

# The Extent and Impact of Insomnia as a Public Health Problem

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Insomnia is common in all age groups. Differences in definitions and assessment methods of insomnia cause difficulties in comparisons between studies. About 20% of middle-aged adults and about one third of the elderly report symptoms of insomnia, which are about 1.5 times more common in women than in men. However, insomnia disorders are not as common as insomnia symptoms. Indications are that prevalence differs greatly between countries. Insomnia is comorbid with many chronic illnesses, and data suggest that insomnia indicates a greater risk for depression. Both self-help methods and prescribed hypnotics are widely used in people with insomnia. Estimates of the economic costs of insomnia vary, illustrating the difficulty in assessing its consequences. With all of its associated health and quality-of-life issues, insomnia is justifiably considered an important public health problem. (Primary Care Companion J Clin Psychiatry 2002;4[suppl 1]:8–12)

One essential condition in research is to be able to define exactly the object being investigated. With insomnia, this task is not easy. The definition of insomnia from the International Classification of Sleep Disorders (ICSD),<sup>1</sup> “difficulty in initiating and/or maintaining sleep,” has been used in many variations, and these differences, in addition to many other methodological aspects, substantially influence results of insomnia studies. This review, which summarizes data mainly from epidemiologic studies, focuses primarily on studies of subjects with some defined sleep disorder symptoms, rather than patients with specific sleep disorder diagnoses.

## PREVALENCE, INCIDENCE, AND DEMOGRAPHICS OF INSOMNIA SYMPTOMS

The prevalence of insomnia symptoms in general is shown in Table 1<sup>2–18</sup> and those of its main manifestations in Table 2.<sup>19–30</sup> Insomnia symptoms are quite common, becoming more prevalent with age. In young people,<sup>3–5</sup> 10% or more report symptoms. In middle-aged adults, the prevalence is around 20%, and in the elderly (over 65 years of

age), about one third of subjects report insomnia.<sup>7–17</sup> Linear increase is seen in several studies, but for patients at an old age, the figures may be lower.<sup>18</sup> There is a well-known gender difference in prevalence; insomnia is about 1.5 times more common in women, most notably in menopausal and postmenopausal age groups.<sup>7,12,14,16–18</sup> Trouble falling asleep seems to be the most common manifestation in young people.<sup>19,20</sup> In the middle-aged and the elderly groups, trouble staying asleep and early morning awakening are the most frequent symptoms of insomnia.<sup>21–30</sup> The incidence (new insomnia cases per year) is approximately 5%.<sup>12,18,31,32</sup> Insomnia is known to be a chronic condition in about 10% of the world population. In adults, insomnia is usually persistent, often lasting several years (up to more than 10 years)<sup>11,18,25,28,33</sup> and having a 3-year remission possibility of less than 50%.<sup>31,32</sup>

A few cross-country studies indicate considerable differences in insomnia symptoms. Chevalier et al.<sup>33</sup> found severe insomnia in 4% to 9% of the population in Germany, Sweden, Ireland, and Belgium, but in 22% of the population in Great Britain. Using the newly described expert SleepEval method, Ohayon and coworkers<sup>34</sup> report a prevalence of 36.2% from the United Kingdom and 18.6% from France.<sup>24</sup> In a large World Health Organization (WHO)–coordinated study in the mid-1980s, sleeping habits of subjects aged 11 to 16 years old were studied in 11 European countries.<sup>35</sup> A 2-fold difference in the prevalence of difficulties in falling asleep at least twice weekly was found, with Finland, Belgium, and Wales ranking highest (~20%–30%) in all 3 age groups, and Austria and Spain ranking lowest (~10%–15%). In young adults aged 20 to 45 years old, difficulties in inducing sleep and early

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**Table 1. Prevalence of Insomnia Symptoms**

Reference	Age (y)	% (all or male/female) <sup>a</sup>
Saarenpää-Heikkilä et al, 1995 <sup>2</sup>	7-17	4 + 61/5 + 57
Rimpelä et al, 1983 <sup>3</sup>	12-17	1 + 23/2 + 38
Levy et al, 1986 <sup>4</sup>	12-18	13
Kirmil-Gray et al, 1984 <sup>5</sup>	13-17	11
Price et al, 1978 <sup>6</sup>	15-18	13
Lugaresi et al, 1983 <sup>7</sup>	3-94	10/17
Smirne et al, 1983 <sup>8</sup>	6-92	13
Partinen and Rimpelä, 1982 <sup>9</sup>	15-24	5
	25-44	6
	45-64	14
Yeo et al, 1996 <sup>10</sup>	15-55	15
Hohagen et al, 1991 <sup>11</sup>	18-35	11
	35-50	21
	51-65	27
Ford and Kamerow, 1989 <sup>12</sup>	18-65+	8/12
Weissman et al, 1997 <sup>13</sup>	18+	12
Dodge et al, 1995 <sup>14</sup>	18-44	23/30
	45-64	32/44
	64+	36/48
Simon and VonKorff, 1997 <sup>15</sup>	18-65	10
Husby and Lingjaerde, 1990 <sup>16</sup>	20-54	30/41
Hyyppä and Kronholm, 1987 <sup>17</sup>	29-79	10 + 58/13 + 63
Morgan and Clarke, 1997 <sup>18</sup>	65-69	33/44
	70-74	39/44
	75-79	11/44
	80+	18/31

<sup>a</sup>In some studies, prevalence is given as "always or often + sometimes."

morning awakenings were studied in Iceland, Belgium, and Sweden.<sup>36</sup> The total prevalences were quite similar, but differences were about 2-fold between the countries in the percentage of the most frequent occurrence. These results indicate that although true differences may exist between countries, the reasons are less clear and should be targeted for future research.

### PREVALENCE OF INSOMNIA DISORDER DIAGNOSES

Only 2 population-based sleep-focused studies also give diagnoses on sleep and psychiatric disorders. They have used telephone interviews and the SleepEval system, which formulates questions and gives diagnoses according to the classification of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), International Classification of Diseases (ICD), and the ICSD. In the French study,<sup>24</sup> symptoms of insomnia were reported by nearly 20% of the population. A little less than half received a psychiatric diagnosis, and a little less than one third were diagnosed with an insomnia disorder according to the DSM. In both main groups, the most common diagnosis was related to anxiety disorders.

In the study performed in the United Kingdom,<sup>34</sup> 36.2% of the population had symptoms of insomnia (almost twice that reported by the French). The most common DSM diagnosis was primary insomnia (3.6%), and the most common ICSD diagnoses were mood disorder with sleep distur-

bance (4.4%) and psychophysiologic insomnia (2.2%). These studies by Ohayon et al.<sup>24,34</sup> indicate that many sleep disturbances are a constellation of symptoms but do not fulfill the criteria of a disorder.

### MORBIDITY AND MORTALITY ASSOCIATED WITH INSOMNIA

Insomnia affects patients' subjective assessment of well-being and performance in many ways while they are awake, as shown in the 1991 National Sleep Foundation Survey in the United States.<sup>37</sup> Good or excellent quality of life was reported by 96% of those without insomnia, 81% of patients with occasional insomnia, and only 70% of patients with chronic insomnia.<sup>37</sup> Insomnia is also comorbid with a wide range of chronic illnesses. In the study by Katz and McHorney,<sup>38</sup> patients had mild (34%) and severe (16%) insomnia at baseline. The strongest insomnia comorbidity associations were seen in affective disorders, cardiopulmonary disease, painful musculoskeletal conditions, and prostate problems. In a 2-year follow-up of approximately 1800 patients, most associations persisted. However, no firm data exist on the possible causal relationship between insomnia and medical disorders.

Several studies suggest that insomnia indicates a greater risk for depression and possibly anxiety disorders.<sup>12,39,40</sup> However, as pointed out by Gillin,<sup>41</sup> sleep disturbances are common manifestations of major depressive and anxiety disorders, and preceding insomnia may represent prodromes of full-blown clinical episodes.

A complicated association exists between sleep length, insomnia, use of hypnotics, and mortality. Results from different studies are conflicting,<sup>29,42-47</sup> and firm conclusions are difficult to draw. The authors' opinion is that, so far, there is no convincing and especially no causal link between mortality and sleep length, insomnia, or the use of modern hypnotics. However, indications are that increased mortality is associated with the use of non-hypnotic medication to improve sleep.<sup>46,48</sup> These complex relationships need more rigorous research.

### TREATMENT METHODS USED BY PEOPLE WITH INSOMNIA

How do people try to improve their symptoms of insomnia? The 1991 National Sleep Foundation Survey<sup>49</sup> found that only 46% of patients with chronic insomnia and 25% of those with occasional insomnia had ever discussed their sleep disturbances with a physician, and only 5% of all patients with insomnia had visited their physician specifically for insomnia. The survey found that to promote sleep, 23% of people with insomnia had used over-the-counter medications; 28%, alcohol; and 21%, prescribed medication. Self-help methods used to improve sleep included physical exercise (25% of those with

Table 2. Prevalence of Insomnia Symptoms: Main Manifestations<sup>a</sup>

Reference	Age (y)	Trouble Falling Asleep (%) (all or m/f)	Trouble Staying Asleep (%) (all or m/f)	Early Morning Awakening (%) (all or m/f)
Blader et al, 1997 <sup>19</sup>	5–12	24	13	...
Morrison et al, 1992 <sup>20</sup>	15	9/10	2/3	3/4
Lack, 1986 <sup>21</sup>	16–50	18	9	13
Janson et al, 1996 <sup>22</sup>	20–45	7	...	6
Ohayon, 1996 <sup>23</sup>	15+	...	33/45	...
Ohayon, 1997 <sup>24</sup>	15+	11/15	16/25	14/18
Bixler et al, 1979 <sup>25</sup>	18+	14	23	14
Karacan et al, 1983 <sup>26</sup>	18–65+	6/11	13/17	6/8
Kronholm and Hyypä, 1985 <sup>27</sup>	30–40	5	...	24
	50–60	10	...	43
	71	15	...	36
Ganguli et al, 1996 <sup>28</sup>	66–97	27/44	19/36	14/23
Foley et al, 1995 <sup>29</sup>	65+	19	30	19
Henderson et al, 1995 <sup>30</sup>	70+	5	...	3

<sup>a</sup>Abbreviation: m/f = male/female. Symbol: ... = not available.

Table 3. Use of Hypnotics<sup>a</sup>

Reference	Country	Pattern	Age (y)	Users (%) (all or m/f)
Kirmil-Gray et al, 1984 <sup>5</sup>	United States	Ever	13–17	15
Lack, 1986 <sup>21</sup>	Australia	Occasionally or more often	16–50	5
Janson et al, 1996 <sup>22</sup>	Northern Europe	Weekly	20–45	1.3
Ohayon, 1996 <sup>23</sup>	France	Currently	15+	7/13
Simen et al, 1996 <sup>50</sup>	Germany	Weekly	14–65	1
			65+	10
Johnson et al, 1998 <sup>51</sup>	United States	Within the past year	18–45	18
Karacan et al, 1983 <sup>26</sup>	United States	Sometimes or more often	18–65+	7/11
Partinen et al, 1983 <sup>32</sup>	Finland	> 2 months	18–39	1/1
		During the preceding year	40–59	3/3
			60–69	4/8
Hyypä and Kronholm, 1987 <sup>17</sup>	Finland	Sometimes	29–79	11/15
		Often		2/3
		Almost every evening		2/4
Mellinger et al, 1985 <sup>53</sup>	United States	Regularly, > 1 year	18–79	0.3
Morgan et al, 1988 <sup>54</sup>	Great Britain	Sometimes	65+	3
		Often		1
		All the time		12
Henderson et al, 1995 <sup>30</sup>	Australia	Previous 2 weeks	70+	15 (community)
		Nearly every night		40 (institutions)

<sup>a</sup>Abbreviation: m/f = male/female.

chronic insomnia and 14% of those with occasional insomnia), relaxation techniques (17% and 9%, respectively), and reading (11% and 6%, respectively). For the health care system, the big challenge is to better inform the public and intensify efforts to identify and treat people with insomnia.

Data on the use of hypnotics are given in Table 3.<sup>5,17,21–23,26,30,50–54</sup> Once again, the studies are methodologically very different, but some trends can be seen. In the United States, the use of sleeping pills in the young is not uncommon; 15% of the total population has tried them at some time. In the middle-aged group, ~5% to 10% use hypnotics more or less regularly; in the elderly, the percentage is higher (10%–15%), and in institutionalized individuals, the percentage is even higher.

## COSTS OF INSOMNIA

The fact that only a few studies assess the financial consequences of insomnia underlines the difficulty in estimating the costs of this disorder. The direct costs—caused by medical care and self-treatment—are in themselves not easy to define exactly, and defining the indirect costs, such as work loss, accidents, and increased morbidity and mortality, is even more difficult. Examples from the United States are described below.

Walsh and Engelhardt<sup>55</sup> assessed the direct costs of insomnia in 1995. About one quarter of the total \$14 million in costs are used to pay for sleep-promoting substances and outpatient visits for investigations and treatment. The other three quarters are allocated to costs of nursing home care.

However, the real reason for institutionalization is probably a more universal deterioration in patient capabilities for independent living than pure insomnia, reflecting the problem in defining calculations of this nature.

In the early 1990s, Stoller<sup>56</sup> calculated the economic effects of insomnia, including some of the indirect costs. The calculations are based on a 33% insomnia prevalence rate. The loss of productivity is based on an estimation of 4% performance decrement. Estimates of increased accident risk for people with insomnia are increased 2- to 3-fold for traffic, home, and public accidents combined, and 1.5-fold for work-related accidents. The rate of alcoholism in people with insomnia is estimated to be doubled. Thus, the total annual cost is \$100 billion.

Walsh and Engelhardt<sup>55</sup> among others have criticized these calculations and used more conservative estimates, e.g., 10% prevalence rate rather than 33%. They have estimated annual direct and indirect costs to be \$30 to \$35 billion. It is evident that more research is needed in this area.

## CONCLUSION

Epidemiologic studies show that insomnia is common, affecting quality of life, performance, risk of accidents, and morbidity. Considering all of its associations with other health aspects and consequences, regarding insomnia as a public health problem is justified. As underlined in the WHO report on insomnia,<sup>57</sup> better methods are needed in the health care system to identify patients with insomnia, and more studies using standardized methodologies are needed, especially prospective and cross-cultural studies and studies on consequences and costs of insomnia.

## REFERENCES

1. International Classification of Sleep Disorders; Diagnostic and Coding Manual. Rochester, Minn: American Sleep Disorders Association; 1990
2. Saarenpää-Heikkilä OA, Rintahaka PJ, Laippala PJ, et al. Sleep habits and disorders in Finnish schoolchildren. *J Sleep Res* 1995;4:173-182
3. Rimpelä A, Ahlstrom S, Honkala E, et al. Health Habits Among Finnish Youth. Helsinki, Finland: National Board of Health; 1983
4. Levy D, Gray-Donald K, Leech J, et al. Sleep patterns and problems in adolescents. *J Adolesc Health Care* 1986;7:386-389
5. Kirmil-Gray K, Eagleston JR, Gibson E, et al. Sleep disturbance in adolescents: sleep quality, sleep habits, beliefs about sleep, and daytime functioning. *J Youth Adolesc* 1984;13:375-384
6. Price VA, Coates TJ, Thoresen CE, et al. Prevalence and correlates of poor sleep among adolescents. *Am J Dis Child* 1978;132:583-586
7. Lugaresi E, Cirignotta F, Zucconi M, et al. Good and poor sleepers: an epidemiological survey of the San Marino population. In: Guilleminault C, Lugaresi E, eds. *Sleep/Wake Disorders: Natural History, Epidemiology, and Long-Term Evolution*. New York, NY: Raven Press; 1983:1-28
8. Smirne S, Franceschi M, Zamproni P, et al. Prevalence of sleep disorders in an unselected inpatient population. In: Guilleminault C, Lugaresi E, eds. *Sleep/Wake Disorders: Natural History, Epidemiology, and Long-Term Evolution*. New York, NY: Raven Press; 1983:61-71
9. Partinen M, Rimpelä M. Sleeping habits and sleep disorders in a population of 2016 Finnish adults [in Finnish]. In: *The Yearbook of Health Education Research 1982*. 1982 ed. Helsinki, Finland: National Board of Health; 1982:253-260
10. Yeo BK, Perera IS, Kok LP, et al. Insomnia in the community. *Singapore Med J* 1996;37:282-284
11. Hohagen F, Graßhoff U, Ellringmann D, et al. The prevalence of insomnia in different age groups and its treatment modalities in general practice. In: Smirne S, Franceschi M, Ferini-Strambi L, eds. *Sleep and Ageing: Proceedings of the Second Milano International Symposium on Sleep*. Oct 12-14, 1989; Milano, Italy: Masson; 1991:205-216
12. Ford DE, Kamerow DB. Epidemiologic study of sleep disturbances and psychiatric disorders: an opportunity for prevention? *JAMA* 1989;262:1479-1484
13. Weissman MM, Greenwald S, Niño-Murcia G, et al. The morbidity of insomnia uncomplicated by psychiatric disorders. *Gen Hosp Psychiatry* 1997;19:245-250
14. Dodge R, Cline MG, Quan SF. The natural history of insomnia and its relationship to respiratory symptoms. *Arch Intern Med* 1995;155:1797-1800
15. Simon GE, VonKorff M. Prevalence, burden, and treatment of insomnia in primary care. *Am J Psychiatry* 1997;154:1417-1423
16. Husby R, Lingjaerde O. Prevalence of reported sleeplessness in northern Norway in relation to sex, age and season. *Acta Psychiatr Scand* 1990;81:542-547
17. Hyypää M, Kronholm E. How Does Finland Sleep? Sleeping Habits of the Finnish Adult Population and the Rehabilitation of Sleep Disturbances [in Finnish]. Turku, Finland: Publications of the Social Insurance Institution; 1987
18. Morgan K, Clarke D. Risk factors for late-life insomnia in a representative general practice sample. *Br J Gen Pract* 1997;47:166-169
19. Blader JC, Koplewicz HS, Abikoff H, et al. Sleep problems of elementary school children: a community survey. *Arch Pediatr Adolesc Med* 1997;151:473-480
20. Morrison DN, McGee R, Stanton WR. Sleep problems in adolescence. *J Am Acad Child Adolesc Psychiatry* 1992;31:94-99
21. Lack LC. Delayed sleep and sleep loss in university students. *J Am Coll Health* 1986;35:105-110
22. Janson C, De Backer W, Gislason T, et al. Increased prevalence of sleep disturbances and daytime sleepiness in subjects with bronchial asthma: a population study of young adults in 3 European countries. *Eur Respir J* 1996;9:2132-2138
23. Ohayon M. Epidemiological study on insomnia in the general population. *Sleep* 1996;19(3 suppl):S7-S15
24. Ohayon MM. Prevalence of DSM-IV diagnostic criteria of insomnia: distinguishing insomnia related to mental disorders from sleep disorders. *J Psychiatr Res* 1997;31:333-346
25. Bixler EO, Kales A, Soldatos CR, et al. Prevalence of sleep disorders in the Los Angeles metropolitan area. *Am J Psychiatry* 1979;136:1257-1262
26. Karacan I, Thornby JI, Williams RL. Sleep disturbance: a community survey. In: Guilleminault C, Lugaresi E, eds. *Sleep/Wake Disorders: Natural History, Epidemiology, and Long-Term Evolution*. New York, NY: Raven Press; 1983:37-60
27. Kronholm E, Hyypää MT. Age-related sleep habits and retirement. *Ann Clin Res* 1985;17:257-264
28. Ganguli M, Reynolds CF, Gilby JE. Prevalence and persistence of sleep complaints in a rural older community sample: the MoVIES project. *J Am Geriatr Soc* 1996;44:778-784
29. Foley DJ, Monjan AA, Brown SL, et al. Sleep complaints among elderly persons: an epidemiologic study of 3 communities. *Sleep* 1995;18:425-432
30. Henderson S, Jorm AF, Scott LR, et al. Insomnia in the elderly: its prevalence and correlates in the general population. *Med J Aust* 1995;162:22-24
31. Foley DJ, Monjan A, Simonsick EM, et al. Incidence and remission of insomnia among elderly adults: an epidemiologic study of 6800 persons over 3 years. *Sleep* 1999;22(suppl 2):S366-S372
32. Foley DJ, Monjan AA, Zmirlan G, et al. Incidence and remission of insomnia among elderly adults in a biracial cohort. *Sleep* 1999;22(suppl 2):S373-S378
33. Chevalier H, Los F, Boichut D, et al. Evaluation of severe insomnia in the general population: results of a European multinational survey. *J Psychopharmacol* 1999;13(4 suppl 1):S21-S24
34. Ohayon MM, Caulet M, Priest RG, et al. DSM-IV and ICSD-90 insomnia symptoms and sleep dissatisfaction. *Br J Psychiatry* 1997;171:382-388
35. Tynjala J, Kannas L, Valimaa R. How young Europeans sleep. *Health Educ Res* 1993;8:69-80
36. Janson C, Gislason T, De Backer W, et al. Prevalence of sleep disturbances among young adults in 3 European countries. *Sleep* 1995;18:589-597
37. Roth T, Ancoli-Israel S. Daytime consequences and correlates of insomnia in the United States: results of the 1991 National Sleep Foundation Survey,

2. *Sleep* 1999;22(suppl 2):S354–S358
38. Katz DA, McHorney CA. Clinical correlates of insomnia in patients with chronic illness. *Arch Intern Med* 1998;158:1099–1107
39. Breslau N, Roth T, Rosenthal L, et al. Sleep disturbance and psychiatric disorders: a longitudinal epidemiological study of young adults. *Biol Psychiatry* 1996;39:411–418
40. Chang PP, Ford DE, Mead LA, et al. Insomnia in young men and subsequent depression: The Johns Hopkins Precursors Study. *Am J Epidemiol* 1997;146:105–114
41. Gillin JC. Are sleep disturbances risk factors for anxiety, depressive and addictive disorders? *Acta Psychiatr Scand Suppl* 1998;98:39–43
42. Althuis MD, Fredman L, Langenberg PW, et al. The relationship between insomnia and mortality among community-dwelling older women. *J Am Geriatr Soc* 1998;46:1270–1273
43. Kripke DF, Ancoli-Israel S, Fell RL, et al. Health risk of insomnia. In: Peter JH, Penzel T, Podszus T, et al, eds. *Sleep and Health Risk*. New York, NY: Springer-Verlag; 1991:547–554
44. Kripke DF, Klauber MR, Wingard DL, et al. Mortality hazard associated with prescription hypnotics. *Biol Psychiatry* 1998;43:687–693
45. Pollak CP, Perlick D, Linsner JP, et al. Sleep problems in the community elderly as predictors of death and nursing home placement. *J Community Health* 1990;15:123–135
46. Rumble R, Morgan K. Hypnotics, sleep, and mortality in elderly people. *J Am Geriatr Soc* 1992;40:787–791
47. Wingard DL, Berkman LF. Mortality risk associated with sleeping patterns among adults. *Sleep* 1983;6:102–107
48. Merlo J, Hedblad B, Ogren M, et al. Increased risk of ischaemic heart disease mortality in elderly men using anxiolytics-hypnotics and analgesics: results of the 10-year follow-up of the prospective population study “Men born in 1914,” Malmö, Sweden. *Eur J Clin Pharmacol* 1996;49:261–265
49. Ancoli-Israel S, Roth T. Characteristics of insomnia in the United States: results of the 1991 National Sleep Foundation Survey, 1. *Sleep* 1999;22(suppl 2):S347–S353
50. Simen S, Rodenbeck A, Schlaf G, et al. Sleep complaints and hypnotic use by the elderly: results of a representative survey in West Germany [in German]. *Wien Med Wochenschr* 1996;146:306–309
51. Johnson EO, Roehrs T, Roth T, et al. Epidemiology of alcohol and medication as aids to sleep in early adulthood. *Sleep* 1998;21:178–186
52. Partinen M, Kaprio J, Koskenvuo M, et al. Sleeping habits, sleep quality, and use of sleeping pills: a population study of 31,140 adults in Finland. In: Guilleminault C, Lugaresi E, eds. *Sleep/Wake Disorders: Natural History, Epidemiology, and Long-Term Evolution*. New York, NY: Raven Press; 1983:29–35
53. Mellinger GD, Balter MB, Uhlenhuth EH. Insomnia and its treatment: prevalence and correlates. *Arch Gen Psychiatry* 1985;42:225–232
54. Morgan K, Dallosso H, Ebrahim S, et al. Prevalence, frequency, and duration of hypnotic drug use among the elderly living at home. *Br Med J (Clin Res Ed)* 1988;296:601–602
55. Walsh JK, Engelhardt CL. The direct economic costs of insomnia in the United States for 1995. *Sleep* 1999;22(suppl 2):S386–S393
56. Stoller MK. Economic effects of insomnia. *Clin Ther* 1994;16:873–896
57. Insomnia: report of an International Consensus Conference, Versailles, Oct 13–15, 1996. *Sleep* 1999;22(suppl 3):S415–S452