

Burden of Chronic Insomnia on Society

Meir Kryger, M.D.

Sleep Disorders Centre, St. Boniface Hospital Research Centre, Winnipeg, Manitoba, Canada

Epidemiological studies done all over the world suggest that symptoms of insomnia and the disorder (symptoms and daytime impairment) are very common. Because insomnia is so common it can therefore place a burden on society in at least several, sometimes overlapping, domains: direct treatment costs, indirect costs, workplace productivity, quality of life, and personal relationships.

Insomnia Is Very Common

A very large number of studies from many countries using varying definitions have reported the epidemiology of insomnia. The range for the presence of symptoms was about 10–40 percent.^{1,2} Although there are outliers, depending on the definitions used, a reasonable estimate of the prevalence of insomnia (symptoms plus daytime impact) is 5–15 percent. Thus, insomnia is common and the prevalence is in the same range as the most common medical conditions. Insomnia has an additional burden on society because of workplace accidents,³ absenteeism,⁴ work disability,⁵ impaired quality of life,^{6,7} and deterioration in personal relationships.⁸ The degree in impairment of quality of life in patients with severe insomnia is in the same order of magnitude as in patients with congestive heart failure or depression.⁷

Use of Health Care Resources

People with insomnia use health care resources (e.g., doctor visits and treatments) at a higher rate than people without insomnia. In most people, insomnia does not tend to remit; after 2 years, 59 percent of people with mild insomnia continue to have insomnia and 83 percent of people with severe insomnia continue to have insomnia.⁹

Hypnotics are widely used medications. In Scandinavian countries, the rate of hypnotic use is about 50 defined daily doses per 1,000 inhabitants per day.¹ This suggests that 5 percent of the population uses hypnotics on a daily basis. People with insomnia do not just use hypnotics. The population uses several sleep aids, including alcohol, over-the-counter products, and prescription medications. Only a minority of people with insomnia use medications. In one study involving approximately 7,000 patients in five health care maintenance organizations in the United States, 5.5 percent of people with insomnia symptoms only used hypnotics, while 11 percent used nonprescription medications.¹⁰ In the

group of patients with insomnia symptoms that had an adverse effect on daytime function, 11.6 percent used hypnotics while 21.4 percent used nonprescription medications. It has been estimated in the United States that in 2002 there were about 27 million prescriptions filled for hypnotics, worth about \$1.2 billion. In the same year, a similar number of prescriptions were filled for nonhypnotics prescribed to treat insomnia; the most commonly prescribed was the antidepressant trazodone, accounting for approximately 10 million prescriptions.¹¹

People with insomnia, whether associated with another comorbidity (medical or psychiatric) or not, are much more likely to see physicians than people without insomnia.^{4,12} As a result of increased physician fees and drug costs, calculations based on medical claims (86,472 cases and 86,475 controls) have led to the estimation that the direct annual costs in the United States for elderly and nonelderly patients with insomnia were \$5,580 and \$4,220 higher than for matched controls.¹³ Thus, at the very least, the presence of insomnia is a marker of an increase in health care costs. Estimates of total direct treatment costs in the United States vary between approximately \$3 billion and \$14 billion.^{14,15}

Indirect Costs

Indirect costs estimated from the same health plans calculated indirect costs related to absenteeism, use of short-term disability, and workers compensation. These indirect annual costs for elderly and nonelderly patients with insomnia were \$5,580 and \$4,220 higher than those for matched controls.¹³ Estimates of indirect costs in the United States have been in the range of \$80 billion.^{14,16,17} It has been suggested that insomnia increases the risk of developing depression.¹⁸ It is difficult to estimate the financial burden related to this.

Conclusion

Although the data is imperfect, the weight of evidence suggests that insomnia does appear to place a significant impact on society as a whole. The true burden will not be known until consistent diagnostic criteria and definitions are used, there is accountability for the impact of the symptoms of insomnia in medical and psychiatric conditions, and the finding that insomnia may result in subsequent depression is factored in.

REFERENCES

1. Partinen M, Hublin C. Epidemiology of sleep disorders. In: Kryger M, Roth T, Dement WC. Principles and Practice of Sleep Medicine.

Disclosure: Dr. Kryger has indicated no financial conflict of interest.

- 4th ed. Philadelphia, PA: Elsevier; 2005.
2. Soldatos CR, Allaert FA, Ohta T, Dikeos DG. How do individuals sleep around the world? Results from a single-day survey in ten countries. *Sleep Med.* 2005;6:5–13.
 3. Metlaine A, Leger D, Choudat D. Socioeconomic impact of insomnia in working populations. *Ind Health.* 2005;43:11–9.
 4. Leger D, Guilleminault C, Bader G, et al. Medical and socioprofessional impact of insomnia. *Sleep.* 2002;25:625–9.
 5. Simon GE, VonKorff M. Prevalence, burden, and treatment of insomnia in primary care. *Am J Psychiatry.* 1997;154:1417–23.
 6. Leger D, Scheuermaier K, Philip P, Paillard M, Guilleminault C. SF-36: evaluation of quality of life in severe and mild insomniacs compared with good sleepers. *Psychosom Med.* 2001;63:49–55.
 7. Katz DA, McHorney CA. The relationship between insomnia and health-related quality of life in patients with chronic illness. *J Fam Pract.* 2002;51:229–35.
 8. National Sleep Foundation. *Sleep in America Poll 2005.* Washington, DC: National Sleep Foundation; 2005. Available at: <http://www.sleepfoundation.org/hottopics/index.php?secid=16&id=245>.
 9. Katz DA, McHorney CA. Clinical correlates of insomnia in patients with chronic illness. *Arch Intern Med.* 1998;158:1099–107.
 10. Hatoum HT, Kania CM, Kong SX, et al. Prevalence of insomnia: a survey of the enrollees at five managed care organizations. *Am J Managed Care.* 1998;4:79–86.
 11. Mendelson W. Hypnotic medications: mechanisms of action and pharmacologic effects. In: Kryger M, Roth T, Dement WC. *Principles and Practice of Sleep Medicine.* 4th ed. Philadelphia, PA: Elsevier; 2005.
 12. Weissman MM, Greenwald S, Nino-Murcia G, et al. The morbidity of insomnia uncomplicated by psychiatric disorders. *Gen Hosp Psychiatry.* 1997;19:245–50.
 13. Ozminkowski RI, Wang S, Trautman HC, Orcini L. Estimating the cost burden of insomnia for health plans [abstract]. *J Manag Care Pharm.* 2004;10:467.
 14. Walsh JK, Engelhardt CL. The direct economic costs of insomnia in the United States for 1995. *Sleep.* 1999;22:S386–93.
 15. Chilcott LA, Shapiro CM. The socioeconomic impact of insomnia. An overview. *Pharmacoeconomics.* 1996;10:1–14.
 16. Stoller MK. Economic effects of insomnia. *Clin Ther.* 1994;16:873–97.
 17. Martin SA, Aikens JE, Chervin RD. Toward cost-effectiveness analysis in the diagnosis and treatment of insomnia. *Sleep Med Rev.* 2004;8:63–72.
 18. Chang PP, Ford DE, Mead LA, Cooper-Patrick L, Klag MJ. Insomnia in young men and subsequent depression. The Johns Hopkins Precursors Study. *Am J Epidemiol.* 1997;146:105–14.