prevalence rate in the adult population of 3.9% for males and 1.25% for females². Overweight males in the second half of their lives are most at risk but the disorder is often seen in other groups as well.

Contrary to popular belief, **narcolepsy** is not ‘extremely rare’, with a prevalence rate of 0.06%³. Many people with this disorder remain undiagnosed for years, even decades.

Important disturbances associated with sleep that are increasingly diagnosed are **restless legs syndrome** (10% prevalence) and **periodic limb movement**, which is common in adults. **Sleep paralysis** has been cited as having an incidence of 5-62%⁴, but severe sleep paralysis (at least one episode per week) occurs in only 0.8% of the population⁵. The phenomenon peaks in adolescence and the elderly. **REM sleep behaviour disorder** prevalence is unknown but is almost exclusively documented in males, and effects mainly older males⁶.

The sleep/wake cycle is sensitive to a wide range of lifestyle issues, mood disturbances and medical conditions that are not sleep disorders in themselves and GPs need to weigh the evidence for all options.

Diagnosis

Careful questioning is essential. The type of questions will depend on the main presenting complaint. These are organised in three Tables. In some cases responses from the spouse/bed partner are invaluable. In addition asking patients to keep a daily sleep/wake diary can be useful in helping the doctor and patient understand what is happening.

Table 1. Complaint / Night time Disturbances.

QUERY	FOLLOW UP.
Breathing stops	See sleep apnoea
Very loud snoring	See sleep apnoea
Wake up gasping	See sleep apnoea
Morning headache	See sleep apnoea & bruxism
Obese/overweight	See sleep apnoea
Neck circumference >36cm	See sleep apnoea
Problematic alcohol intake	See sleep apnoea & sleep hygiene
Sleepy during day	See sleep apnoea and/or Table 3
Environmental disturbances	See sleep hygiene
Awake and mind active	See sleep hygiene
Elderly	See sleep hygiene
Drug dependency	Address issue
Indigestion/gastric reflux	Address issue
Morning jaw pain	See bruxism
Teeth grinding	See bruxism
Vivid dreaming	Medication/Thyroid
Early morning waking	Depression
Nightmares (dreaming & awakening)	Psychological health & see nightmares
Sleepwalking	See sleepwalking
Night terrors (with no recall of dream content)	See sleep terror
Acting out dreams	See REM sleep behaviour disorder
Legs restless/keep moving	See restless legs syndrome
Muscles jerk and twitch	See periodic limb movement disorder

Table 2. Complaint = Sleep onset problems.

QUERY	FOLLOW UP
Worry/stress/anxiety	See sleep hygiene
Mind too active	See sleep hygiene
Irregular sleep patterns	See sleep hygiene
Nap during day	See sleep hygiene
Morning sleep in	See sleep hygiene
Not tired till very late	See sleep hygiene & Circadian disorders
Sedentary/indoor life style	See sleep hygiene
Evening caffeine/smoking	See sleep hygiene
Alerting medications	Address issue
Legs restless/keep moving	See restless legs syndrome
Muscles jerk and twitch	See periodic limb movement disorder
Paralysis of body	See sleep paralysis

Table 3. Complaint = Daytime Sleepiness and/or fatigue.

QUERY	FOLLOW UP
Muscular aches and pains	Chronic fatigue syndrome
Lethargy/weakness	Hypothyroidism/Anaemia
Depressed mood	Depression
Night time waking	See Table 1
Sleep onset problem	See Table 2
Sleep-inducing medications	Address issue
Alcohol/drug dependency	Address issue
Chronic daytime sleepiness	See sleep apnoea & narcolepsy
Involuntary sleep onsets	See sleep apnoea & narcolepsy
Brief periods of muscle loss triggered by laughter, anger etc	See narcolepsy (cataplexy)
Breathing stops	See sleep apnoea
Very loud snoring	See sleep apnoea
Wake up gasping	See sleep apnoea
Morning headache	See sleep apnoea & bruxism
Obese/overweight	See sleep apnoea
Problematic alcohol intake	See sleep apnoea
Neck circumference >36cm	See sleep apnoea
Excess alcohol intake	See sleep hygiene

R_x Treatment options

SLEEP HYGIENE

The term sleep hygiene is used to describe the effects of multiple factors on the timing, duration and quality of sleep.

Sleep Hygiene Rules – Advice for patients

Sleep/wake schedule: Some sleep programs suggest going to bed only when tired, but this may result in poor sleep scheduling. Go to bed at around the same time each night and get up around the same time each morning (including weekends).

Time in bed: Allow enough time in bed to get the amount of sleep/rest you need. This is best judged on when you were sleeping well in the past. Staying in bed too long fragments sleep into shorter periods that are less satisfactory than longer consolidated periods.

Do not oversleep: If you sleep poorly still get up at the regular time the next morning. Do not sleep in late because of a bad nights sleep as this may delay sleep onset on the following night.

Daytime naps: Avoid napping if it disrupts night time sleep (except. the very young, elderly or ill).

Do not clock watch: Looking at the clock while in bed can make you anxious about sleep.

Relax before bedtime: Relax for about one hour before bedtime. Engage in passive activities like reading, listening to music, watching television or talking to family members. Formal relaxation or meditation exercises are also useful. Avoid activities that cause physical and/or psychological arousal.

Bedtime rituals: These serve as reminders that it is time to sleep (e.g. brushing your teeth, turning the bed down, setting the alarm clock etc..).

Unable to fall asleep initially or after waking: Try to remain in bed and relax. Practice progressive muscular relaxation in bed or use pleasant distracting thoughts. If you begin to feel tense, get up and engage in some passive activity (read local newspaper) in another room for a short time (10-30 min) and then return to bed as if you were starting the night again.

Daily exercise: Walking is a good form of exercise, but do not exceed your limits. Exercising in daylight also helps reset the internal “circadian clock”. Avoid strenuous physical exercise too late in the evening.

Do not label yourself an insomniac: Everyone has poor nights sleep now and then. Replace negative self-statements about sleep with positive statements about resting in bed being good. An important component of sleep is rest and it is better to rest comfortably in a relaxed manner if unable to sleep than tossing and turning with anxiety.

Mind too active (Thinking/Planning/Worrying): If these processes stop you sleeping, use a 10-30 minute period each day (not near bedtime) to write down things to be done or think about issues that are troublesome.

Letting go of worrying about sleep: If you have had a problem with sleep for some time, worrying about it a great deal has not helped overcome the problem. Distract yourself with pleasant thoughts, use a progressive muscular relaxation tape or use positive affirmations to replace negative self-talk about sleep (e.g. “resting in bed is good” rather than “it’s terrible that I can’t sleep”).

Health problems: If you are prevented from sleeping or awakened by any symptoms such as

coughing, toothache or other pain consult your doctor as soon as possible.

Sleep Environment

Bedroom: Make the bedroom a place where you go to rest and sleep. Do not watch television or listen to the radio, eat or drink or smoke in bed.

Noise: Consider soundproofing, noise screens or earplugs if you are bothered by external noises. Noise is also more disruptive to those sleeping on daytime schedules (shift workers).

Temperature: Determine the temperature that allows you to sleep best.

The bed: Obtain a bed that is comfortable and sufficiently firm enough to give good support throughout the night. Consider the bedding itself (doonas that are too efficient lead to overheating).

Other factors: Light from windows, allergenic substances in the room (animal hair, dust etc..).

Substance Use

Over-the-counter sleep aids: Occasional use only, regular use may lead to over-reliance.

Prescription sleeping medications (Sleeping tablets): Prolonged use may lead to dependence and increased insomnia.

Other medications: Some medications (e.g. for asthma) may interfere with sleep to some degree.

Reduce fluid intake after dinner: This will lessen the likelihood of having to get up and use the toilet in the middle of the night.

Drinking in the evening: Milk is a natural source of tryptophan, an amino acid that is helpful in inducing sleep.

Caffeine: Avoid caffeine after lunch (coffee, tea, Coca-cola etc.).

Alcohol: Avoid evening alcohol consumption, up to 2 hours prior to bedtime. Although it may promote sleep onset, it can disturb sleep patterns, exacerbate sleep apnoea and cause early morning awakening.

Smoking: Avoid excessive cigarette smoking before bedtime as it acts as a stimulant.

The timing of the evening meal: Avoid eating large meals close to bedtime.

Circadian sleep disorders (Delayed Sleep Phase Insomnia): (1) sleep onset and wake times are intractably later than desired; (2) actual sleep times occur at nearly the same delayed time each day/night; and (3) EEG recordings of sleep are normal. Treatments: (1) Benzodiazepines are generally not effective in the long term; (2) Chronotherapy which involves delaying sleep and wake times each day until the desired sleep time is reached; (3) Bright light therapy; and (4) Melatonin administration. Supervision of treatment by a sleep specialist is recommended. Other less common circadian disorders include problems with reduced amplitude of rhythms and free-running rhythms⁷.

SLEEP APNOEA is the term used to describe cyclical brief interruptions of breathing lasting 15-90 seconds and resulting in hypoxaemia, hypercapnia and respiratory acidosis ending in arousal from sleep that may or may not be remembered by the patient⁸. Sleep apnoea is classified as obstructive, mixed or central. The most common form is obstructive sleep apnoea (OSA), in which there is a narrowing of the pharyngeal area of the upper airway during sleep. The clinical features of OSA include: (1) Nocturnal events – loud snoring, restless sleep, choking and panic reactions; (2) Excessive daytime sleepiness; (7) Subtle neuropsychiatric disturbances, learning and memory difficulties, loss of concentration, irritability, personality change, depression and in severe cases, dementia; (8) Sexual dysfunction; and (9) Morning headache⁸. (3) Systemic hypertension; (4) Cardiac arrhythmias (nocturnal) including sinus bradycardia; (5) Pulmonary hypertension and cor pulmonale; (6) Secondary polycythaemia; A full sleep study is fundamental to diagnosis. Treatment usually involves lifestyle changes (e.g. brisk daily exercise and weight reduction - neck circumference >36 cm associated with OSA), the implementation of nasal CPAP (Continuous Positive Airway Pressure)⁸ or the use of a mandibular advancement splint. Arousals from obstructive sleep apnoea may trigger sleepwalking and/or sleep terror episodes⁹.

NARCOLEPSY is a disorder of excessive daytime sleepiness in which the auxiliary symptoms of cataplexy, sleep paralysis, and hypnagogic hallucinations may or may not be present. Presentation is typically chronic overwhelming sleepiness (as opposed to being tired, although this may also be described) and sleepiness is usually the first symptom to appear. Cataplexy is typically the most prevalent auxiliary symptom and involves a temporary (30 sec to several minutes) loss of control of the skeletal system that may be total or partial (eg hands, lower jaw, knees). It is usually triggered by an emotion, most commonly laughter, anger or surprise. There is no loss of consciousness. Age of onset is typically early adulthood but it can begin in early childhood and in older persons. Diagnosis proceeds via a careful clinical history and a Multiple Sleep Latency Test in a Sleep Clinic where short REM latencies are indicative of the disorder. Treatment of the sleepiness is with stimulants (methylphenidate or dexamphetamine), while tricyclic antidepressants will help control any severe auxiliary symptoms.

PARASOMNIAS

Parasomnias involve the activation of the autonomic nervous system or cognitive processes during sleep or during the sleep-wake transitions.

Sleeptalking (Somniloquy) is common in the general population and is believed to have a

genetic component¹⁰. It occurs during REM and NREM sleep and is of little clinical significance^{11&12}.

Sleepwalking is common in children with about 15% (mostly boys) having episodes (cf. < 5% of adults)¹³. In children, sleepwalking is usually benign and self-limiting, generally beginning before 10 years of age, and ceasing before 15 years of age. Episodes usually last only a few minutes. Sleepwalkers are difficult to communicate with and if left alone often return to bed. When awakened, they have little memory of the episode. Sleepwalking can be caused by the use of particular medications¹⁴. Barbiturates and monamine oxidase inhibitor antidepressants, suppress all REM sleep, and tricyclic antidepressants also reduce REM sleep. By altering the stages of sleep these drugs may influence the frequency of sleepwalking¹⁵ (treatment see sleep terror below).

Nightmares are frightening dreams accompanied by moderate levels of autonomic activity (e.g. tachycardia) and arousal¹⁶. In comparison to sleep terror, the level of autonomic activation is considerably less and recollection of the dream content is usually fairly complete. Generally, nightmares do not become a matter of concern unless they are recurrent, disrupt sleep or are anxiogenic¹⁷. L-Dopa used to treat the symptoms of Parkinson's disease may cause nightmares and vivid dreams. Nightmares occur during REM sleep, thus anti-anxiety agents such as diazepam and antidepressants that suppress REM sleep have helped patients with frequent nightmares¹⁷. Patients can also be made aware that it is possible to change dreams (nightmares) by consciously thinking about incorporating new material (i.e. making the dream more benign). This approach is particularly effective with young children (i.e. incorporating an imaginary protector).

Sleep terror usually begins before the age of 10 and is usually outgrown during adolescence¹³. Sleep terror episodes may occur as often as three times a week¹⁸. Sleep terrors are distinguishable from nightmares in terms of clinical features and sleep-laboratory findings. Sleep terror includes more vocalisations, motility, and autonomic discharge and usually more fear and anxiety than nightmares. Sleep terror occurs during sleep stages 3 and 4, whereas nightmares occur during REM sleep^{19,20,21}. Sleep terror and sleepwalking have similar clinical characteristics^{19,21,22, 23}.

In the treatment of sleepwalking and sleep terror it is important to confirm that a correct diagnosis has been made. Patients, particularly children should be given reassurance that in most cases the arousal is benign and self-limiting in nature. Patients should be given practical advice about basic safety precautions that can be taken. For

example, the bedroom should be cleared of obstacles and any windows should be locked or otherwise secured. In some cases it may be advisable to fit deadlocks or alarms to outside doors. Patients should be warned that sleep deprivation should be avoided because it may precipitate arousals. They should also be instructed to make the sleep/wake cycle as regular as possible. People living with the patient should be advised not to intervene during arousals as this may prolong the event. In most cases the sufferer is best left alone and any observer should just ensure that no injury occurs.

In cases where the arousals are dangerous or disruptive to the patient or to others, and no obvious precipitant can be identified, symptomatic treatment is needed. Two successful interventions for partial arousals have been described: pharmacological therapy (benzodiazepines & tricyclic antidepressants)^{24, 25, 26} and hypnosis with relaxation and mental imagery^{27, 28, 29}.

Post traumatic stress disorder (PTSD) is almost always associated with major sleep disturbances and nightmares³⁰. PTSD is usually thought of as a condition associated with exposure to trauma during war, but it may occur after any psychologically distressing event beyond the range of usual human experience³¹. Treatment is difficult and usually requires long-term counselling that may or may not resolve the nocturnal symptoms³². Drug treatment with imipramine or alprazolam has been reported to be effective in adults^{33, 34}.

REM sleep behaviour disorder involves a problematic behavioural release that is experienced as an enactment of distinctly altered, unpleasant and combative dreams. The vigorous behaviours may result in injury. It involves both REM sleep and the motor system and has both an acute and chronic form. The acute form is usually associated with medication toxicity, drug and alcohol abuse or withdrawal. The chronic form is primarily a male phenomenon (87%) with a predominance in the over 50 year age group. Nevertheless, cases across all age groups (including children) have been documented. If the chronic form is suspected the patient should be referred to a sleep clinic.

Bruxism (teeth grinding) during sleep can occur at any age and is believed to affect about 15-20% of the general population. Bruxism occurs during all stages of sleep but is more likely to occur during stage 2 of NREM or during REM sleep³⁵. During episodes of bruxing the force applied may be greater than that observed during conscious clenching and in severe cases damage to the teeth and/or jaw may occur³⁶. Headache or jaw pain on awakening may be indicative of bruxism. Treatment for bruxism may include; occlusional adjustment and splints, psychotherapy, hypnosis, and

medication, but none of these treatments have been shown to result in a complete cure of the problem^{37, 38}. Polysomnographic studies should be performed to rule out nocturnal seizures if individuals show major oral damage (e.g. broken teeth).

Headaches, cluster, chronic paroxysmal hemicrania and migraines have been found, in some cases, to be REM sleep-related, which may explain why patients report sleep-related headaches in these conditions^{39, 40, 41}. Patients with obstructive sleep apnoea may also present with sleep related headaches⁴² also see Bruxism).

Periodic limb movement disorder (PLMD) is common in adults, but rarely observed in children. Movements involve periodic (every 20-40 sec), sustained (0.5-4.0 sec duration), contracture of one or both anterior tibialis muscles variably associated with unperceived arousals⁴³. Treatment should focus on sleep hygiene issues initially and if this does not reduce the incidence, sedative medication may be required (see treatment of RLS below).

Restless legs syndrome (RLS) involves unusual or "funny" feelings that may begin when lying in bed awaiting sleep onset or sitting passively in a chair. The feelings are usually in the lower legs below the knees, but may involve the upper legs and pelvis. The feelings might be described as tingling, aching or burning and are associated with an urge to move the legs. This often results in jiggling the legs in bed or standing up and walking around. In women RLS may first appear during pregnancy but usually disappears after birth⁴⁴. RLS may return years later. Low blood iron concentration without anaemia tends to make RLS worse. RLS is more common in patients with diseases like rheumatoid arthritis or kidney failure, where serum iron levels are low⁴⁴. Caffeine in tea, coffee or soft drinks may worsen RLS. Tricyclic medications for depression also tend to worsen RLS. RLS is often associated with other sleep disorders (e.g. PLMD). Treatment is often not required if the symptoms are mild and intermittent. Serum ferritin levels should be checked and caffeine intake reduced. Drug treatments include benzodiazepines (e.g. clonazepam), anti-epileptics (e.g. carbamazepine) and anti-Parkinsonian medications (L-dopa)⁴⁴.

Seizures that occur during sleep suggest primary parasomnia symptomatology and can be difficult to diagnose. Nocturnal seizures may take the form of recurrent dreams, nightmares, or sleepwalking, recurrent isolated arousals or unusual autonomic symptoms. Seizures that occur only at night are not common, but should not be discounted as a possible cause of unusual sleep-related behaviour. Seizures can also produce arousal that may, in turn, trigger primary parasomnia events like sleep terror.

Nocturnal asthma exacerbation is common in children. The sleep of asthmatics may be fragmented and associated with haemoglobin oxygen desaturation, but acute nocturnal asthmatic attacks do not appear to relate to particular sleep stages⁴⁵. In some instances nocturnal exacerbation of asthma may be caused by gastroesophageal reflux⁴⁶ or circadian factors⁴⁷.

Gastrointestinal events can result in paroxysmal arousals during sleep. These episodes may appear to be manifestations of disorders of other organ systems. Gastroesophageal reflux can cause prolonged laryngospasm⁴⁸ or stridor⁴⁹ present as sleep disturbance in infants⁵⁰ and has also been implicated in sudden infant death syndrome⁵¹.

Sleep paralysis with hypnagogic hallucinations tends to be very frightening. This condition has been suggested to explain cases where otherwise normal patients have reported being haunted by ghosts, troubled by witchcraft, out of body experiences, demons and other supernatural agents. Hypnagogic hallucinations are often observed in cases of narcolepsy, but the same symptoms may occasionally be experienced by non-narcoleptics especially following a period of sleep deprivation. If there are no other symptoms of narcolepsy present, in most cases further evaluation is unnecessary and patients need only to be reassured about the benign nature of the phenomena.



Key support services

Australasian Sleep Association (ASA) GPO 295
Sydney NSW 1043. Tel: 0500 500 701, Fax: 0500
500 702, sleepaus@ozemail.com.au

Narcolepsy and Overwhelming Daytime
Sleepiness Society of Australia Inc NODSS PO
Box 100 Rosanna Vic 3084, Tel: 03 9761 9767,
03 9432 9669, Fax: 03 9761 9727, 03 9432 9758

Sleep Disorders Australia, PO Box 303 Roseville,
NSW 2069

Further Reading

Ambrogetti A (2000) *Sleeping soundly. Understanding and treating sleep disorders.* Allen & Unwin, Sydney, Australia.

Sleep too much or too little? What is your problem? NODSS Guide to sleep disorders. Narcolepsy and Overwhelming Daytime Sleepiness Society of Australia Inc. 1999.

Morawetz D (1994) Sleep better ... without drugs. (self-help program) Free-Call 1-800-066-044



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