

For the Primer, visit [doi:10.1038/nrdp.2015.26](https://doi.org/10.1038/nrdp.2015.26)

➔ Insomnia disorder is characterized by prolonged periods of difficulty sleeping that negatively affects daytime functioning. Of all the forms of insomnia, chronic insomnia is the most common. The worldwide prevalence of insomnia is estimated to be approximately 10% based on studies that used DSM-IV criteria.

**Rx MANAGEMENT**



! Cognitive-behavioural therapies — aimed at changing practices and thoughts that contribute to insomnia — are used in combination with other therapies such as mindfulness training to treat the disorder

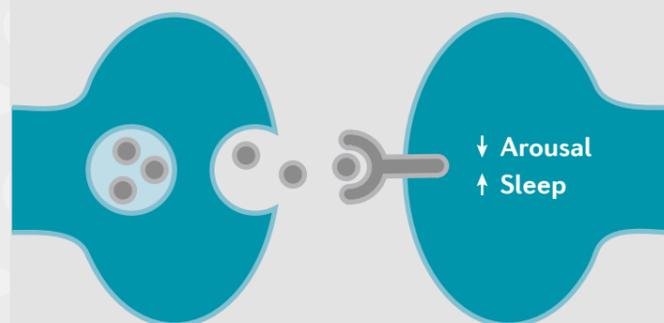
Pharmacological approaches are also used to treat insomnia — drugs modulate the activity of molecules that regulate sleep, such as GABA, histamine, melatonin and orexin

**QUALITY OF LIFE**

With its effects on physical performance, mood and cognitive functioning, insomnia can severely reduce academic and occupational achievement, place strains on personal relationships and cause substantial distress. Insomnia can also exacerbate quality-of-life challenges in those with other conditions including cancer, Parkinson disease and pain disorders. Overall, chronic insomnia has quality-of-life outcomes that resemble other severe chronic conditions, such as major depressive disorder and congestive heart failure.

**MECHANISMS**

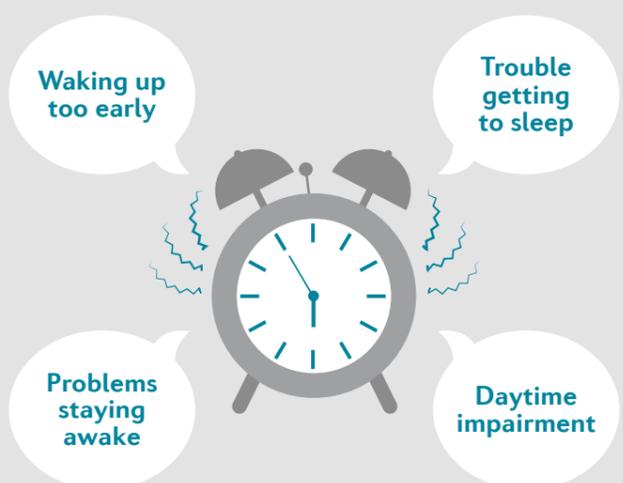
Although the aetiology of insomnia is poorly understood, several psychological, behavioural, genetic and neurobiological factors that predispose individuals to insomnia, trigger the disorder or perpetuate it have been identified. Psychological and behavioural contributors to insomnia include stressful life events, excessive worry about sleep, poor sleep hygiene, the tendency to internalize problems and irregular sleep schedules. Genes implicated in insomnia include those that encode clock proteins, which regulate circadian rhythm, and those that encode proteins related to the activity of neurotransmitters such as serotonin and  $\gamma$ -aminobutyric acid (GABA). Finally, many patients with insomnia experience hyperarousal — a state of increased physiological arousal while sleeping and awake — although whether this contributes to the disorder is unclear.



! GABA is a key sleep promoter. Patients with insomnia often have reduced levels of GABA

**DIAGNOSIS**

Diagnosis is made on the basis of reports of sleep experiences by patients, and requires dissatisfaction with sleep duration or quality, difficulties initiating and maintaining sleep and associated daytime impairments such as fatigue, poor memory and diminished concentration. These symptoms must be present for  $\geq 3$  days per week and last a minimum of 3 months. Other conditions that can disrupt sleep, such as obstructive sleep apnoea, restless leg syndrome and periodic limb movement disorder, must be ruled out.



**OUTLOOK**

Improved outcomes for patients with insomnia require a multifaceted approach. Research is needed to elucidate the psychological and biological mechanisms that lead to insomnia and to determine

if hyperarousal is a cause or consequence of insomnia. These efforts will be assisted by increased standardization of diagnostic criteria, which will enable more-meaningful comparisons between studies

and provide a clearer picture of the global epidemiological landscape of insomnia. Finally, education is required to bring clinical practice in line with the most up-to-date evidence on how to best manage insomnia.