Sleep, like nutrition and exercise, is a key determinant of health and well-being. Sleep is a basic human requirement that affects endocrine, metabolic, neurological, and cognitive functions that are critical to health.

Many adults find that they have difficulty sleeping a healthy amount. According to the Centers for Disease Control and Prevention, 25% of U.S. adults report insufficient sleep or rest at least 15 out of every 30 days. Despite myriad reasons for inadequate sleep, many adults who report disturbed sleep suffer from insomnia—unsatisfactory sleep that affects daytime functioning in an individual who has adequate opportunity to sleep. Patients with insomnia may experience either difficulty falling asleep or difficulty staying asleep.

Among those who experience disturbed sleep, an estimated 50 million to 70 million Americans have chronic insomnia, a sleep disruption occurring at least 3 times a week and lasting for more than 1 month. In addition to hindering daily functioning, chronic insomnia has been associated with a wide range of harmful health effects, including an increased risk of hypertension, diabetes, obesity, depression, heart attack, stroke, and pain.

The physiologic sequelae of sleep loss and sleep disorders not only affect individual health but also have a significant economic impact. Billions of dollars a year are spent on direct medical costs associated with doctor visits, hospital services, medications, and over-the-counter (OTC) medications for treating disturbed sleep.

Compared with other individuals, those with chronic sleep loss or sleep disorders are less productive, have greater health care needs, and have an increased likelihood of injury.

The impact of disturbed sleep on health and well-being is under-recognized, and chronic insomnia is underdiagnosed and undertreated. Barriers to appropriate recognition and treatment of insomnia include inadequate physician training, lack of time devoted to discussing sleep during office visits, beliefs that sleep complaints are not appropriate, and concerns about risks of treatments for insomnia. Solutions are needed to address unmet needs through education, awareness, and advocacy.

A number of strategies are used in the treatment of insomnia, including both nonpharmacologic and pharmacologic approaches. Nonpharmacologic approaches include cognitive behavioral therapy, relaxation training, and exercise.

These interventions have been found to...
be as efficacious as some prescription options, and they produce a sustained response. In cases where these interventions do not provide an adequate response, or if an immediate response is desired, OTC or prescription medications may be used.7

OTC sleep aids include first-generation antihistamines, such as diphenhydramine and doxylamine. Several drawbacks are associated with these products—they may reduce the quality of sleep and can cause residual daytime drowsiness and functional impairment.7,8 Furthermore, tolerance develops after using these products for a few nights.9 These agents also are associated with anticholinergic effects, including blurred vision, constipation, dry mouth, urinary retention, and risk of increased intraocular pressure in patients with narrow-angle glaucoma.8 Although these agents are indicated for treatment of occasional sleeplessness (and are not indicated for chronic insomnia), many patients use them on a regular basis. Patients with chronic insomnia may be appropriate candidates for prescription therapies, such as benzodiazepines, sedative-hypnotics, and melatonin receptor agonists. Beyond FDA-approved therapies, several dietary supplements, including valerian and melatonin, are used as sleep aids. In general, strong evidence to support their use is lacking and questions remain about their safety, especially when used chronically.7,8 Many adults use alcohol to promote sleep, a behavior that may further complicate the use of OTC sleep aids. One survey found that 13% of adults 18 to 45 years of age reported using alcohol as a sleep aid in the past year; 5% reported using a combination of alcohol and medications intended to treat insomnia.10 In other surveys, up to 28% of patients have reported using alcohol to promote sleep.10 Although alcohol may reduce sleep-onset latency, it is not recommended as a sleep aid because it fragments sleep in the second part of the night and can increase daytime sleepiness and promote future sleep disturbances.10

This special newsletter will feature snapshots of the latest key research, initiatives, campaigns, and programs focused on the risk and benefits of current OTC sleep aids for older adults.

Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem. A Report from the Institute of Medicine

This report recognizes that along with the continued leadership of the National Center on Sleep Disorders Research, a coordinated strategy is required to ensure continued scientific and clinical advances. There must be incremental growth in the capacity of the field to meet the public health and economic burden caused by sleep loss and sleep disorders. This strategy will require concurrent commitment to the following activities:

- Establish the workforce required to meet the clinical and scientific demands of the field.
- Increase awareness of the burden of sleep loss and sleep disorders among the general public.
- Improve surveillance and monitoring of the public health burden of sleep loss and sleep disorders.
- Expand awareness among health care professionals through education and training.
- Develop and validate new and existing diagnostic and therapeutic technologies.
- Expand accreditation criteria to emphasize treatment, long-term patient care, and chronic disease management strategies.
- Strengthen the national research infrastructure to connect individual investigators, research programs, and research centers.
- Increase the investment in interdisciplinary sleep programs in academic health centers that emphasize long-term clinical care, training, and research.

The 2006 IOM report recognized sleep loss as a public health issue and called for a national strategy to address it.

To stress the crucial importance of sleep to public health, sleep health was added as a topic to the HealthyPeople 2020 initiative. In addition to addressing the proportion of adults who experience insufficient sleep, the objectives also address obtaining medical help for sleep apnea and focus on a selected consequence of poor sleep—motor vehicle crashes.
HealthyPeople 2020 Objectives

<table>
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<tr>
<th>Objective</th>
<th>Baseline</th>
<th>Goal</th>
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<tr>
<td>Increase the proportion of persons with symptoms of obstructive sleep apnea who seek medical evaluation</td>
<td>25.5% of persons with symptoms of obstructive sleep apnea sought medical evaluation in 2005–08 (age adjusted to the year 2000 standard population)</td>
<td>28.0%</td>
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<tr>
<td>Reduce the rate of vehicular crashes per 100 million miles traveled that are due to drowsy driving</td>
<td>2.7 vehicular crashes per 100 million miles traveled involved drowsy driving in 2008</td>
<td>2.1 vehicular crashes per 100 million miles traveled</td>
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<tr>
<td>Increase the proportion of students in grades 9 through 12 who get sufficient sleep</td>
<td>30.9% of students in grades 9 through 12 got sufficient sleep (defined as 8 or more hours of sleep on an average school night) in 2009</td>
<td>33.2%</td>
</tr>
<tr>
<td>Increase the proportion of adults who get sufficient sleep</td>
<td>69.6% of adults got sufficient sleep (defined as 8 or more hours for those ages 18 to 21 years and 7 or more hours for those ages 22 years and older, on average, during a 24-hour period) in 2008</td>
<td>70.9%</td>
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Insomnia in the Older Adult Population

The prevalence of disturbed sleep has been shown to increase as individuals age, due to reasons including declining health, institutionalization, stress, and normal changes in circadian rhythms associated with aging. [NIH] According to the National Sleep Foundation, 44% of older individuals experience disturbed sleep at least a few nights each week.12

Research presented at SLEEP 2013, the 27th Annual Meeting of the Associated Professional Sleep Societies, LLC, addressed sleep-related topics ranging from basic sleep science, such as cell and molecular genetics, to such clinical topics as sleep disorders and sleep and aging.

Selected abstracts from this meeting provide new insights regarding distinctions between adult and geriatric sleep. For example, data from Siebert and colleagues reveal that older adults took longer to fall asleep, spent significantly less time asleep, and were more likely to be diagnosed with nocturnal hypoxemia. Yet, they reported fewer sleep-related complaints than younger adults, suggesting underreporting of sleep disturbances by this population. Additionally, presenters highlighted data from the National Health and Nutrition Examination Survey describing older adults’ use of medications to treat disturbed sleep. These data found that, among older adults, 23% self-reported taking sleep medications in the past 4 weeks.

Patterns of similarities and differences in geriatric versus adult sleep


INTRODUCTION: It is commonplace for older individuals to complain that their sleep is not as good as it was when they were younger. Indeed, previous research has demonstrated that sleep architecture changes with the aging process. Emerging evidence suggests that escalating problems include declining health conditions, use of medications, and social challenges observed in the geriatric population are directly related to sleep disorders (SD). Evaluations of SD are compromised by under reporting and by relying on self-report rather than professional sleep studies (i.e., nocturnal polysomnography (NPS) and multiple sleep latency tests (MSLT)). Moreover, there is a paucity of data specific to older adults.

METHODS: We constructed a 111 item questionnaire to use in conjunction with NPS, MSLT, the Epworth Sleepiness Scale, (ESS) and medical chart reviews of people referred for evaluation of SDs. We categorized participants into two broad age groups: adult (N=568, age 19-65, M=46.2) and geriatric (N=151, age 66-90, M=71.6).

RESULTS: Our results revealed a pattern of similarities and differences. For example, the geriatric population experienced longer sleep latencies and spent significantly less time asleep, yet reported fewer sleep-related complaints. The geriatric group was more likely to be diagnosed with nocturnal hypoxemia, poor sleep efficiency, periodic limb movement, and restless leg syndrome. Still they reported waking rested more frequently than the adult group. The adult group reported greater incidence of sleep disturbances and reported significantly more psychiatric distress, such as depression, anxiety, irritability, and stress.

CONCLUSION: This pattern of results could be a product of under-reporting by the geriatric population or perhaps habituation to the challenges associated with sleep disturbances. Our sample differed dramatically in size suggesting that proportionally fewer older adults are referred for sleep studies. We contemplate whether sleep complaints by older adults are marginalized, disregarded, or regarded as simply part of the aging process.
Insomnia medication use and physical activity in older adults in the National Health and Nutrition Examination Survey 2005–2006

Tom SE, Martin KR, Spiegel A, Rattinger GB. Presented at SLEEP 2013, the 27th Annual Meeting of the Associated Professional Sleep Societies, LLC; June 1–5, 2013, Baltimore, MD.

INTRODUCTION: Most prescription insomnia medications are either recommended on a limited basis or not recommended to older adults because of adverse outcomes, including cognitive impairment, poor balance, and daytime somnolence. Because physical activity (PA) may decrease as a result of such problems, we examine whether insomnia medication use, measured through inventory and self-report, is related to lower PA levels in older adults.

METHODS: Data are from a sample of 798 adults aged ≥65 years from the 2005–2006 NHANES who had ≥4 valid days (≥10 hours/day) of hip-worn accelerometer wear-time. We identified prescription medications used in the past month that were indicative of insomnia from NHANES interview inventory data. In addition, self-reported sleep medication frequency in the past month was treated as a separate outcome. PA was examined using average counts per minute (CPM) during wear-time and time (min/day) spent in sedentary, light, lifestyle, and moderate/vigorous physical activity. Weighted regression analyses adjusted for potential confounding variables, including sociodemographic characteristics, health characteristics and behaviors, self-reported sleep characteristics of insomnia, daytime sleepiness, sleep duration, and sleep disordered breathing symptoms.

RESULTS: Nearly one quarter of respondents (23%) self-reported taking sleep medications in the past 4 weeks: 11% reported rarely/sometimes; 12% reported often/always. However, only 13% of respondents were using an observed prescription medication indicative of insomnia. Respondents were mostly sedentary, with means of 582.6 minutes/day (95% CI: 565.1, 600.2) and 574.6 minutes/day (95% CI: 544.7, 604.5) for those not using prescription insomnia medications versus those who did, respectively. Neither observed prescription sleep medication use nor self-reported use was related to PA at any level, including CPM.

CONCLUSION: Insomnia medication use did not significantly contribute to lower physical activity levels among older adults in this nationally representative U.S. sample. The mechanisms contributing to similar physical activity levels between the two groups are unclear.

Negative Health Impacts of Poor Sleep in Older Adults

In addition to the chronic conditions associated with insomnia, elders with insomnia are more likely to experience cognitive dysfunction, falls, early institutionalization, decreased quality of life, and increased mortality. Recent data have helped to better define the extent of the impact of poor sleep in older adults. Issues explored include mobility, risk of falls, health care use, risk of institutionalization, and driving ability.

Stenholm and colleagues found that both too much sleep and too little sleep were associated with reduced mobility. In either case, “weakness or tiredness” appeared to be the most important determinant. These findings suggest that complex issues related to sleep, health, and daytime fatigue may affect mobility. Similarly, Beck reports that poor sleep quality was a significant predictor of increased likelihood of falls. Miller and colleagues captured the overall impact of poor sleep on functioning; they found that poor sleep in cognitively intact adults was a more powerful predictor of placement in a long-term care facility than either pain or depression. Additionally, Kaufmann and colleagues found that poor sleep was associated with increased health care utilization and proposed that adequate interventions to prevent and treat sleep-related problems may reduce health care spending in older adults.

The ability to drive is critical for older adult independence. However, a number of impairments that increase in prevalence with age can interfere with safe driving ability. The AAA Senior Driver program encourages older adults to consider a number of factors that may affect their ability to drive, including vision, hearing, reaction time, medical conditions and medications, and cognition. Within the category of medical conditions, AAA acknowledges that sleep apnea may cause drowsiness, which can impair driving, but does not discuss the impact of disturbed sleep due to other causes. (It is important to note that disturbed sleep is often the presenting symptom of sleep apnea in elders.) Vaz Fragoso and colleagues found that disturbed sleep and drowsiness itself can result in lower levels of driving capacity in older individuals, a finding that strongly suggests a need for interventions to improve sleep in this population.
Sleep well: The effect of sleep quality on falls in older adults

Beck P, Ailshire JA.
Presented at The Gerontological Society of America 66th Annual Scientific Meeting; November 20–24, 2013; New Orleans, LA.

Falls are the leading cause of injurious death in older adults. Sleep problems are a common disorder among older adults and poor sleep, which can reduce cognitive and motor performance and decrease proprioception, may increase fall risk. We use data from the 2002 and 2004 waves of the Health and Retirement Study to determine if older adults who report sleep problems in 2002 have increased risk of falling between 2002 to 2004. We focus on three dimensions of poor sleep: frequent nighttime awakenings, frequency of waking too early, and feeling rested upon waking. We use logistic regression to examine associations between multiple indicators of sleep quality and risk of experiencing a fall, and experiencing an injurious fall. Frequent trouble sleeping through the night (OR: 1.17, 95% CI: 1.04–1.32) and waking up too early (OR: 1.17, 95% CI: 1.01–1.35) increased likelihood of having experienced a fall since the previous wave, suggesting that poor sleep quality increases the future risk of falls. Education (OR: 1.15, 95% CI: 0.99–1.33), being Hispanic (OR: 0.88, 95% CI: 0.72–1.05) or Asian/Other (OR: 0.82, 95% CI: 0.57–1.16), or having trouble falling asleep (OR: 1.14, 95% CI: 0.99–1.33) did not increase risk of falling. Chronic conditions (OR: 0.99, 95% CI: 0.93–1.06), trouble falling asleep (OR: 1.04, 95% CI: 0.82–1.31), education (OR: 1.06, 95% CI: 0.95–1.18), being Hispanic (OR: 1.24, 95% CI: 0.89–1.71) or Asian/Other (OR: 1.01, 95% CI: 0.48–2.15) did not influence risk of fall injury. Sleep quality appears to impact risk of falling among older adults.

Negative Health Impacts of Poor Sleep in Older Adults


BACKGROUND: To examine the association between sleep-related factors and measured and self-reported mobility in a representative sample of older adults.

METHODS: This study included 2,825 men and women aged 55 years and older participating in a cross-sectional representative population-based Health 2000 Survey in Finland. Sleep duration, insomnia-related symptoms, and fatigue were included.

RESULTS: Compared with respondents reporting no insomnia symptoms, those reporting one symptom had a greater odds of hospitalization (odds ratio [OR] = 1.28, 95% confidence interval [CI] = 1.15–1.43, p < .001), use of home health care services (OR = 1.29, 95% CI = 1.15–1.43, p < .001), and any health service use (AOR = 1.72, 95% CI = 1.51–1.95, p < .001) after controlling for demographics. These associations weakened, and in some cases were no longer statistically significant, after adjustment for clinical covariates.

CONCLUSIONS: In this study, insomnia symptoms experienced by middle-aged and older adults were associated with greater future use of costly health services. Our findings raise the question of whether treating or preventing insomnia in older adults may reduce use of and spending on health services among this population.

WHAT’S HOT: Spotlight on OTC Sleep Aids and Sleep Health in Older Adults

Insomnia and health services utilization in middle-aged and older adults: Results from the Health and Retirement Study


BACKGROUND: Complaints of poor sleep are common among older adults. We investigated the prospective association between insomnia symptoms and hospitalization, use of home health care services, use of nursing homes, and use of any of these services in a population-based study of middle-aged and older adults.

METHODS: We studied 14,355 adults aged 55 and older enrolled in the 2006 and 2008 waves of the Health and Retirement Study. Logistic regression was used to study the association between insomnia symptoms (0, 1, or ≥2) in 2006 and reports of health service utilization in 2008, after adjustment for demographic and clinical characteristics.

RESULTS: Compared with respondents reporting no insomnia symptoms, those reporting one symptom had a greater odds of hospitalization (adjusted odds ratio [AOR] = 1.28, 95% confidence interval [CI] = 1.15–1.43, p < .001), use of home health care services (AOR = 1.29, 95% CI = 1.09–1.52, p = .004), and any health service use (AOR = 1.28, 95% CI = 1.15–1.41, p < .001). Those reporting greater than or equal to two insomnia symptoms had a greater odds of hospitalization (AOR = 1.71, 95% CI = 1.50–1.96, p < .001), use of home health care services (AOR = 1.64, 95% CI = 1.32–2.04, p < .001), nursing home use (AOR = 1.45, 95% CI = 1.10–1.90, p = .009), and any health service use (AOR = 1.72, 95% CI = 1.51–1.95, p < .001) after controlling for demographics. These associations weakened, and in some cases were no longer statistically significant, after adjustment for clinical covariates.

CONCLUSIONS: Several sleep-related factors, such as sleep duration, insomnia-related symptoms, and fatigue, are associated with measured and self-reported mobility outcomes.
Risk of placement in a care facility: The roles of social activity, sleep, pain, and depression


Placement in a long-term care facility is a costly and often undesirable outcome for many older adults. The purpose of this study was to determine whether several modifiable factors—social activity, sleep, pain, and depression—predicted placement in a care facility, over and above cognitive impairment, functional impairment, medical conditions, and age. The data were derived from the Intelligent Systems for Assessing Aging Changes study, a prospective cohort (n = 229) of community-residing older adults (mean age 83.4 ± 5.6), with a low rate of cognitive impairment (n = 34, 15%) at baseline. Within 5 years, a total of 44 (19%) of the 229 participants had moved to assisted living or nursing home care and 65 (24%) were cognitively impaired. Findings of a multivariate logistic regression analysis controlling for cognitive impairment, functional impairment, medical conditions, and age, indicated that each unit decrease on a 20-point social activity scale was associated with a 25% increase in the risk of placement in a care facility (p = 0.002), and each unit decrease on a 5-point scale indicating the frequency of restful sleep was associated with a 60% increase in the risk of placement in a care facility (p = 0.008). Although pain and depression significantly increased risk of placement in the unadjusted analysis, they were not significant individual predictors of placement in the multivariate model. Findings will be discussed with regard to minimizing risk of placement by improving restful sleep and increasing social activity outside of the home for community-dwelling older adults.

Prevalence of sleep disturbances in a cohort of older drivers


BACKGROUND: Lower levels of driving capacity in older persons are typically attributed to cognitive, visual, and/or physical impairments, with sleep disturbances rarely considered. This is in contrast to the general adult population for whom sleep disturbances are established risk factors for crashes. We thus set out to determine the prevalence of sleep disturbances in the form of insomnia symptoms, daytime drowsiness, and sleep apnea risk in a cohort of older drivers and to assess how these relate to self-reported driving capacity.

METHODS: Participants included 430 active drivers aged > or =70 years. Questionnaires measured self-reported insomnia symptoms (Insomnia Severity Index [ISI]), drowsiness (Epworth Sleepiness Scale [ESS]), apnea risk (Sleep Apnea Clinical Score [SACS]), driving mileage, driver self-ratings (overall and nighttime), and prior adverse driving events.

RESULTS: Mean age was 78.5 years, with 85% being male. Overall, 64% were dissatisfied with sleep patterns and 26% had an abnormal ISI (> or = 8). A large proportion (60%) reported a moderate to high chance of dozing in the afternoon, and 19% had an abnormal ESS (> or = 10). Habitual snoring was noted by 43%, with 20% at risk for sleep apnea (SACS > 15). Regarding driving, the most consistent finding was for lower levels of nighttime driver self-ratings in participants with insomnia symptoms or drowsiness. Lower levels of driving mileage were also noted but only with difficulty falling asleep. Otherwise, sleep disturbances were not associated with prior adverse driving events.

CONCLUSION: In our cohort of older drivers, insomnia symptoms and daytime drowsiness were prevalent and associated with lower levels of nighttime driver self-ratings. Although sleep apnea risk was also prevalent, it was not associated with self-reported driving capacity. These preliminary findings suggest that insomnia symptoms and drowsiness merit continued consideration as risk factors for lower levels of driving capacity in older persons, particularly given that effective interventions are available.

Caregiver Sleep Quality

Acting as a caregiver is a common experience for older adults. According to the Caregiver Action Network, more than 65 million people in the United States provide care for a chronically ill, disabled, or aged family member or friend. Caregivers are 49 years of age on average—illustrating that a large proportion of caregivers are in fact adults approaching old age themselves, with their own health issues.

Although caregiving can be a labor of love, it also can be incredibly stressful. Emerging data illustrate the heavy toll caregiving can have on sleep. For example, Peng found that 92% of caregivers for individuals with dementia experienced poor sleep quality. The stress associated with caregiving may be an important predictor for sleep problems—Peng and Chang, as well as Fredman and colleagues, found that depressive symptoms were associated with increased sleep problems. The interrelationships between caregiving, depression, and poor sleep can be complex. Some data suggest that 40% to 70% of family caregivers have clinically significant symptoms of depression, with approximately a quarter to half of these caregivers meeting the diagnostic criteria for major depression. Other data suggest that the prevalence of clinical depression among caregivers may be lower, in the range of 12% to 22%. Difficulty sleeping is well established as a significant risk for depression. Although the causative factor is not clear, poor sleep may ultimately lead to declining function for caregivers.

The Gerontological Society of America
Predictors of sleep in family caregivers of individuals with dementia

Peng H-L, Chang Y-P.
Presented at The Gerontological Society of America 66th Annual Scientific Meeting; November 20–24, 2013; New Orleans, LA.

INTRODUCTION: Caregivers of individuals with dementia pose special challenges. The nature and severity of these difficulties vary according to illness and may differentially affect the well-being of family. This study was based on the insomnia 3P model (pre-disposing, precipitating, and perpetuating factors) to identify significant predictors (depression, coping, caregiver burden, caregiver health status, sleep hygiene, and care recipients’ sleep) of caregivers’ sleep.

METHODS: This study used a cross-sectional design. Participants were recruited from the Alzheimer’s Association Western New York Chapter at Buffalo. Caregivers’ sleep were measured by Actigraph (a wrist-watch measuring movement and light; worn for 7 days) and the Pittsburg Sleep Quality Index (PSQI). Other measures included the Center for Epidemiologic Studies Depression Scale (CES-D), the Caregiver Burden Inventory (CBI), the Cumulative Illness Rating Scale (CIRS), the Sleep Hygiene Index (SHI), and Brief Cope. Regression statistics were used for data analysis.

RESULTS: Forty-three caregivers participated in the study. Approximately 92% of caregivers experienced poor sleep quality. The mean sleep hours was 5.99 (± 1.56), with 37.2% of them sleeping less than 5 hours per night. Caregiver depression, caregiver sleep hygiene, and care recipients’ sleep were significant predictors of caregiver subjective sleep quality, explaining 59.4% of the total variance. Caregivers’ coping and health status were significant predictors of caregiver objective total sleep hours as measured by Actigraph, explaining 19.4% of the total variance.

CONCLUSION: Family caregivers often experience sleep problems that was influenced by several factors. The study findings provide evidence for future research to identify effective interventions to improve caregivers’ sleep quality.

Positive affect is associated with fewer sleep problems in older caregivers but not noncaregivers


PURPOSE OF THE STUDY: Older adults who are depressed or are caregivers experience more sleep problems, whereas recent studies suggest that adults with high positive affect (PA) have fewer sleep problems. This study examined whether the associations of PA and depressive symptoms with sleep problems differed between caregivers and noncaregivers.

RESULTS: The mean PSQI score was 5.19 (SD = 3.26) and did not differ by caregiving status. In multivariable linear regression analyses among caregivers, those with high PA had significantly fewer sleep problems than their counterparts with low PA (adjusted mean PSQI score was 4.16 [SE = 0.50] vs. 5.69 [SE = 0.58], p = .05), whereas caregivers with depressive symptoms reported slightly more problems (adjusted mean 6.92 [SE = 0.80], p = .22). High PA and depressive symptoms were not associated with sleep problems among noncaregivers (adjusted mean PSQI scores were 4.88 [SE = 0.35], 5.38 [SE = 0.51], and 5.99 [SE = 0.73], respectively). Similar associations were found with PSQI scale components.

IMPLICATIONS: Results suggest that routine screening and interventions to increase PA may reduce sleep problems among older caregivers.

Nonpharmacologic Approaches to Managing Chronic Insomnia: Cognitive Behavioral Therapy

Nonpharmacologic therapies have been shown to be effective for the treatment of chronic insomnia and can produce long-term benefits. Nonpharmacologic approaches to the treatment of insomnia include use of good sleep hygiene measures (such as creating a dark quiet environment for sleeping), relaxation strategies (such as progressive muscle relaxation or yoga), and cognitive behavioral therapy.

Evidence suggests that the efficacy of nonpharmacologic treatments for insomnia may be reduced in older adults. Furthermore, these interventions are not widely used due to a shortage of well-trained providers, the cost of treatment by such providers, and lack of insurance coverage for these services. To overcome some of these barriers, Lovato and colleagues explored the use of group-based administration of cognitive behavioral therapy in 86 adults with insomnia (average age 64 years old). These researchers found that the group treatment approach to cognitive behavioral therapy was most effective in younger adults.

WHAT’S HOT: Spotlight on OTC Sleep Aids and Sleep Health in Older Adults
Use of OTC Sleep Aids by Older Adults

Recent data from the Kantar Health March 2013 National Health and Wellness Survey found that OTC sleep aid use among adults older than 60 years of age is extensive. Among these individuals:

- Fifteen percent to 18% reported using OTC sleep aids alone, approximately 3% used OTCs combined with herbals, and about 15% to 18% took OTCs in combination with prescription sleep aids.

- More than 70% reported taking OTC pain and sleep combination products, with single-molecule product use at nearly 30%. Only a small percentage—less than 2%—reported using cold and sleep products.

- Of the respondents ages 60 years and older taking OTC sleep agents, approximately 40% also currently take one or more anticholinergic medications. (All currently available OTC sleep aids have anticholinergic properties and are associated with cognitive impairments, especially in older adults.)

The risks and benefits of OTC sleep aids for the treatment of disturbed sleep in older adults have not been examined in randomized controlled trials. Nevertheless, a substantial body of data has identified risks associated with these products and several authoritative sources caution against their use.

Efforts to improve medication-use behaviors among older adults include...
American Geriatrics Society updated Beers Criteria for potentially inappropriate medication use in older adults

Potentially inappropriate medications (PIMs) continue to be prescribed and used as first-line treatment for the most vulnerable of older adults, despite evidence of poor outcomes from the use of PIMs in older adults. PIMs now form an integral part of policy and practice and are incorporated into several quality measures. The specific aim of this project was to update the previous Beers Criteria using a comprehensive, systematic review and grading of the evidence on drug-related problems and adverse drug events (ADEs) in older adults. This goal was accomplished through the support of The American Geriatrics Society (AGS) and the work of an interdisciplinary panel of 11 experts in geriatric care and pharmacotherapy who applied a modified Delphi method to the systematic review and grading to reach consensus on the updated 2012 AGS Beers Criteria. Fifty-three medications or medication classes encompass the final updated criteria, which are divided into three categories: potentially inappropriate medications and classes to avoid in older adults, potentially inappropriate medications and classes to avoid in older adults with certain diseases and syndromes that the drugs listed can exacerbate, and finally medications to be used with caution in older adults. This update has much strength, including the use of an evidence-based approach using the Institute of Medicine standards and the development of a partnership to regularly update the criteria. Thoughtful application of the criteria will allow for (a) closer monitoring of drug use, (b) application of real-time e-prescribing and interventions to decrease ADEs in older adults, and (c) better patient outcomes.

Sedative-hypnotic use of diphenhydramine in a rural, older adult, community-based cohort: effects on cognition


OBJECTIVE: The authors sought to identify patterns and associations of prescription and over-the-counter sedative-hypnotic use in an older, rural, blue-collar, community-based cohort in southwestern Pennsylvania over 10 years.

METHODS: A group of 1,627 individuals ages 65 and over were recruited and assessed during 1987–1989 and reassessed during approximately biennial waves. Data included sleep medications, demographics, depressive symptoms, sleep complaints, and cognitive functioning (Mini-Mental State Exam [MMSE]).

RESULTS: At Waves 1 through 5, the mean age of the cohort increased from 73.4 to 80.5 years. Use of prescription sedative-hypnotics (primarily benzodiazepines) increased from 1.8% to 3.1%, and over-the-counter sedative-hypnotic use (primarily diphenhydramine) increased from 0.4% to 7.6%. At Wave 5 (1996–1998), 8.17% of the sample reported using diphenhydramine as a sleep aid. After adjusting for age and sex, diphenhydramine use was associated with higher education and more depressive symptoms, the latter becoming nonsignificant after controlling for initial insomnia. MMSE became significantly associated with diphenhydramine use when 143 subjects with dementia were excluded from the analysis.

CONCLUSION: As the cohort aged, prescription sedative-hypnotic use remained relatively stable, whereas over-the-counter sedative use, principally diphenhydramine, increased substantially. The association of this drug with cognitive impairment in persons without dementia highlights its potential for causing adverse reactions in older adults.
Association between sedating medications and delirium in older inpatients


OBJECTIVES: To examine the association between Beers Criteria sedative medications and delirium in a large cohort of hospitalized elderly adults with common medical conditions.

DESIGN: Retrospective cohort and nested case-control studies.

SETTING: 374 U.S. hospitals.

PARTICIPANTS: All individuals aged 65 and older admitted to the hospital between September 2003 and June 2005 with one of six principal diagnoses (acute myocardial infarction, chronic obstructive pulmonary disease, community-acquired pneumonia, congestive heart failure, ischemic stroke, urinary tract infection).

MEASUREMENTS: Primary outcome was presumed hospital-acquired delirium, defined as initiation of an antipsychotic medication or restraints on hospital day 3 or later. Logistic and proportional hazards regression were used to model the associations between sedative exposure and delirium.

RESULTS: The data set contained 225,028 participants (median age 82; 58% female). Four percent fit the definition of hospital-acquired delirium (median onset day 5). In all, 38,883 (17%) participants received one or more sedative medications. In the cohort study, diphenhydramine (adjusted odds ratio (AOR) = 1.22, 95% confidence interval (CI) = 1.09–1.36) and short-acting benzodiazepines (AOR = 1.18, 95% CI = 1.03–1.34) were associated with greater risk of subsequent delirium. In the nested case-control study, diphenhydramine, short- and long-acting benzodiazepines, and promethazine were associated with delirium. Amitriptyline and muscle relaxants were not associated with delirium in either study. Confounding by indication could not be excluded for drugs that are sometimes used improperly to treat delirium.

CONCLUSION: An association was found between several Beers Criteria sedative medications and delirium in hospitalized medical patients. Given the prevalence of these medications and the morbidity associated with delirium, further investigation into the appropriateness of such prescribing is warranted.

Improving Medication-Taking Behaviors of Older Adults

Surprisingly little is known about medication-taking behaviors of older adults. Available data describe the extent of medication use and illustrate that potential problems exist. For example, data from the 2008 National Social Life, Health, and the Aging Project found widespread use of both OTCs and prescription medications among older adults. More than half of older adults reported that they used five or more prescription medications, OTCs, or dietary supplements. Furthermore, 1 in 25 older adults (approximately 2.2 million in the United States) were at risk for a major potential drug-drug interaction. These data, along with those from the Kantar Health survey showing that older adults regularly take medications on the Beers list, indicate that there is significant room for improvement in older adults’ medication-taking behaviors.

To support safe medication use for older adults, initiatives must consider a variety of factors, including health literacy, behavioral social science, and cognitive psychology, in order to develop strategies that positively influence decision-making processes surrounding medication use. Several initiatives are underway to improve medication-taking behaviors, some of which specifically focus on older adults. For example, the Food and Drug Administration’s Safe Use Initiative (http://www.fda.gov/safeuseinitiative) aims to create and facilitate public and private collaborations within the health care community. The goal of the Safe Use Initiative is to reduce preventable harm by identifying specific, preventable medication risks and developing, implementing, and evaluating cross-sector interventions with partners who are committed to safe medication use.

Another notable program comes from the National Council on Patient Information and Education (NCPIE), which has been a leading patient safety coalition since 1982. NCPIE’s mission is “to stimulate and improve communication of information on the appropriate use of medicines to consumers and health care professionals.” One of NCPIE’s recent tools is Medication Use Safety Training for Seniors (MUST for Seniors). This online educational campaign and workshop is designed to promote safe and appropriate medication use (see http://www.mustforseniors.org).
Use of prescription and over-the-counter medications and dietary supplements among older adults in the United States


CONTEXT: Despite concerns about drug safety, current information on older adults’ use of prescription and over-the-counter medications and dietary supplements is limited.

OBJECTIVE: The study sought to estimate the prevalence and patterns of medication use among older adults (including concurrent use), as well as potential major drug-drug interactions.

RESULTS: The unweighted survey response rate was 74.8% (weighted response rate, 75.5%). Eighty-one percent (95% confidence interval [CI], 79.4%–83.5%) used at least 1 prescription medication, 42% (95% CI, 39.7%–44.8%) used at least 1 over-the-counter medication, and 49% (95% CI, 46.2%–52.7%) used a dietary supplement. Twenty-nine percent (95% CI, 26.6%–30.6%) used at least 5 prescription medications concurrently; this was highest among men (37.1%; 95% CI, 31.7%–42.4%) and women (36.0%; 95% CI, 30.2%–41.9%) aged 75 to 85 years. Among prescription medication users, concurrent use of over-the-counter medications was 46% (95% CI, 43.4%–49.1%) and concurrent use of dietary supplements was 52% (95% CI, 48.8%–55.5%). Overall, 4% of individuals were potentially at risk of having a major drug-drug interaction; half of these involved the use of nonprescription medications. These regimens were most prevalent among men in the oldest age group (10%; 95% CI, 6.4%–13.7%), and nearly half involved anticoagulants. No contraindicated concurrent drug use was identified.

CONCLUSIONS: In this sample of community-dwelling older adults, prescription and nonprescription medications were commonly used together, with nearly 1 in 25 individuals potentially at risk for a major drug-drug interaction.

Conclusions

Far from being an inconvenience, disturbed sleep has serious health consequences ranging from increased likelihood of chronic illness to increased risk for falls, motor vehicle accidents, and institutionalization. The vital role that sleep plays in overall health and well-being is increasingly being recognized on a public health level, and research is seeking to better define the risks and benefits of sleep aid use by this population, to better identify effective interventions for older adults, and to encourage appropriate medication-taking behaviors among older adults. A number of initiatives have been launched to encourage older adults to better understand their medications and ensure that they use them appropriately.

This newsletter highlights recent research and initiatives that address sleep and its disorders in older adults and identifies areas that require further exploration. Potential research topics include costs associated with inappropriate use of OTC sleep aids, the frequency with which inappropriate medications are prescribed or recommended for sleep, older adults’ use of medications that interfere with sleep, health care provider training to address sleep issues, and strategies for encouraging appropriate use of sleep aids. Researchers and practitioners who are seeking additional sleep-related information are encouraged to explore the information available at the websites listed in the Resources.
Resources
A number of comprehensive and informative online resources are available for further information. Selected resources for researchers and practitioners, as well as for patients, are listed here.

American Academy of Sleep Medicine
A sleep medicine association for professionals dedicated to the treatment of sleep disorders, such as sleep apnea and insomnia.
http://www.aasmnet.org

American Sleep Association
A national organization focused on improving public awareness about sleep disorders and sleep health, promoting sleep medicine research, and providing a portal for communication among patients, physicians and health care professionals, corporations, and scientists.
http://www.sleepassociation.org

National Sleep Foundation
A charitable, educational, and scientific not-for-profit organization dedicated to improving sleep health and safety through education, public awareness, and advocacy.
http://www.sleepfoundation.org

NIH National Center on Sleep Disorders Research
A program of the National Institutes of Health that coordinates government-supported sleep research, as well as training and education.
http://www.nhlbi.nih.gov/about/nccsdr/index.htm

NIH Senior Health: Sleep and Aging
A program of the National Institutes of Health that makes aging-related health information easily accessible for family members and friends seeking reliable, easy-to-understand online health information. The overall program addresses many topics, including sleep and aging.
http://nihseniorhealth.gov/sleepandaging/aboutsleep/01.html

Sleep Research Society
A leading professional association for sleep scientists.
http://www.sleepresearchsociety.org

Society of Behavioral Sleep Medicine
An interdisciplinary organization committed to advancing the scientific approach to studying the behavioral, psychological, and physiological dimensions of sleep and sleep disorders.
http://www.behavioralsleep.org

References