

The Cost of Insomnia and the Benefit of Increased Access to Evidence-Based Treatment Cognitive Behavioral Therapy for Insomnia



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KEYWORDS

• Insomnia • Prevalence • Cost • Pharmacology • CBT-I • Patient access

KEY POINTS

- Insomnia is a costly condition associated with direct and indirect costs estimated at more than \$150 billion in the US annually.
- Most insomnia-related expenses are indirect costs. Given that insomnia is inexpensive to treat, increased access to treatment has the potential to generate substantial cost savings.
- Behavioral treatments for insomnia are favorable because they address the underlying problem and do not have many of the health risks associated with sedative-hypnotic use.
- CBT-I is a nonpharmacologic intervention that safely and cost-effectively treats insomnia.
- In the interest of minimizing cost and the lack of CBT-I providers, self-administered, group, and stepped care delivery of this intervention have been developed.

PREVALENCE AND COST OF INSOMNIA

The prevalence of insomnia is high, between 4.7% and 22.1% depending on the diagnostic criteria used.¹⁻⁴ Insomnia is associated with decreased quality of life, accidents, increased psychiatric and somatic comorbidities, and problems with work performance.⁵ There is also a large financial cost associated with insomnia, although it is difficult to estimate because most of the expense is from indirect costs, and the criteria for insomnia-related expenses vary between studies. The cost of direct insomnia treatment has been estimated to account for only 4% to 16.7% of the total cost.^{6,7}

Stoller's⁷ 1994 analysis remains one of the most frequently cited estimates of annual costs associated with insomnia in US dollars. Based

on her calculations, the annual cost associated with insomnia in the United States has been estimated to be \$92.45 to \$107.53 billion. To achieve this figure, Stoller⁷ combines the estimated expenses of direct medical costs, lost productivity, insomnia-related depression and alcohol abuse, and accidents. The main critique of this estimate is that it may have overestimated costs based on the high prevalence rate used for the calculations. However, it must be noted that estimated indirect costs associated with absenteeism and increased health care utilization were not included in the total cost. Subsequent research has found these expenses to be substantial.⁸ Given that all indirect costs of insomnia were not accounted for, it is fair to consider Stoller's⁷ estimate as an equivalent or conservative estimate of overall costs.

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Assuming that insomnia-related expenses are steady, Stoller's⁷ figures can be adjusted to an annual cost of \$150.36 to \$174.89 billion when adjusted for inflation to 2016 US dollars (inflation calculated using online calculator: http://www.bls.gov/data/inflation_calculator.htm). This is 0.95% of the predicted US gross domestic product for 2016, based on the predicted figure of \$18,494 billion (<http://www.statista.com/statistics/216985/forecast-of-us-gross-domestic-product/>).

Other calculations of the financial costs of insomnia have been done. Daley and colleagues⁶ estimated the total direct and indirect costs of insomnia in Quebec to be equivalent to 1% of the province's gross domestic product. In this study, the three greatest costs associated with insomnia were lost productivity, absenteeism, and use of alcohol as a sleep aid. Together, these three indirect costs comprised 96% of the total cost of insomnia in the population over 1 year. This reinforces the importance of including indirect costs in assessing the true price of insomnia to society. A 2011 study estimated the annual cost of decreased productivity caused by insomnia in the United States to be \$63.2 billion.⁹ Insomnia-related accidents and errors in the workplace in the United States were estimated to have an annual cost of \$31.1 billion.¹⁰ Anyone either suffering from or seeing patients suffering from insomnia can understand how easily reduced focus caused by lack of sleep can translate into reduced productivity and increased workplace errors.

Pollack and colleagues¹¹ compared the health care utilization and productivity costs between patients with a diagnosis of insomnia and/or a prescription for a sleep medication with patients with neither, and found that costs were 24% greater for the insomnia and/or sleep medication group when controlling for comorbidities. Prescription of a sleep medication served as a proxy for an actual insomnia diagnosis in this study because of the frequent association of insomnia with other conditions for which a visit may be billed. The difference in cost within the insomnia group between those being prescribed medications and those not was not reported; therefore, this study did not determine whether being prescribed a sleep medication was associated with any change in cost. However, another study that looked at health care utilization costs of people newly diagnosed with insomnia found that, among the insomnia group, patients who were prescribed sleep medication actually had a higher increase in cost over the course of 1 year when compared with those who were not prescribed medication.¹² Whether patients

used any other treatments is not known. The expenses associated with insomnia are a catch 22. Untreated insomnia results in the high direct and indirect costs mentioned previously. However, if insomnia is treated with prescription medication, to the extent to which patients need to continue pharmacotherapy to receive lasting benefit, the cost of medication becomes an ongoing expenditure. Insomnia tends to be a persistent condition, which can significantly contribute to its price tag. A 3-year survey of people reporting insomnia at baseline found 74% of respondents to have insomnia after 1 year and 46% still had insomnia after 3 years.¹³ Of the 54% of respondents who had remission, 27% had a relapse by the time of the 3-year follow-up. Another longitudinal survey found that, of the people who had insomnia at baseline, more than half of them reported having insomnia 10 years later.¹⁴

GOALS OF TREATMENT

Although insomnia is characterized by poor sleep quality and/or inadequate time spent sleeping because of difficulty falling asleep or remaining asleep within the desired sleep period, it is often, in a broader sense, a state of psychophysiological hyperarousal that persists during daytime and nighttime.¹⁵ People suffering from insomnia also experience impaired daytime functioning and often fatigue.¹⁶ Often, the impaired sleep at night becomes the primary focus of efforts by the sufferer to correct. This often leads to behaviors that inadvertently perpetuate insomnia, such as devoting excessive time, effort, and thought to trying to attain more sleep.¹⁷

The main goals of treating insomnia are to improve sleep quality and daytime function.¹⁸ In many studies of insomnia treatment with patients reporting subjective improvement in sleep quality and an increase in subjective sleep time, a significant increase in objectively measured sleep time is not usually seen.¹⁹ Still, the benefits of improved subjective sleep have been associated with improvement in other objectively tested variables. Belief that one had good quality sleep, regardless of actual sleep quality, was associated with better performance on cognitive function tests the following day.²⁰

The secondary goals of treatment are to lessen the risk of somatic and psychiatric comorbidities and injuries and accidents associated with insomnia. A third goal of insomnia treatment is to lessen the associated financial losses to the individual and society.

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