

## Substance Use Disorder in Older Adults: Mini Review

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### Review Article

#### Abstract

With an estimated prevalence of 4%, substance abuse amongst persons who are 65 years and older is increasing. The most common substances abused are alcohol, prescription drugs such as opiates and benzodiazepines (BZD), and over-the-counter (OTC) medications. This increase is believed to be partially endorsed by the baby boomer generation, born between 1946 to 1964, who had significant exposure to alcohol and drugs at a younger age. Substance abuse is difficult to recognize in the older adults, but once identified, presents its own challenges as only 18% of substance abuse treatment programs are designed for this growing population. Substance abuse overall may increase the risk of fractures secondary to recurrent falls, memory loss, sleep disturbances, anxiety, and depression. In this article, we will review the signs and symptoms, risk factors, screening tools, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnostic criteria, and challenges of treating substance abuse in the older adults.

**Keywords:** Elderly; Aging; Substance-related disorders; Chemical dependence

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## Introduction

Substance abuse and misuse in older adults has been gradually increasing due to changing demographics and aging population. This growing population is defined by the baby boomer generation, those born between 1946 to 1965, a population that had significant exposure to alcohol and drugs at a younger age.<sup>1,2</sup> Due to this exposure, in 2006, it was estimated that the prevalence of substance abuse in people over age of 50 years would rise from 2.8 to 5.7 million.<sup>3-5</sup> The current prevalence of substance abuse is 4% in persons older than 65 years.<sup>6</sup>

Overall, substance use disorder (SUD) is more prevalent in men, but abuse of prescription drugs is higher in women.<sup>3</sup> Prescription drugs, including opioids and benzodiazepines (BZD), are often abused due to polypharmacy, over-prescription, and miscommunication regarding proper drug use.<sup>3,6</sup> 2% of older adults report misuse of over-the-counter (OTC) pain relievers in the past year.<sup>7</sup> One of the most common substances abused is alcohol, with 11% of older adults reporting binge use and another 3% reporting heavy alcohol use within the last month.<sup>3,8,9</sup> In addition, nicotine is also a commonly-abused substance, with nicotine use noted in 14% of older adults within the last year, and over 65% of older adults citing use within their lifetime.<sup>3,8</sup>

It is challenging to recognize substance abuse in older adults. It is frequently under-diagnosed, because it can be present as dementia, anxiety, and/or depression.<sup>10</sup> Substance abuse disorder needs to be identified as soon as possible as it can increase the risk of fractures secondary to recurrent falls, and worsen a multitude of common older adult concerns such as incontinence, nutrition, memory, sleep, anxiety, and depression.<sup>3</sup>

## Discussion

**Risk factors for substance abuse:** Potential risk factors for substance abuse disorder in older adults include chronic pain syndromes, poor overall health, polypharmacy, physical disability, medical comorbidities, history of substance abuse, and social isolation.<sup>3,10</sup> Other risk factors include male gender, Caucasian ethnicity, unmarried or divorced status, recent bereavement, avoidant coping techniques, and being not religiously active.<sup>5</sup>

### Diagnosis of substance abuse disorder

**Screening tools:** Being sympathetic and

empathetic to a patient’s medical conditions, sleep quality, pain, physical limitations, and use of prescribed and non-prescribed medications is imperative before suspecting substance abuse. All patients should have underlying medical conditions optimized as they can mimic the features of substance abuse.<sup>3</sup>

When suspected, there are several screening tools used to assess the risk associated with substance abuse (Table 1). The most common is the Cut down, Annoyed, Guilty, Eye-opener (CAGE), used to screen for alcohol use disorder (Figure 1), and CAGE Adapted to Include Drugs (CAGE-AID), used to screen for alcohol and drug use (Figure 2).<sup>1,3</sup>

**CAGE**  
(EVER)

- Have you ever tried to **Cut** down on your drinking?
- Do you get **Annoyed** when people talk about your drinking?
- Do you feel **Guilty** about your drinking?
- Have you ever had an **Eye-opener?** (A drink first thing in the morning)

Scoring: Two positive responses are considered a positive screen for ever dependent or potential alcohol problem and indicates further assessment is needed.

**Figure 1.** CAGE-Alcoholism screening tool

<https://hospitalsbirt.webs.com/CAGE%20ever%20&%20CAGE-AID%203-months.pdf>

The Drug Abuse Screening Test (DAST) is a modified Michigan Alcohol Screening Test (MAST) that can be applied to all substances.

**CAGE-AID**  
(PAST 3 MONTHS)

- In the past 3 months, have you felt you ought to **Cut** down on your drinking or drug use?
- In the past 3 months, have people **Annoyed** you by criticizing you about your drinking or drug use?
- In the past 3 months, have you felt bad or **Guilty** about your drinking or drug use?
- In the past 3 months, have you had a drink or used drugs first thing in the morning to steady your nerves or to get rid of a hangover (**Eye-opener**)?

Precede CAGE-AID with “When thinking about drug use, include illegal drug use and the use of prescription drugs other than as prescribed.”  
Scoring: One positive response indicates a possible problem. Two positive responses indicate probable problem. (Adapted from Ewing 1984)

**Figure 2.** CAGE-AID-Substance abuse screening tool

<https://hospitalsbirt.webs.com/CAGE%20ever%20&%20CAGE-AID%203-months.pdf>

**Table 1.** Most commonly-used substance use disorder (SUD) screening tools in older adults

Screening tools	Description	More information
ASSIST	An 8-item screening tool developed for the WHO	<a href="https://www.who.int/publications/i/item/978924159938-2">https://www.who.int/publications/i/item/978924159938-2</a>
NIDA drug use screening tool	A 1- to 7-question screening tool adjusted from the WHO's ASSIST by the NIDA	<a href="https://archives.drugabuse.gov/nmassist/">https://archives.drugabuse.gov/nmassist/</a>
AUDIT	A 10-item screening tool developed by WHO	<a href="https://www.who.int/publications/i/item/audit-the-alcohol-use-disorders-identification-test-guidelines-for-use-in-primary-health-care">https://www.who.int/publications/i/item/audit-the-alcohol-use-disorders-identification-test-guidelines-for-use-in-primary-health-care</a>
AUDIT-C	The first 3 questions of AUDIT screening tool	<a href="https://www.hepatitis.va.gov/alcohol/treatment/audit-c.asp">https://www.hepatitis.va.gov/alcohol/treatment/audit-c.asp</a>
CAGE	A 4-item screening tool to detect alcohol problems	<a href="https://www.hopkinsmedicine.org/johns_hopkins_healthcare/downloads/all_plans/CAGE%20Substance%20Screening%20Tool.pdf">https://www.hopkinsmedicine.org/johns_hopkins_healthcare/downloads/all_plans/CAGE%20Substance%20Screening%20Tool.pdf</a>
MAST	A 25-item instrument tool to measure alcohol use disorder. Also available: Shorter MAST version with only 13-item questionnaire (SMAST) Geriatric version (MAST-G)	MAST <a href="https://adai.uw.edu/instruments/pdf/Michigan_Alcoholism_Screening_Test_156.pdf">https://adai.uw.edu/instruments/pdf/Michigan_Alcoholism_Screening_Test_156.pdf</a> SMAST <a href="https://hopequestgroup.org/wp-content/uploads/2011/09/SMAST-Short-Michigan-Alcohol-Screening-Test.pdf">https://hopequestgroup.org/wp-content/uploads/2011/09/SMAST-Short-Michigan-Alcohol-Screening-Test.pdf</a> MAST-G <a href="https://docs.clinicaltools.com/pdf/sbirt/MAST-G.pdf">https://docs.clinicaltools.com/pdf/sbirt/MAST-G.pdf</a>
DAST	A 10-, 20-, and 28-item modification of the MAST to detect drug abuse	DAST-10 <a href="https://www.bniart/files/2012/04/DAST-10_Institute.pdf">https://www.bniart/files/2012/04/DAST-10_Institute.pdf</a> DAST-20 <a href="https://www.hrsa.gov/behavioral-health/drug-use-questionnaire-dast-20">https://www.hrsa.gov/behavioral-health/drug-use-questionnaire-dast-20</a> DAST-28 <a href="https://www.uspreventiveservicestaskforce.org/home/getfilebytoken/Z3EFdR3PjZKxrRs783_XKH">https://www.uspreventiveservicestaskforce.org/home/getfilebytoken/Z3EFdR3PjZKxrRs783_XKH</a>
FTND	A 6-item test evaluating cigarette dependence	<a href="https://adai.uw.edu/instruments/pdf/Fagerstrom_Test_for_Nicotine_Dependence_115.pdf">https://adai.uw.edu/instruments/pdf/Fagerstrom_Test_for_Nicotine_Dependence_115.pdf</a>
TWEAK	A 5-item scale to screen for dangerous drinking	<a href="https://adai.uw.edu/instruments/pdf/TWEAK_252.pdf">https://adai.uw.edu/instruments/pdf/TWEAK_252.pdf</a>

<https://www.masspartnership.com/pdf/CommonlyUsedSUDScreeningInstruments.pdf>

ASSIST: Alcohol, Smoking, and Substance Involvement Screening Test; NIDA: National Institute on Drug Abuse; WHO: World Health Organization; AUDIT: Alcohol Use Disorders Identification Test; AUDIT-C: Alcohol Use Disorders Identification Test-Consumption; CAGE: Cut down, Annoyed, Guilty, Eye-opener; MAST: Michigan Alcohol Screening Test; DAST: Drug Abuse Screening Test; FTND: Fagerstrom Test for Nicotine Dependence; TWEAK: Tolerance, Worried, Eye-opener, Amnesia, K/Cut down

### Diagnostic and Statistical Manual of Mental Disorders-5<sup>th</sup> Edition (DSM-5)

The DSM-5 defines SUD by combining the DSM-Fourth Edition (DSM-4) criteria with criterion for cravings.<sup>11</sup> To be diagnosed with SUD, patients must be screened positive for two out of the twelve criteria with at least one specific substance such as alcohol, nicotine, or other illicit drugs.<sup>3,11</sup> However, the application of the DSM-5's definition of SUD is limited in the older adults, because some of its criteria no longer apply. Physiologic change of aging can obscure tolerance to substances.<sup>7</sup> Moreover, older adults are more likely to be retired and have a more limited social network. This negates the criteria for substance abuse interference on employment and personal relationships.<sup>7</sup>

### Comorbidity Alcohol Risk Evaluation Tool (CARET)

Due to the limitations of the DSM-5, the CARET is useful in diagnosing SUD in older adults. It incorporates the unique socioeconomic characteristics of the older adults.<sup>3</sup>

### Treatment of SUD

Current research suggests that the available substance abuse treatment for older adults can be similar to the younger population. But, due to physiologic changes of aging (i.e., decline in liver function, decreased renal clearance), age-sensitive approaches to SUD treatment is needed. For example, due to older adults' sensitivity to change, inpatient detoxification may be recommended for older adults.<sup>12</sup> Inpatient treatment programs are the preferred option for older adults with

underlying medical or mental health diagnoses or desiring supervised withdrawal.<sup>3</sup>

Non-pharmacologic treatment of SUD involves motivational interviewing in the primary care and specialty addiction clinics. Studies show that patients are more successful when their addiction is addressed by their primary care clinician.<sup>8</sup> Motivational interviewing helps patients explore the different triggers for the addiction and encourages behavior changes as defined by the patient.<sup>3</sup> Formal psychotherapy, group therapy, positive thinking skills training, and organized self-help groups such as Alcoholics Anonymous and Narcotics Anonymous are also helpful in supporting the individual's treatment and recovery phases of SUD.<sup>3,13,14</sup> Cognitive behavioral therapy (CBT) is the gold standard treatment for stimulant use in older adults, as there are no Food and Drug Administration (FDA)-approved pharmacological treatments available.<sup>3</sup>

Pharmacologic treatment of SUD has been extensively studied in adult patients but not older adults.<sup>3,12</sup> There are no randomized, control trials

that study pharmacologic treatment of SUD in older adults.<sup>3,12</sup> Disulfiram, acamprostate, and naltrexone have indications for alcohol abuse. Bupropion, varenicline, and nicotine replacement are options for nicotine dependence.

And buprenorphine, naloxone, and methadone are used in opiate, methamphetamine, and heroin use disorders. BZD use disorder, specifically, needs to be medically supervised with a slow taper spanning at least four weeks.<sup>3</sup> See table 2 for more information about the pharmacologic treatment.

## Conclusion

Even though the need for addiction treatment in older adults has increased, only 18% of the substance abuse treatment programs are specifically designed for the older adult population. Older adults have different barriers to treatment that include geographic or social isolation, limited mobility, financial problems, transportation issues, and shame regarding substance use.<sup>3,17</sup>

**Table 2.** Pharmacologic treatment of substance use disorders (SUDs)

Substance disorder	Pharmacologic agent	Clinical features
Alcohol use disorder	Disulfiram	- Use with caution as adverse reactions can increase fall risk
	Acamprostate <sup>3</sup>	- Avoid in chronic kidney disease (creatinine clearance < 30 ml/min) - Helps with sleep and mood
	Naltrexone <sup>3</sup>	- Avoid in chronic liver disease - Not as well tolerated in older adults - Avoid using with concomitant opiate therapy - Increases fall risk - Can decrease appetite
Nicotine use disorder	Bupropion <sup>15</sup>	- Avoid if history of seizures, eating disorder, psychosis - Avoid if taking an MAO inhibitor medicine - Half-life is prolonged in older adults - Decrease usual dosage and/or frequency if renal or liver function impairment
	Varenicline <sup>15</sup>	- Limited research in older adults - Adjust dosage and frequency if creatinine clearance < 30 ml/min - May increase the risk of heart attack in people with CVD
	Nicotine replacement <sup>15</sup>	- Pharmacologic agent mostly studied in older adults - Effective for smoking cessation among older adults
Opiate, methamphetamine, heroin use disorders	Buprenorphine <sup>3</sup>	- Limited research in older adults - Avoid using with concomitant opiate therapy
	Naloxone <sup>3</sup>	- Limited research in older adults - Avoid using with concomitant opiate therapy
	Methadone <sup>16</sup>	- Increased risk of drug-drug interaction - Associated with prolongation of the QT interval - Impending risk of accumulation due to a prolonged half-life elimination - Difficult to titrate because of its large variability in pharmacokinetics, particularly in older adults - Avoid using with concomitant opiate therapy

MAO: Monoamine oxidase inhibitors; CVD: Cardiovascular disease

These barriers need to be considered in addressing SUD in older adults. Although it is a daunting task that requires time to address, once in treatment, older adults respond well and, in some cases, even better than younger adults.<sup>17</sup>

### Conflict of Interests

The Authors have no conflict of interest.

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### Authors' Contribution

Study conception and design: EEJ, VN; literature review: NS, JD; analysis and interpretation of the literature: WL, VN; draft manuscript preparation: EEJ, NS, JD, WL. All authors reviewed and approved the final version of the manuscript.

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## اختلال سوء مصرف مواد در سالمندان: مقاله مروری کوتاه

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### مقاله مروری

### چکیده

**مقدمه:** سوء مصرف مواد بین افراد ۶۵ سال و بالاتر با شیوع تخمینی ۴ درصد، در حال افزایش است. شایع‌ترین مواد مورد سوء مصرف شامل الکل، داروهای تجویزی مانند داروهای مخدر، بنزودیازپین‌ها (Benzodiazepines یا BZD) و داروهای بدون نسخه (Over-the-counter یا OTC) می‌باشد. اعتقاد بر این است که این افزایش تا حدی توسط نسل بیبی بومرها یا نسل انفجار جمعیت (بین سال‌های ۱۹۴۶ تا ۱۹۶۴ متولد شده‌اند) که در سنین پایین‌تر در معرض الکل و مواد مخدر قرار داشتند، تقویت شده است. تشخیص سوء مصرف مواد در افراد سالمند دشوار است، اما پس از شناسایی، چالش‌های خاص خود را به همراه دارد؛ چرا که تنها ۱۸ درصد از برنامه‌های درمان سوء مصرف مواد برای این جمعیت رو به رشد طراحی شده است. به طور کلی، سوء مصرف مواد ممکن است خطر شکستگی‌های ناشی از افتادن‌های مکرر، از دست دادن حافظه، اختلالات خواب، اضطراب و افسردگی را افزایش دهد. در پژوهش حاضر، به بررسی علایم و نشانه‌ها، عوامل خطر، ابزارهای غربالگری، معیار تشخیصی راهنمای تشخیصی و آماری اختلالات روانی (Diagnostic and Statistical Manual of Mental Disorders-5<sup>th</sup> Edition یا DSM-5) و چالش‌های درمان سوء مصرف مواد در افراد سالمند پرداخته شد.

**واژگان کلیدی:** سالمند؛ سالمندی؛ اختلالات مرتبط با مصرف مواد؛ وابستگی شیمیایی

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