



Virginia Commonwealth University  
**VCU Scholars Compass**

---

Case Studies from Age in Action

Virginia Center on Aging

---

2011

## Alcohol, Medications, and Older Adults

Maitreyee Mohanty  
*Virginia Commonwealth University*

Patricia Slattum  
*Virginia Commonwealth University, pwslatt@vcu.edu*

Follow this and additional works at: [http://scholarscompass.vcu.edu/vcoa\\_case](http://scholarscompass.vcu.edu/vcoa_case)

 Part of the [Geriatrics Commons](#)

Copyright managed by Virginia Center on Aging.

---

### Recommended Citation

Mohanty, M., & Slattum, P. (2011). Alcohol, Medications, and Older Adults. *Age in Action*, 26(3), 1-5.

This Article is brought to you for free and open access by the Virginia Center on Aging at VCU Scholars Compass. It has been accepted for inclusion in Case Studies from Age in Action by an authorized administrator of VCU Scholars Compass. For more information, please contact [libcompass@vcu.edu](mailto:libcompass@vcu.edu).

## Case Study

### Alcohol, Medications, and Older Adults

by Maitreyee Mohanty and  
Patricia W. Slattum

#### Educational Objectives

1. Describe patterns of simultaneous use of alcohol and Central Nervous System (CNS) - acting medications among older adults.
2. Understand the mechanisms of interaction between alcohol and CNS-acting medications and their consequences.
3. Identify strategies to prevent alcohol-medication interactions among older adults.
4. Recommend resources for older adults and service providers for identifying and managing problematic alcohol and medication use.

#### Background

As we grow older, drinking alcohol may have unexpected and serious consequences. Demographics, different bodily composition with age, and common challenges we experience in later life may trigger changes in both the consumption of alcohol and how our body responds

to it. Baby-boomers, those born between 1946 and 1964, tend to consume more alcohol compared to previous generations, so the prevalence of alcohol-related problems is projected to increase as they age. An overall understanding of alcohol use by older adults requires attention, as well, to patterns of drinking and other interacting factors, such as age, gender, marital status, income, existence of co-morbid conditions, and history of drinking (Merrick et al., 2008). Research studies report varying patterns of alcohol use in older adults, in part attributable to their using different measures of alcohol consumption, and different definitions and cut-off limits for drinking categories. The National Survey on Drug Use and Health (NSDUH, 2010) reported that in 2009, 39% of older adults consumed alcohol in the past month; of these, 29% were current drinkers (at least one drink in the past 30 days), 8% were involved in binge drinking (five or more drinks on the same occasion on at least one day in the past 30 days) and 2% reported heavy alcohol use (five or more drinks on the same occasion on each of five or more days in past 30 days). Generally, the use of alco-

hol declines with advancing age and the occurrence of health problems (Merrick et al., 2008). Some 50% of older adults aged 60-64 years reported alcohol use in the past month, compared to only 39% for those aged 65 and above (NSDUH, 2010). Merrick et al. (2008), studying community-dwelling Medicare beneficiaries aged 65 years and above, concluded that "9% were involved in unhealthy drinking (defined as monthly use exceeding 30 drinks per typical month and 'heavy episodic' drinking of four or more drinks in any single day), with higher prevalence in men (16%) than in women (4%)." Alcohol use in older adults is also found to be associated with race, family history of alcohol abuse, educational level, smoking status, and mental illness (Merrick et al., 2008); the researchers also noted that alcohol use is often under-reported because of some respondents' inability to recall precisely and the desire to present themselves in a favorable way.

Alcohol use among older adults is influenced by various social and health related factors. Some may drink to induce sleep or to uplift a

#### Inside This Issue:

VCoA Editorial, 6  
VDA Editorial, 7  
USDA Guidelines, 9  
ARDRAF Recipients, 10

VCoA Focus: Thelma Watson, 13  
Bert Waters Award, 14  
GTE Funding Applications, 14  
Preventing Falls, 15

Downside of Medicare, 16  
Elder Rights Award, 17  
Calendar of Events, 18  
Walk to End Alzheimer's, 20

depressed mood (Ferreira & Weems, 2008). Moderate drinking has been associated with improved social interactions and self-reported health status among older adults (Ferreira & Weems, 2008). Benefits of moderate drinking in diminishing the risk of cardiovascular events and mortality, touted by several studies, promote the daily intake of alcohol (Ferreira & Weems, 2008). Moreover, late-life related changes such as retirement, loss of loved ones, and disease conditions, might induce an older adult into habitual drinking (Ferreira & Weems, 2008). However, health conditions like diabetes, gout, upper gastrointestinal conditions, insomnia, depression, and cancer actually worsen with alcohol consumption (Moore, Whiteman & Ward, 2007). Alcohol may, initially, help an older adult fall asleep, but it interferes with staying asleep and may induce or worsen the sleep disorder (Moore, Whiteman & Ward, 2007).

Several studies have found an association between alcohol use disorders and depressive symptoms (Choi & DiNitto, 2010; Moore, Whiteman & Ward, 2007). Older adults who indulge in heavy/binge drinking to cope with depressive symptoms have higher risk of having alcohol problems (Choi & DiNitto, 2010).

Alcohol-related disorders can co-occur with psychiatric illness, such as depressive symptoms, anxiety or major depressive disorder (Choi & DiNitto, 2010). In 2009, the NSUDH report stated that 11% of older adults (ages 65 and above) reported some kind of mental illness, while 7% of the population

aged 50 and above reported co-occurrence of alcohol dependence/abuse and mental illness. A German study (Du, Scheidt-Nave & Knopf, 2008) found that approximately 8% of the non-institutionalized older adults reported combined use of psychotropic drugs and alcohol.

Generally, there is little control or monitoring of what alcoholic beverages older adults consume, and drinking is an individual decision. However, as the quick review above suggests, a lack of awareness or guidance about alcohol use in older adults might have serious consequences, given aging-related physiologic changes affecting the response to alcohol, the presence of co-morbid health conditions, and numerous interactions between alcohol and medications in older adults.

#### **Alcohol and CNS-acting Medication Interactions**

Aging related changes in physiology affect the distribution and metabolism of alcohol. Alcohol distribution in the body depends on age and gender, as older people and females have less body water and more body fat as a percent of body weight, and alcohol distributes in body water. Thus, for a given amount of alcohol consumption, the blood alcohol level is higher in older adults than in their younger counterparts. In addition, older adults and females have lower levels of alcohol-metabolizing enzymes, which results in reduced alcohol metabolism (Moore, Whiteman & Ward, 2007).

The central nervous system (CNS) is the part of the nervous system

that consists of the brain and spinal cord. Several medications, including antidepressants to treat depression, sedatives to induce sleep, and antipsychotics to control psychosis, act on the CNS. Importantly, some of these CNS-acting medications show exaggerated response in older adults for two fundamental reasons: 1) there are age-related changes in CNS functions, like altered neurotransmitters or number of receptors, and 2) there is increased sensitivity with age to some drugs, such as benzodiazepines, opioids, and anaesthetics (Bowie & Slattum, 2007). Significantly, most of the CNS medications, from antidepressants to anti-anxiety medications, sedatives, opioid analgesics, antipsychotics, certain anticonvulsant and certain antitussive agents, are CNS depressant, as is alcohol. So, when an older adult consumes CNS medications with alcohol, it could lead to exaggerated sedation, impairment of motor skills, and impaired judgement, any of which could increase the risk of injury (Moore, Whiteman & Ward, 2007). Apart from CNS-acting medications, several other medications also have the potential to interact with alcohol and cause adverse events. For instance, nonsteroidal anti-inflammatory drugs (NSAIDs) are associated with increased risk of gastrointestinal bleeding; and anti-hypertensive medications to lower blood pressure (such as hydralazine and  $\alpha$ -blockers) are associated with incidences of orthostatic hypotension, when consumed with alcohol (Moore, Whiteman & Ward, 2007).

#### **Consequences of Concurrent Use of Alcohol and CNS-Medications**

Simultaneous use of alcohol and

CNS medications may result in such adverse events as a fall, fall-related fracture, or traffic accident. These may lead to emergency department visits or hospitalization and increased use of healthcare resources. A Swedish study (Stenbacka, 2002) showed that high alcohol intake and use of sedatives/hypnotics were significantly associated with injurious falls among older women, defined as aged 60 and above. A very recent study reports that, out of 524,050 emergency department (ED) visits involving drugs (including illicit substances and pharmaceutical agents) and alcohol taken together, 8,600 visits (2%) were documented in older adults (Drug Abuse Warning Network [DAWN], 2011); this study identifies drugs for insomnia, anxiety (primarily benzodiazepines), and narcotic pain relievers as the major drug categories involved in emergency visits. Clearly, older adults are vulnerable to harmful effects when taking alcohol and CNS-medications at the same time and need to be alert to prevent harmful results.

### **Managing Alcohol and CNS-Medication Intake**

Prudent practice suggests the following: Avoid drinking alcohol and taking CNS-medications whenever possible. Read the labels on medications, which can help identify which medications should be avoided with alcohol. Healthcare professionals can increase awareness about alcohol and medication interaction in older adults. Some over the counter (OTC) products like sedating antihistamines and common non-steroidal anti-inflammatory drugs, such as ibuprofen, naprox-

en and aspirin, can also interact with alcohol (Moore, Whiteman & Ward, 2007). So, easy access to an OTC medicine does not mean that it is totally safe and without precautions. Limit alcohol consumption. According to recommendations by the National Institute of Alcohol Abuse and Alcoholism (NIAAA), older males should not consume more than one alcoholic drink a day (a standard drink is 15 grams ethanol, meaning 12 ounces of regular beer, five ounces of wine, or 1.5 ounces of 80-proof distilled spirits); and for older females, the limit is "somewhat less" than that recommended for males (Blow & Barry, 2003). Older adults should be encouraged to drink within the recommended limits if they choose to consume alcohol and to use caution when mixing alcohol with medications.

### **Case Study # 1**

Mrs. O is an 80-year-old white woman who lives in an assisted living community. At the time of her medication review by a pharmacist, her family expressed concerns that she had been "loopy and out of it" recently. She also experienced a fall in the evening but was not injured. There hadn't been any recent changes in her medications; but during the pharmacist's interview, Mrs. O mentioned drinking wine in the evening. The medication technician, who often works on Mrs. O's floor, stated that she "stays up all night drinking wine and watching TV then sleeps throughout the day." The medication technician was not sure how much she drinks nightly or whether she was drinking more than usual. Mrs. O was taking 16 scheduled prescription medications

and five "as needed" medications. Her scheduled prescriptions included: lisinopril, nadolol, and amlodipine for hypertension; furosemide for edema; levothyroxine for thyroid replacement; albuterol for asthma; pantoprazole for gastroesophageal reflux disease (GERD); solifenacin for urinary incontinence; citalopram, bupropion, and quetiapine for depression; trazodone for insomnia and depression; tramadol for pain; and supplements of potassium and Vitamin D. Additionally, trazodone (sleep-inducer), promethazine (for nausea and vomiting), docusate (for constipation), acetaminophen, and cholestyramine (for loose stool) were prescribed as needed. Evaluation of her medication regimen indicated that bupropion, quetiapine, trazodone, and tramadol have the potential to interact with alcohol, increasing her CNS depression and her risk for falling. The pharmacist recommended to the physician to change trazodone to use only when needed, and to discontinue quetiapine, if possible. Mrs. O's physician educated her about the potential risk of mixing alcohol and her medications, and her physician, pharmacist, and family each advised her to stop her drinking. Mrs. O did, in fact, stop her alcohol consumption and some changes in her drug regimen were instituted, after which her functional and cognitive status improved noticeably.

### **Case Study #2**

Ms. SP is an 82-year-old white female who suffers from chronic obstructive pulmonary disorder (COPD). She had a medical history of aortic aneurysm, which was treated surgically, and was diag-

nosed previously with depression, for which she was treated with antidepressants. She was a smoker for the last 40 years and a moderate alcohol-drinker. After moving to a senior congregate living center, she started drinking more heavily, which led to incidences of falls and a fractured arm. Her prescriptions consisted of 11 medications: Advair (combination of fluticasone and salmeterol), tiotropium, albuterol, montelukast, and Mucinex (guaifenesin and pseudoephedrine) for COPD; paroxetine for depression; simvastatin for cholesterol; and supplements (iron and calcium). She was also taking digoxin for congestive heart failure and primidone for tremor. However, during the interview she did not mention a history of tremor or heart failure. After checking for potential drug interactions, it was found that primidone and ethanol have a moderate interaction, while paroxetine and ethanol have a minor level of drug interaction. After the fall incident, her physician advised her to quit drinking. Ms. SP underwent three sessions of counselling with her physician and then decided to abstain from drinking and smoking. Subsequently, she has not reported any incidence of fall or other forms of injury. This case illustrates co-occurrence of depression and alcohol intake, resulting in simultaneous use of alcohol and antidepressants. As noted, the concurrent use of alcohol with some prescription drugs increases the risk of falls and injury.

### Conclusion

These cases demonstrate the dangers associated with mixing alcohol and CNS-acting medications. Older

### Some commonly used CNS-acting medications

#### Sedatives/hypnotics/anti-anxiety drugs

Alprazolam (Xanax)  
Zolpidem (Ambien)  
Temazepam (Restoril)  
Hydroxyzine (Vistaril)  
Doxepin (Sinequan)  
Buspirone (Buspar)  
Chlordiazepoxide (Librium)  
Clorazepate (Tranxene)  
Eszopiclone (Lunesta)

#### Antidepressants

Citalopram (Celexa)  
Escitalopram (Lexapro)  
Sertraline (Zoloft)  
Paroxetine (Paxil, Pexeva)  
Duloxetine (Cymbalta)  
Fluoxetine (Prozac)  
Venlafaxine (Effexor)  
Amitriptyline (Amitriptyline)  
Mirtazepine (Remeron)  
Bupropion (Wellbutrin)

#### Antihistaminics/antiemetics

Fexofenadine (Allegra)  
Cetirizine (Zyrtec)  
Chlorpheniramine (Chlor-Trimeton)  
Meclizine (Antivert)  
Diphenhydramine (Benadryl)  
Promethazine (Phenergan)

#### Antipsychotics

Risperidone (Risperdal)  
Ziprasidone (Zeldox, Geodon)  
Olanzapine (Zyprexa)  
Clozapine (Clorazil)  
Aripiprazole (Abilify)  
Quetiapine (Seroquel)  
Haloperidol (Haldol)  
Chlorpromazine (Thorazine)  
Perphenazine (Trilafon)  
Fluphenazine (Permitil)

#### Opioid analgesics

Codeine  
Hydrocodone (Vicodin)  
Oxycodone (Percocet)  
Morphine (Avinza)  
Meperidine (Demerol)  
Fentanyl (Actiq)

#### Anticonvulsants

Phenytoin (Dilantin)  
Pregabalin (Lyrica)  
Lorazepam (Ativan)  
Clonazepam (Klonopin)  
Diazepam (Valium)  
Phenobarbital (Luminal)  
Topiramate (Topamax)  
Primidone (Mysoline)  
Gabapentin (Neurontin)

Note: The above list of medications is not exhaustive.

Note: Some medications listed above are used for more than one health condition (such as clonazepam is used in controlling seizures and panic attacks and lorazepam is used in anxiety and insomnia)

adults, because of age-related changes in physiology, existing health conditions, and complex medication use, can be vulnerable to harmful effects of alcohol and medication interactions. These, in turn, may diminish quality of life and may result in costly healthcare expenses. Importantly, these effects are avoidable, so steps should be taken to educate and increase

awareness about alcohol and medication interactions among older adults.

### Study Questions

1. Discuss at least two likely consequences of consuming alcohol and CNS-medications concurrently.
2. Why are older adults more vulnerable to alcohol and CNS-med-



ication interactions?

3. How can a potential alcohol and CNS-medication interaction be prevented?

### Useful Links for More Information

- 1) Alcohol and Aging Awareness Group (AAAG) is a state level group consisting of public and private organizations that are collaboratively educating and training older adults and their service providers about alcohol and medication misuse. AAAG's upcoming projects include screening, brief intervention, referral to treatment, web-based training for service providers. For more information, please contact: (804) 213-4688 or ([www.abc.virginia.gov/Education/olderadults/aaagroup.html](http://www.abc.virginia.gov/Education/olderadults/aaagroup.html))
- 2) Alcohol use in older adults. National Institute of Aging (NIA). ([www.nia.nih.gov/healthinformation/publications/alcohol.htm](http://www.nia.nih.gov/healthinformation/publications/alcohol.htm))
- 3) Harmful interactions: mixing alcohol with medicines. NIAAA publication. (<http://pubs.niaaa.nih.gov/publications/Medicine/medicine.htm>)
- 4) Alcoholism and alcohol abuse: signs, symptoms, and help for drinking problems. ([http://helpguide.org/mental/alcohol\\_abuse\\_alcoholism\\_signs\\_effects\\_treatment.htm](http://helpguide.org/mental/alcohol_abuse_alcoholism_signs_effects_treatment.htm))
- 5) How to talk to an older person who has a problem with alcohol or medications. ([www.hazelden.org/web/public/hff10730.page](http://www.hazelden.org/web/public/hff10730.page))

### References

- Bowie, M. W. & Slattum, P. W. (2007). Pharmacodynamics in older adults: A review. *American Journal of Geriatric Pharmacotherapy*, 5, 263-303.
- Blow, F. C. & Barry, K. L. (2003). Use and misuse of alcohol among older women. NIAAA publications. Retrieved from: <http://pubs.niaaa.nih.gov/publications/arh26-4/308-315.htm>

Choi, N. G. & DiNitto, D. M. (2011). Heavy/binge drinking and depressive symptoms in older adults: gender differences. *International Journal of Geriatric Psychiatry*, 26: n/a. doi: 10.1002/gps.2616. On-line pre-publication.

Du, K., Scheidt-Nave, C., & Knopf, H. (2008). Use of psychotropic drugs and alcohol among non-institutionalised elderly adults in Germany. *Pharmacopsychiatry*, 41, 242-251.

Ferreira, M. P. & Weems M. K. S. (2008). Alcohol consumption by aging adults in United States: Health benefits and detriments. *Journal of American Dietetic Association*, 108(10), 1668-1676.

Merrick, E. L., Horgan, C. M., Hodgkin, D., Garnick, D. W., Houghton, S.F., Panas, L., Saitz, R., & Blow, F.C. (2007). Unhealthy drinking patterns in older adults: prevalence and associated characteristics. *Journal of the American Geriatrics Society*, 56(2), 214-23.

Moore, A. A., Whiteman, E. J., & Ward, K.T. (2007). Risks of combined alcohol/medication use in older adults. *American Journal of Geriatric Pharmacotherapy*, 5, 64-74.

Stenbacka, M. (2002). Association between use of sedatives or hypnotics, alcohol consumption, or other risk factors and a single injurious fall or multiple injurious falls: A longitudinal general population study. *Alcohol*, 28(1), 9-16.

Substance Abuse and Mental Health Services Administration. (2010). *Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings* (Office of Applied Studies, NSDUH Series H-38A, HHS Publication No. SMA 10-4856Findings). Retrieved from: <http://www.oas.samhsa.gov/NSDUH/2k9NSDUH/2k9Results.htm#3.1>

Substance Abuse and Mental Health Services Administration. (2009). *Results from the 2009 National Survey on Drug Use and Health: Mental Health Detailed Tables*. Retrieved from <http://oas.samhsa.gov/NSDUH/2k9NSDUH/MH/tabs/Sect1peMHtabs.htm#Tab1.8B>

Substance Abuse and Mental Health Services Administration. Drug Abuse and Warning Network (2011). *National Estimates of Drug-Related Emergency Department Visits:2008*. Retrieved from: <https://dawninfo.samhsa.gov/pubs/edpubs/default.asp>.

### About the Authors



Maitreyee Mohanty is a graduate student in the Department of Pharmacotherapy and Outcomes Science at the VCU School of Pharmacy. She earned her Masters of Pharmacy Practice degree from National Institute of Pharmaceutical Education and Research (NIPER, Mohali), in India. Her research interest is medication related issues in older adults.



Patricia Slattum, PharmD, PhD is Director of the Geriatric Pharmacotherapy Program, Department of Pharmacotherapy and Outcomes Science, at the Virginia Commonwealth University School of Pharmacy. Her interests include improving pharmacotherapy for older adults residing in the community and assisted-living facilities and the effects of medications on cognition. She is a member of the Alcohol and Aging Awareness Group.