# Burden of Chronic Sleep Maintenance Insomnia Characterized by Nighttime Awakenings Among Anxiety and Depression Sufferers: Results of a National Survey

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**Objective:** To identify and quantify the burden of chronic sleep maintenance insomnia characterized by nighttime awakenings (CINA) among depression and anxiety sufferers.

Method: Data were obtained from the 2006 US National Health and Wellness Survey, an annual cross-sectional study of US adults. Analyses were limited to respondents diagnosed with depression or anxiety. The term CINA was defined as experiencing nighttime awakenings, without difficulty falling asleep, at least twice per week for more than 1 month that have moderate-severe impact on daily life. Outcomes included resource utilization in past 6 months, the Work Productivity and Activity Impairment questionnaire, and the Medical Outcomes Study 8-item Short-Form Health Survey (SF-8). Independent effects of CINA on outcomes adjusting for demographics and comorbidity were assessed using linear regression models.

Results: Among depression sufferers, 643 experienced CINA and 1,675 experienced no insomnia. Among anxiety sufferers, 476 experienced CINA and 1,356 experienced no insomnia. Adjusting for demographics and comorbidity, depression sufferers with CINA had 2.4 more provider visits, 13.2% greater work impairment (among full-time employed), 18.2% greater activity impairment, and SF-8 physical and mental summary scores that were 4.8 and 6.7 points lower than noninsomnia sufferers (P < .001for all). Anxiety sufferers with CINA had 3.0 more provider visits, 15.8% greater work impairment (among full-time employed), 20.4% greater activity impairment, and SF-8 physical and mental summary scores that were 5.4 and 7.6 points lower than noninsomnia sufferers (P < .001 for all).

**Conclusions:** Among depression and anxiety sufferers, CINA in relative isolation was associated with a significant negative impact on health care utilization and its associated costs, health-related quality of life, and work productivity. *Prim Care Companion J Clin Psychiatry 2010;12(2):e1–e7* 

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The *DSM-IV* defines insomnia as a complex syndrome characterized by problems with falling asleep, staying asleep, waking too early, or not feeling rested even after ample time in bed—associated with impairment in daytime.<sup>1</sup> The effects of insomnia have been noted to be wide ranging, including impact on health, work, and quality of life.<sup>2</sup> Though it has been noted that insomnia is the most prevalent sleep-related condition,<sup>3</sup> the frequency of occurrence varies by several factors, such as demographics and comorbid conditions.

Several studies indicate that insomnia is prevalent in patients with psychiatric conditions.<sup>3,4</sup> A study by Tan et al<sup>5</sup> reported a high rate of comorbid mental disorders among patients with chronic insomnia. Another study by Ohayon and Roth<sup>6</sup> found that, in a representative sample of the general population, 28% of subjects with insomnia reported a current diagnosis of mental disorders and 25% reported a history of mental conditions. Major depressive disorder (MDD) and anxiety conditions have been found to be among the most prevalent comorbid psychiatric conditions.<sup>7</sup>

A study by the National Institute of Mental Health (Epidemiologic Catchment Area, ECA) reported that 40% of insomnia sufferers experienced a psychiatric condition in comparison to only 16% of noninsomnia sufferers.<sup>8</sup> A review article by Monti and Monti<sup>7</sup> summarized results of several studies noting that the prevalence of anxiety disorders among insomnia sufferers ranges from 1.5% to 35.9%. Results of the ECA study showed that chronic insomnia sufferers were almost 40 times as likely to experience MDD and more than 6 times as likely to experience anxiety as those individuals without insomnia.<sup>8</sup>

While these studies focused on the occurrence of either overall insomnia or sleep disturbances, a study by Roth et al<sup>9</sup> determined prevalence of several psychiatric disorders and likelihood of occurrence among individual symptoms of insomnia. Among those who reported

#### **CLINICAL POINTS**

- A substantial portion of patients with depression and anxiety experience chronic sleep maintenance insomnia characterized by nighttime awakenings (CINA), which exacerbates the poor health-related quality of life, work productivity loss, and health care resource utilization among these patients.
- Clinicians should consider broadening their treatment focus beyond the symptoms of depression and anxiety to also include treatment of comorbid CINA.

experiencing difficulties falling asleep, 37% experienced an anxiety disorder, and 16.5% experienced MDD.<sup>9</sup> Similarly, among those with insomnia characterized by nighttime awakenings, 35.8% experienced an anxiety disorder and 15.8% experienced MDD. In this analysis, MDD and anxiety disorders had the highest prevalence rates of all conditions examined.<sup>9</sup>

Though the prevalence of comorbid MDD, anxiety, and insomnia have been studied, there is further need to quantify the burden of individual insomnia symptoms. Insomnia has been noted to have independent associations with lower health-related quality of life,<sup>10</sup> work productivity loss,<sup>11</sup> and resource utilization.<sup>2</sup> Likewise, psychiatric conditions such as depression have also been noted to have worsened outcomes.<sup>12</sup> Thus, the comorbid occurrence of insomnia symptoms among people with psychiatric conditions could pose serious obstacles to improving outcomes.

As noted earlier, 2 symptoms of insomnia are difficulty staying asleep or waking early, hereafter collectively referred to as chronic sleep maintenance insomnia characterized by nighttime awakenings (CINA). CINA is more common than difficulty falling asleep among the general population. Recent pharmacologic treatments, including extended-release formulations, have received indications of CINA.<sup>13</sup> Therefore, the purpose of this analysis was 2-fold. First, we sought to identify the prevalence of CINA without difficulty falling asleep among depression and anxiety sufferers. The second objective of this study was to quantify the burden associated with CINA among those with depression and anxiety disorders on direct costs of health care resources, indirect costs, and health-related quality of life.

## METHOD

## **Study Design**

Data were collected in 2006 as part of the US National Health and Wellness Survey (NHWS) (Consumer Health Sciences, Princeton, New Jersey), an annual cross-sectional study of the disease status, health care attitudes, behaviors, and outcomes of adults aged 18 years and older. Potential respondents to NHWS were identified through a Web-based consumer panel. The sample was stratified by gender, age, and race/ethnicity on the basis of the demographic stratification of the total US adult population. Self-administered, Internetbased questionnaires were utilized for data collection. The study protocol and questionnaire were reviewed and approved by the Essex Institutional Review Board (Lebanon, New Jersey). Informed consent was obtained from participants prior to entering the survey.

The sample for analysis consisted of respondents who reported a diagnosis by a health care provider of depression or an anxiety condition. Anxiety conditions included anxiety (unspecified type), generalized anxiety disorder, obsessive-compulsive disorder, panic disorder phobias, posttraumatic stress disorder, and social anxiety disorder.

## **Study Measures**

CINA versus no insomnia. All NHWS respondents were asked to indicate if they experienced symptoms of insomnia, consistent with the National Institutes of Health (NIH) definition of comorbid insomnia and the DSM-IV-TR criteria for nonprimary insomnia,<sup>1,14</sup> and the impact these symptoms had on personal and professional life. Specifically, respondents were asked, "In the past year, did you experience any of the following sleep patterns more than 2 times a week (not attributed to a painful condition or the need to use the bathroom)?" Response options included difficulty falling asleep; difficulty staying asleep, either waking several times during the night or waking and not being able to get back to sleep (nighttime awakenings); and waking up too early before the alarm clock rang (nighttime awakenings). Respondents also reported if they had experienced insomnia or sleep difficulties in the past 12 months and, if so, quantified duration and frequency.

Depression and anxiety sufferers were categorized as experiencing CINA if they met the following criteria: experienced 1 or both nighttime awakening symptoms, did not experience difficulty falling asleep, experienced sleep difficulties at least twice per week for a period of more than 1 month, and symptoms had moderate to severe impact on personal and professional life. Depression and anxiety sufferers were categorized as not experiencing insomnia (controls) if they met the following criteria: did not self-report insomnia or sleep difficulties in the past 12 months and did not experience difficulty falling asleep or nighttime awakenings as described above.

*Comorbid conditions.* Comorbid conditions were defined as a count of nonpsychiatric health conditions. The following conditions were included in the count: angina, arrhythmia, arthritis, asthma, atrial fibrillation, chronic obstructive pulmonary disease, congestive heart failure, deep vein thrombosis, diabetes, epilepsy, high blood pressure, high cholesterol, inflammatory bowel disease, irritable bowel syndrome, migraine, nasal allergies, osteoporosis, overactive bladder, peripheral arterial disease, peripheral vascular disease, psoriasis, and thyroid condition.

**Resource utilization (direct costs).** Resource utilization included the following 3 metrics: number of emergency room visits, number of days hospitalized, and number of visits to all medical providers. The time frame for resource utilization was the prior 6-month period.

Lost work productivity and activity impairment (indirect costs). Lost work productivity and activity impairment were assessed using the Work Productivity and Activity Impairment (WPAI) questionnaire,<sup>15,16</sup> a validated metric that is appropriate for use across occupations and disease areas and has been used to assess health-related work productivity more frequently than any other metric. WPAI measures are expressed as impairment percentages with higher values indicating a greater proportion of impairment in either work productivity or daily activities. Specific impairment metrics for work productivity include absenteeism (work time missed due to health problems), presenteeism (impairment at work), and overall work productivity loss (combination of absenteeism and presenteeism). Lost work productivity was assessed only for respondents who work full-time. Activity impairment is a single measure of impairment due to health.<sup>15,16</sup>

Health-related quality of life. Health-related quality of life was assessed using the Medical Outcomes Study 8-item Short-Form Health Survey (SF-8),<sup>17,18</sup> a validated metric based on the SF-36, which has been widely used in differentiating health benefits of treatments, comparing burden of different diseases and screening patients across a wide variety of therapeutic areas. The SF-8 contains 8 questions that are scored on the same norm-based metrics as the SF-36 scales (physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, and mental health) and summary scores. The physical and mental summary scores are normed for the US adult population with a mean of 50 and a standard deviation of  $\pm 10$ .<sup>17,18</sup>

#### **Statistical Analysis**

Bivariate analyses included a comparison of demographic profiles, comorbid conditions, and outcomes of depression sufferers with CINA versus those without insomnia and anxiety sufferers with CINA versus those without insomnia. We used  $\chi^2$  to test for significant differences in categorical variables and analysis of variance to test for significant differences in continuous variables.

The independent effects of CINA among depression and anxiety sufferers were assessed using linear regression analyses. Separate models were developed for depression sufferers and anxiety sufferers for each of the following dependent variables: SF-8 physical component summary score, SF-8 mental component summary score, WPAI absenteeism, WPAI presenteeism, WPAI overall work productivity loss, WPAI activity impairment, number of emergency room visits, number of days hospitalized, and number of visits to traditional medical providers. Gender, age, race, and number of physical comorbid conditions were included in the models as potential confounders.

## RESULTS

#### **Sample Characteristics**

Of the 62,833 respondents to the 2006 US NHWS, 11,136 reported being diagnosed with depression by a health care professional. Among these depression sufferers, 643 met the criteria for experiencing CINA (6%) and 1,675 met the criteria for not experiencing insomnia (15%). Among depression sufferers who were employed full-time, 184 met the criteria for experiencing CINA and 647 met the criteria for not experiencing insomnia.

A total of 8,744 respondents reported being diagnosed with an anxiety condition by a health care professional. Among these anxiety sufferers, 476 met the criteria for experiencing CINA (5%) and 1,356 met the criteria for not experiencing insomnia (16%). Among anxiety sufferers who were employed fulltime, 136 met the criteria for experiencing CINA and 485 met the criteria for not experiencing insomnia.

Among both depression and anxiety sufferers, those who experienced CINA were more likely to be older and experienced a significantly greater number of comorbid conditions than noninsomnia sufferers (Table 1).

#### **Direct Costs**

Among depression and anxiety sufferers, those experiencing CINA on average had 0.5 and 0.5 emergency room visits, 0.8 and 1.0 days hospitalized, and 9.7 and 10.6 visits to traditional medical providers, respectively, in the past 6 months. These emergency room visits and traditional medical provider visits were significantly greater for CINA sufferers than noninsomnia sufferers

Table 1. Sample Characteristics of Depression and Anxiety Sufferers Experiencing Chronic Sleep Maintenance Insomnia Characterized by Nighttime Awakenings (CINA) Versus No Insomnia

	Depression Sufferers (n = 2,318)			Anxiety Sufferers (n = 1,832)		
	CINA	No Insomnia		CINA	No Insomnia	
Variable	(n=643)	(n=1,675)	P Value	(n = 476)	(n=1,356)	P Value
Female, %	63	59	.112	60	60	.799
Age, mean (SD), y	48.7 (12.5)	46.6 (15.5)	.002	48.7 (12.3)	46.8 (16.2)	.017
Nonwhite, %	17	18	.432	16	16	.913
No. of physical comorbid conditions, mean (SD)	3.8 (2.3)	2.4 (2.0)	<.001	4.0 (2.4)	2.5 (1.9)	<.001

Table 2. Unadjusted Effects of Chronic Sleep Maintenance Insomnia Characterized by Nighttime Awakenings (CINA) on Economic and Humanistic Outcomes Among Depression and Anxiety Sufferers<sup>a</sup>

	Depres	Depression Sufferers $(n = 2,318)$			Anxiety Sufferers (n = 1,832)		
	CINA	No Insomnia		CINA	No Insomnia		
Variable	(n = 643)	(n=1,675)	P Value	(n = 476)	(n = 1,356)	P Value	
Direct costs <sup>b</sup>							
Emergency room visits	0.5 (1.1)	0.3 (1.1)	.001	0.5 (1.2)	0.3 (1.0)	<.001	
Days hospitalized	0.8 (3.8)	0.6 (4.8)	.410	1.0 (3.4)	0.5 (3.6)	.025	
Provider visits	9.7 (10.6)	6.0 (7.1)	<.001	10.6 (11.4)	6.4 (7.2)	<.001	
Indirect costs (WPAI)							
Absenteeism <sup>b,c</sup>	10.4 (22.0)	4.2 (14.0)	<.001	12.2 (25.2)	5.3 (16.4)	<.001	
Presenteeism <sup>b,c</sup>	40.9 (24.0)	20.5 (23.7)	<.001	42.7 (23.8)	20.0 (24.2)	<.001	
Overall work productivity loss <sup>b,c</sup>	33.6 (31.4)	17.0 (25.1)	<.001	37.4 (32.5)	17.4 (26.6)	<.001	
Activity impairment	59.6 (26.3)	33.5 (30.3)	<.001	61.5 (26.1)	32.5 (30.5)	<.001	
HRQOL score (SF-8)							
Physical summary score	39.1 (10.9)	47.2 (10.2)	<.001	38.6 (10.9)	47.5 (9.9)	<.001	
Mental summary score	34.8 (10.2)	42.3 (10.0)	<.001	35.0 (10.6)	43.4 (10.3)	<.001	

<sup>a</sup>The table shows mean (SD) values for each metric. P values are computed using analysis of variance.

<sup>b</sup>Among respondents employed full-time.

<sup>c</sup>Depression sufferers: n = 184 (CINA) and n = 647 (no insomnia); anxiety sufferers: n = 136 (CINA) and n = 485 (no insomnia).

Abbreviations: HRQOL = health-related quality of life, SF-8 = Medical Outcomes Study 8-item Short-Form Health Survey, WPAI = Work

Productivity and Activity Impairment questionnaire.

(Table 2). Adjusting for demographics and comorbidity, depression and anxiety sufferers with CINA had 2.4 and 3.0 (P < .001 for both) more visits to traditional providers in a 6-month period, respectively, than sufferers without insomnia (Tables 3 and 4).

# **Indirect Costs**

Depression and anxiety sufferers with CINA who were employed full-time experienced a substantial magnitude of work impairment, specifically experiencing 10.4% and 12.2% productivity impairment due to absenteeism, 40.9% and 42.7% productivity impairment while working due to presenteeism, and 33.6% and 37.4% overall work productivity impairment, respectively. This impairment was significantly greater for depression and anxiety sufferers who experienced CINA than for those without insomnia (Table 2). Adjusting for demographics and comorbidity, depression sufferers experiencing CINA had 5.7% greater lost productivity due to absenteeism, 18.1% greater productivity impairment while working (presenteeism), and 14.0% greater overall work productivity impairment (P < .001 for all) than those without insomnia (Table 3). Anxiety sufferers experiencing CINA had 6.1% greater absenteeism,

20.4% greater presenteeism, and 17.7% greater overall work productivity impairment (P < .001 for all) than those who did not experience insomnia (Table 4).

Among both depression and anxiety sufferers with CINA, there was a substantial magnitude of activity impairment (59.6% and 61.5%, respectively) that was significantly greater than that experienced by depression and anxiety sufferers without insomnia (Table 2). Adjusting for demographics and comorbidity, depression sufferers with CINA had 19.4% greater activity impairment and anxiety sufferers with CINA had 21.8% greater activity impairment than sufferers without insomnia (P<.001 for both) (Tables 3 and 4).

# Health-Related Quality of Life

Respondents with CINA had mean SF-8 physical component summary scores of 39.1 among depression sufferers and 38.6 among anxiety sufferers and had mean SF-8 mental component summary scores of 34.8 among depression sufferers and 35.0 among anxiety sufferers. These scores were not only significantly poorer than those of noninsomnia sufferers but also notably lower than the normative means of 50.0 for the US adult population (Table 2). Adjusting for demographics and Table 3. Summary of Adjusted Effects of Experiencing Chronic Sleep Maintenance Insomnia Characterized by Nighttime Awakenings (CINA) (1) Versus No Insomnia (0) on Economic and Humanistic Outcomes Among Depression Sufferers  $(n = 2,318)^{a}$ 

	Р	95% CI	
β	Value	Low	High
0.043	.423	-0.062	0.147
-0.096	.662	-0.528	0.335
2.449	<.001	1.681	3.217
5.663	<.001	2.905	8.421
18.070	<.001	14.039	22.101
13.986	<.001	9.512	18.460
19.381	<.001	16.746	22.016
-5.212	<.001	-6.096	-4.327
-6.972	<.001	-7.925	-6.019
	β 0.043 -0.096 2.449 5.663 18.070 13.986 19.381 -5.212 -6.972	$\begin{array}{c c} & P \\ \hline & Value \\ \hline 0.043 & .423 \\ -0.096 & .662 \\ 2.449 & <.001 \\ \hline 5.663 & <.001 \\ 18.070 & <.001 \\ 13.986 & <.001 \\ 19.381 & <.001 \\ \hline -5.212 & <.001 \\ -6.972 & <.001 \end{array}$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

<sup>a</sup>Linear regression models adjust for gender, age, race, and number of comorbid conditions.

<sup>b</sup>Among respondents employed full-time. Sample size of full-time employed is 831.

Abbreviations: HRQOL = health-related quality of life, SF-8 = Medical Outcomes Study 8-item Short-Form Health Survey, WPAI = Work Productivity and Activity Impairment questionnaire.

comorbidity, depression sufferers with CINA had SF-8 physical component summary scores that were 5.2 points lower and SF-8 mental component summary scores that were 7.0 points lower than those without insomnia (Table 3). Anxiety sufferers with CINA had SF-8 physical component summary scores that were 5.9 points lower and SF-8 mental component summary scores that were 7.9 points lower than those without insomnia (Table 4).

#### DISCUSSION

While insomnia presents a public health issue as a widely prevalent condition, literature indicates that high rates of insomnia and comorbid psychiatric conditions present a new challenge. Some studies indicate comorbidity rates as high as 69%.<sup>5</sup> Though the independent impacts of insomnia and psychiatric conditions have been documented extensively in the literature,<sup>2,12</sup> less focus has been directed at quantifying the combined impact of the comorbid conditions. The present analyses indicated that several outcomes are exacerbated among psychiatric disorder patients with comorbid insomnia.

Projecting the NHWS data to the US adult population, there were 2.11 million adult depression sufferers and 1.55 million adult anxiety sufferers who experienced CINA that had moderate to severe impact on daily life *without* experiencing induction symptoms. These data show that CINA was associated with increased direct costs of health care, specifically a significant increase in visits to traditional medical providers. On the basis of results of the 2003–2004 Medical Expenditure Panel Table 4. Summary of Adjusted Effects of Experiencing Chronic Sleep Maintenance Insomnia Characterized by Nighttime Awakenings (CINA) (1) Versus No Insomnia (0) on Economic and Humanistic Outcomes Among Anxiety Sufferers  $(n = 1,832)^{a}$ 

		Р	95% CI	
Variable	β	Value	Low	High
Direct costs in past 6 mo				
Emergency room visits	0.087	.126	-0.024	0.199
Days hospitalized	0.174	.382	-0.216	0.564
Traditional medical provider visits	2.977	<.001	2.057	3.897
Indirect costs (WPAI)				
Absenteeism <sup>b</sup>	6.131	.001	2.414	9.847
Presenteeism <sup>b</sup>	20.434	<.001	15.558	25.311
Overall work productivity loss <sup>b</sup>	17.733	<.001	12.181	23.286
Activity impairment	21.763	<.001	18.720	24.806
HRQOL score (SF-8)				
Physical summary score	-5.879	<.001	-6.874	-4.883
Mental summary score	-7.895	<.001	-9.027	-6.764

<sup>a</sup>Linear regression models adjust for gender, age, race, and number of comorbid conditions.

<sup>b</sup>Among respondents employed full-time. Sample size of full-time employed is 621.

Abbreviations: HRQOL = health-related quality of life, SF-8 = Medical Outcomes Study 8-item Short-Form Health Survey, WPAI = Work Productivity and Activity Impairment questionnaire.

Survey (MEPS), the 2.4 additional provider visits among depression sufferers equated to \$372 (2.4×MEPS cost per provider visit [\$155]<sup>19</sup>) and the 3.0 additional visits among anxiety sufferers equated to \$465. Overall, CINA was associated with greater health care expenditures for physician visits among depression and anxiety sufferers by \$744 and \$930, respectively, per year per sufferer. Projecting this cost to the 2.11 million depression sufferers with CINA yielded an annual cost of \$1.57 billion in direct costs of CINA. For anxiety sufferers with CINA, the annual cost was \$1.44 billion. To date, no other study has estimated the direct health care costs of CINA within the depression and anxiety populations.

CINA was not only associated with greater direct costs of health care among depression and anxiety sufferers, but as this study demonstrates, was also associated with an increase in indirect costs through loss of work productivity and increased impairment of daily activities in these populations. Among both depression and anxiety sufferers, the work productivity loss associated with CINA was more greatly affected by impairment while working (presenteeism) than actual lost work time (absenteeism). Among depression and anxiety sufferers, those with CINA had 14% and 18% greater work productivity loss, respectively, than those without insomnia. These rates of 14% and 18% equated to a loss of 5.6 hours and 7.2 hours, respectively, of work during a 40-hour work week. Assuming a work year of 50 weeks, CINA was associated with an additional 280 hours or 7 weeks of lost productivity per year per sufferer among depression sufferers and an additional 360 hours or 9 weeks of lost productivity per year among anxiety sufferers.

An even greater proportion of activity impairment was associated with CINA for both depression and anxiety sufferers (19% and 22%, respectively).

Study results also indicated a strong negative association of CINA and health-related quality of life among depression and anxiety sufferers. A 5-point change in the SF-36, and by extension the SF-8, has been illustrated to be a clinically meaningful difference.<sup>18</sup> After adjusting for potential confounders, the difference in SF-8 mental component summary scores among depression sufferers experiencing CINA and those without insomnia, as well as the difference in SF-8 physical and mental component summary scores among anxiety sufferers experiencing CINA and those without insomnia, not only was statistically different but also had meaningful clinical implications.

This study had several limitations. First, subjects were enrolled from an Internet panel, potentially yielding a nonrepresentative sample of the depression or anxiety populations. The possibility that segments of the US population, such as the lowest socioeconomic groups, those residing in rural areas, or those who choose not to use the Internet, may have been excluded needs to be addressed.<sup>20</sup> However, according to the US Census Bureau, 70% of adults had Internet access in 2006.<sup>21</sup>

Second, all results were based on self-reported measures with no verification by physician diagnoses or chart reviews. Self-reports of comorbid conditions without verification against diagnosis criteria may result in an overestimation. Recall bias was also possible. Due to the cross-sectional nature of the NHWS, it was not possible to determine if specific metrics such as healthrelated quality of life and work productivity change as a result of experiencing CINA. Finally, the analyses were limited to metrics available in the NHWS. Future analyses should consider other potential confounders, such as shift work, that may affect the burden of CINA.

While there is a significant burden of illness associated with insomnia in the general population and psychiatric populations, the present findings suggest that CINA experienced by depression and anxiety sufferers is associated with a significant negative impact on health-related quality of life, health care resource utilization, and work productivity. Chronic sleep maintenance insomnia characterized by nighttime awakenings experienced by depression and anxiety sufferers may negatively affect direct costs with respect to physician visits as well as indirect costs. Further research is needed to quantify the effects of CINA in other populations and to compare the effects of CINA to those of problems with initiation of sleep within depression and anxiety sufferers.

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**Potential conflicts of interest:** Dr Joish is an employee of Sanofi-Aventis. Dr Balkrishnan has served as a consultant to Bristol-Myers Squibb, GlaxoSmithKline, Merck, Novo Nordisk, Sanofi-Aventis, and Takeda and has received grant/research support from Galderma. Dr Drake has served as a consultant to Sanofi-Aventis; has received grant/ research support from Cephalon and Takeda; has received honoraria from Takeda; and has served on the speakers or advisory boards of Cephalon. Dr Bolge and Ms Kannan report no financial or other relationships relevant to the subject of this article. *Funding/support:* The National Health and Wellness Survey (NHWS) is conducted by Consumer Health Sciences, Princeton, New Jersey. Sanofi-Aventis, Bridgewater, New Jersey, licensed access to NHWS and funded the analysis presented in this article.

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