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Prevention and Screening of Unhealthy Substance Use by Older Adults

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SYNOPSIS

The number of older adults who engage in unhealthy substance use is expected to increase substantially to levels never seen before. Older adults, due to physiological changes in aging, are at high risk for the adverse effects of alcohol and illicit drug use. Screening and prevention can help older patients be better informed of the risks of substance use, and reduce high-risk behaviors and its potential negative outcomes. The authors review the prevalence and trends of substance use, their potential impact on health outcomes, and discuss an approach to screening and prevention for older adults.

Keywords

Older adults; substance use; screening tools; prevention; assessment tools

Introduction

Historically, older adults have not had high rates of substance use, and previously, older adults reduced their substance use with increasing age.[1] However this is changing considerably with the aging population and the large Baby Boomer generation, who have higher reported rates of substance use compared to any preceding generation, and changing attitudes towards alcohol and recreational use of illegal drugs.[2–4] Therefore, the rates of substance use by older adults and the number at risk for its unhealthy use will increase.

Unhealthy substance use is typically defined as the use of alcohol more than guideline-recommended levels[5] or the use of tobacco products, illegal drugs or the non-medical use of prescription drugs (use for the feeling or experience or taking more than prescribed), and

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includes the full range of harmful use and substance use disorders (SUDs).[6] Based on the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5), the diagnosis of SUDs is established by a pattern of use that causes clinically significant functional impairment [Table 1].[7] The DSM-5 brought notable changes in the nomenclature of SUDs with the elimination of the terms substance abuse and dependence.

Substance use may have important health impacts, especially among older adults who are at higher risk for chronic diseases and who often take more medications than younger adults. Adults with SUDs have higher hospitalization rates, and acute health care costs, in comparison to the general population.[8] Given the possible negative impacts of alcohol and drug use on chronic diseases and drug-medication interactions among an aging population, screening and prevention of unhealthy substance use is critical to address the potential enormous public health impact of increasing substance use by older adults.

Prevalence of use and health-related risks of alcohol, tobacco, and other drugs Alcohol use

Unhealthy alcohol use is common, and alcohol accounts for one of the leading causes of preventable death in the United States.[9] Alcohol remains the most commonly used substance among older adults, and is expected to continue to rise considerably.[10] The 2013/2014 National Survey on Drug Use and Health (NSDUH) showed estimated the prevalence for alcohol use within the past year among older adults to be 62.1% with rates of binge drinking to be 21.5% in older men and 9.1% in older women, and alcohol use disorders were estimated to be 5.1% in men and 2.4% in women.[11] These national estimates represent dramatic increases from 2005/2006 with a 19.2% relative increase in binge drinking and 23.3% relative increase in alcohol use disorders among older adults.[11]

While there is evidence that moderate alcohol use (usually 1 drink daily) may be associated with decreases in morbidity and mortality among older adults[3,12] the risk of mortality increases with heavier drinking.[12] There are physiological changes that occur with aging that place older adults at higher risk for adverse outcomes including diminished liver function, decreases in total body water, and neuronal sensitivity to alcohol which increases sensitivity and decreases tolerance of alcohol.[13] In addition, alcohol can cause or exacerbate medical conditions in older adults such as hypertension, arrhythmias, hemorrhagic stroke, cirrhosis, gastrointestinal bleeding, and certain cancers.[14] This makes older adults particularly vulnerable to the negative effects of alcohol, particularly when drinking in excess of recommended drinking limits.[15] In addition, prescribed medications have the potential to interact with alcohol, and can lead to adverse effects.[16] Specifically, binge drinking may be particularly harmful for older adults and may increase the risk for unintentional injuries (i.e. falls) and negatively impact existing chronic diseases.[17–18]

Due to these vulnerabilities, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommends a lower threshold for recommended drinking limits for both older men and women. For older adults (>65 years of age) who are healthy and do not take medications the recommended guidelines include no more than 3 drinks on a given day and no more than 7 drinks in a week [Box 1].[18] Proposals have been made to lower recommended drinking limits based on comorbidities for older adults.[16] However, many

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older adults and their providers may not be aware of the NIAAA lower drinking recommended guidelines for older adults, and continue to drinking at potentially unhealthy levels as they age.

Tobacco use

An estimated 8.4% of adults 65 are current smokers.[19] Unlike alcohol, there are no possible health benefits of smoking, and its health risks particularly for cardiovascular and pulmonary systems along with the increased risk for malignancy and mortality are all well documented.[20] For older adults, smoking has been associated with cognitive decline,[21] functional limitations,[22] and places older adults at a higher risk for geriatric conditions.[23] While most older smokers have attempted unsuccessfully to quit on multiple occassions,[24] the benefits of smoking cessation are clear at any age. Many studies have confirmed that quitting smoking, even after the age of 65 results in significantly reduced mortality compared to those who continue to smoke.[25]

Illegal drug use

The same physiologic changes with aging that increase the effect of alcohol in older adults also increase the effect of other drugs including benzodiazepines, opioids, and marijuana. With widespread changes in attitudes towards marijuana, its legalization for recreational use in several states, and its increasing use for medicinal purposes, marijuana use is more prevalent than other "illicit" drugs among older adults.[26–27] The NSDUH estimated a national prevalence of past-year marijuana use in 2012/2013 of 4.8% among older adults with a 57.8% relative increase from 2006/2007 among adults aged 50–64 and a 250% relative increase among adults 65.[26] While marijuana and its cannabis formulations may be useful as a medical treatment for seizures, multiple sclerosis, chronic pain, and other chronic conditions,[28] research into its benefits are limited, and the risks of marijuana for older adults are largely unknown. Some evidence suggests that marijuana's effect on increasing the heart rate may increase the risk for cardiovascular disease and that smoking marijuana may also increase the risk for lung disease and infections.[28] Marijuana has been linked with an increased risk of cerebrovascular events,[29] may have significant drug-drug interactions,[28] and there are concerns about its effects on short-term and long-term cognitive funcitoning.[30] Future studies are needed to help providers balance the potential risks and benefits of marijuana use among older adults, particularly among those with multiple chronic conditions and high prescription medication use.

The use of other illicit drugs besides marijuana remains low among older adults in the general population.[2–3] While only 0.41% of adults 50 and older reported past year use of cocaine in the 2005/2006 NSDUH[2], other studies done in inner-city hospital settings however show a substantially higher prevalence of cocaine use among older adults ranging from 2%–2.3%.[31–32] Older adults may be particularly vulnerable to the adverse effects of cocaine use, particularly on the cardiovascular and cerebrovascular[33] systems that can lead to disability or sudden death. Similarly, while the NSDUH estimated the prevalence of past-year heroin use by older adults to be 0.03%, in certain populations there is a higher prevalence, for example New York City has seen dramatic increases in opioid treatment program utilization by older adults for problems with heroin use.[34]

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Prescription drug misuse

Older adults widely use medications, as one US representative study found among adults 62–85 years of age, at least 87% used at least one prescription medication and 36% used five or more.[35] This places older adults at increasing risk for drug-drug interactions and misuse, and one study found at least one in four older adults use psychoactive medications with misuse potential.[36] The result has been dramatic increases in emergency department visits involving prescription misuse by adults 50 and older (an increase of 121% from 2004 to 2008) with pain relievers and medications for anxiety or insomnia being the most common culprits.[37]

This has been occurring in the setting of the quadrupling of prescription opioid analgesics in the last decade, particularly among older adults.[38] An estimated 1.4% of adults aged 50 and over used prescription opioids non-medically in the past-year.[2] Older adults are at particularly high risk for opioid overdose and older adults with opioid use disorders are at risk for higher mortality.[39] Further study is needed to better understand the impact of chronic opioid use on chronic conditions, functional status, and health care utilization among older adults. The other medication often prescribed to older adults with high misuse potential are benzodiazepines. Despite well documented risks of benzodiazepines in older adults, which include falls, cognitive impairment, delirium, fatigue, and potential adverse interactions with prescribed medications,[40] benzodiazepines continue to be widely prescribed to older adults with rates as high as 30% in some populations.[41–42] Providers need to be aware that for older adults, benzodiazepines should never be used as a first-line treatment for agitation or insomnia, and that long-acting benzodiazepines should never be used for any indication by older adults.[43]

Prevention and Screening

Prevention—The prevention of unhealthy substance use and SUDs includes abstinence and reductions in the amount of substance use. While there is scant evidence regarding universal prevention programs targeted for older adults to abstain or reduce substance use, some health education programs have been shown to increase knowledge regarding unhealthy alcohol use among older adults.[44–45] In the setting of the prescription opioid epidemic, careful prescribing practices can help prevent prescription drug misuse. Providers need to be aware of a patient’s history of unhealthy alcohol or drug use, and try to avoid prescribing drugs that can place patients at an increased risk for misuse or relapse.[46] In addition, prescription drug monitoring programs[47] and online training programs in managing chronic pain and opiate prescribing (including the CDC Guideline for Prescribing Opioids for Chronic Pain[48], available at: https://www.cdc.gov/drugoverdose/prescribing/guideline.html) are useful tools to help providers practice safe prescribing and prevent prescription drug misuse. The need for scientific research in non-addictive treatments for chronic pain is a priority at the NIH.[49]

Screening—Despite the increasing prevalence of unhealthy substance use among older adults, they are less likely to be screened for unhealthy substance use compared to younger adults.[3] Screening for substance use faces many barriers including lack of time and the challenges of integrating screening into regular clinical workflow both in primary care and

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in the inpatient setting.[50–51] In addition, both patients and providers may be uncomfortable discussing and reporting stigmatized behavior such as substance use.[52] Also the similarities of the signs and symptoms of substance use may be mistaken for manifestations of other chronic diseases, and a common perception among older adults is that symptoms of substance use are related to aging or other diseases and not to the substance itself.[3] Regardless of its difficulties, universal screening will help identify patients who may be at risk for or are currently engaging in unhealthy substance use behaviors.

Approach to screening—When assessing individuals of any age regarding substance use, it is vital to understand that stigma is a major barrier for people with SUDs from seeking and receiving help.[53] Therefore, it is imperative that the language used when discussing issues of substance use with patients does not further stigmatize. In 2016, The White House Office of National Drug Control Policy released guidance on the importance of language surrounding addiction.[54] In general it recommended to use the more medically accurate terminology of "substance use disorder," "unhealthy use," or "harmful use" and remove stigmatizing language such as *addict*, *abuser*, and *addicts*.[54–55] This may be especially important when talking with older adults who have lived through the punitive language surrounding the "war on drugs" and may be particularly sensitive to the use of such stigmatizing language, and therefore not as forthcoming with problems with substance use.

Scientific evidence shows that SUDs are a chronic brain disease, often with periods of recurrence, and a strong genetic component that can produce profound changes in the brain structure and function.[54] Thus, it is important that providers talk with patients about substance use in the same way they discuss other chronic medical conditions such as cardiovascular disease or diabetes. Therefore, the discussion surrounding alcohol and other substance use should take place in the context of an older adult's overall assessment with the goals of improving health, maintaining function and independence, and improving quality of life.

When screening older adults for unhealthy substance use it is also important to recognize that specific biologic and social factors unique to older adults may pose challenges in the accurate diagnosis of SUDs. Table 1 presents several DSM-5 criteria for SUDs and list special considerations for older adults. Many of the DSM-5 criteria may not be relevant to many older adults due to changes in role obligations or social isolation, or physiological changes of aging that affect tolerance to certain drugs.[3]

Screening tools—Several screening instruments for substance use are available for a range of substances (alcohol, tobacco, illicit drugs, and prescription drugs), but only a handful were designed specifically for and validated in older adults. Interview-administered 1-item and 2-item screening tests for unhealthy alcohol and other drug use have been validated in the general population, and may be a way to initiate asking about substance use [Box 2].[56–58] An alternative are self-administered screening tools, which may help patients feel more comfortable reporting stigmatized behavior. One example is the Substance Use Brief Screen (SUBS), which is a self-administered brief screener for tobacco, alcohol, and drug use (illegal and prescription) that has been validated in the primary care setting.[59] A negative screen on the 1-item and 2-item screening tests or a self-administered screener

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would indicate that screening is complete and allows the provider to provide reinforcement of healthy use patterns related to substance use. Screening positive would lead to further screening with longer, but more reliable screening instruments.

Selected screening instruments

The CAGE and CAGE-AID—The CAGE questionnaire[60] is one of the most commonly used screening tools for unhealthy alcohol use and has been studied in older adults with a sensitivity of 86% and a specificity of 78% to detect lifetime alcohol use disorders.[61] The limitations of the CAGE is that it does poorly in identifying binge drinkers[62] and does not distinguish between lifetime or current use.

The Michigan Alcohol Screening Test-Geriatric Version—The Michigan Alcohol Screening Test-Geriatric Version (MAST-G)[63] is the first instrument specifically designed to identify drinking problems among older adults. The MAST-G has 24 yes/no questions with 5 or more positive responses indicating problematic alcohol use. The questions focus more on potential stressors and behaviors that are common among older adults. The MAST-G has high sensitivity (95%) and specificity (78%) and generally has strong psychometric properties.[64]

The Alcohol Use Disorders Identification Test (AUDIT)—The AUDIT[65] was developed by the WHO as a screening tool to assess for excessive drinking. The AUDIT has been used in a variety of settings and diverse populations including older adults.[66] The AUDIT contains ten items that assess for alcohol consumption, drinking behaviors, and alcohol-related problems in the past year.

The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)— The ASSIST is another screening instrument developed by the WHO that screens across all substances including tobacco, alcohol and illegal drug use.[67] It is an interview administered screen with 8 questions that help assess the level of risk for the previous 3 months and can guide treatment decisions. The ASSIST, while widely used in research and clinical practice, has not yet been validated in older adults.[3]

The Comorbidity-Alcohol Risk Evaluation Tool (CARET)—The CARET[68] is a screening instrument for alcohol use that identifies older adults with specific health behaviors and risks that place them at increased risk for harm from alcohol. It has been validated in older adults with a high sensitivity (92%), but with a lower specificity (51%) mainly due to most older adults being identified as at-risk given their use of medications.[68]

Assessment, brief intervention, and referral to treatment—Following the steps in the NIAAA and the National Institute on Drug Abuse recommendations, when the initial screening of an older individual indicates they are engaging in unhealthy substance use, it is recommended that clinicians share their findings and make clear recommendations. For example, a provider might say: “Based on your responses to the screening questions, your current use is more than is medically safe.” It is important to relate the advice about substance use to the patient’s overall health, and using non-judgmental, non-stigmatizing

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language. This is an opportunity for providers to deliver a brief intervention that engages the patient in education about the substance, its potential health-related consequences, providing feedback, and advice. It is also an opportunity to share how guidelines specifically relate to older adults, and how substances may adversely impact other chronic diseases. Brief interventions provide the older adult with information about potential harms and consequences of substance use, attempt to enhance motivation to change, and, where needed, refer to more intensive services. Brief interventions that focus on alcohol and prescription medication misuse have been found to be effective for older adults.[69] Brief interventions can vary in length from 15 minutes to 1 hour session, can be performed in almost any clinical setting, and by almost any trained medical staff.

Older adults identified as needing more treatment than brief interventions can deliver should be referred to specialty treatment. The Substance Abuse and Mental Health Services Administration (SAMHSA) Substance Abuse Treatment Services Locator lists and provides information about state-licensed substance use treatment facilities throughout the United States, which currently number more than 11,000. Treatment options specifically tailored for older adults are beyond the scope of this article, but unfortunately are limited and is an area that needs more active research.[3] Screening, brief intervention, and referral to treatment (SBIRT) for substance use is a nationwide, evidence-based, public health approach initiative funded through the SAMHSA.[70] SBIRT has been implemented in a variety of settings, and has been adapted for older adults by SAMHSA funded projects,[71] and has the potential to reach the increasing population of older adults who may engage in unhealthy substance use.

Summary

Alcohol, tobacco, and SUDs are a major public health issue contributing to a devastating increase in overdose mortality, health care costs, and suffering for individuals and their communities. It is important to recognize that the number of older adults who engage in unhealthy substance use is increasing dramatically, and present unique challenges for prevention and screening. There are unique physiologic and social changes with aging that need to be considered in screening older adults for unhealthy substance use behaviors, and providers need to be mindful the language used when talking about substance use and SUDs with their older patients. Finally, the potential harms of substance use in the setting of an increase in chronic medical diseases, geriatric conditions, and medication use needs to be better understood, and should be an area of priority in research.

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KEY POINTS

- Unhealthy alcohol use and illegal drug use among older adults is increasing dramatically with the aging of the Baby Boomer Generation.
- Substance use disorders are a chronic and often relapsing brain disease that may be difficult to recognize in older adults.
- Due to the physiological changes of aging, concurrent chronic medical diseases, and high usage of prescription medications, older adults are at particularly high risk for the adverse effects of alcohol and illegal drugs.
- When screening and discussing substance use with older adults it is important to use non-judgmental and non-stigmatizing language.

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Box 1

National Institute on Alcohol Abuse and Alcoholism (NIAAA) guidelines for alcohol use for older adults

1. Healthy adults over the age of 65 who do not take medications should not consume more than:

   7 standard drinks per week

   Or

   3 standard drinks on any given day

2. A standard drink is defined as:

   One 12-ounce can or bottle of regular beer, ale, or wine cooler

   One 8- or 9-ounce can or bottle of malt liquor

   One 5-ounce glass of red or white wine

   One 1.5-ounce shot glass of distilled spirits (gin, rum, tequila, vodka, whiskey, etc). The label on the bottle will say 80 proof or less.

Adapted from the National Institute on Alcohol Abuse and Alcoholism (NIAAA). Older Adults and Alcohol. Rockville (MD): NIAAAA; 2015. Available at: https://pubs.niaaa.nih.gov/publications/olderAdults/olderAdults.htm. Accessed June 5, 2017.

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Box 2

One-item and 2-item screening tests for alcohol and/or other drug misuse for older adults

Single-question screening test for unhealthy alcohol use[56]:

> Question: "How many times in the past year have you had 4 or more drinks in a day?"
>
> Response: A response of >1 is positive

Single-question screening test for drug use[57]:

> Question: "How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?"
>
> Response: A response of 1 is positive

Two-item conjoint screen for alcohol and other drug problems[58]:

> Questions: "In the last year, have you ever drunk or used drugs more than you meant to?"
>
> "Have you felt you wanted or needed to cut down on your drinking or drug use in the last year?"
>
> Response: A response of 1 is positive for a current substance use disorder

Adapted from: S. Strobbe Prevention and screening, brief intervention, and referral to treatment for substance use in primary care. Prim Care 2014; 41(2): 185–213; with permission.

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Table 1

SUD (formerly substance abuse or dependence) criteria[a]

DSM-5 Criteria for SUD	Consideration for Older Adult
A substance is often taken in larger amounts or over a longer period than was intended.	Cognitive impairment can prevent adequate self-monitoring. Substances themselves may more greatly impair cognition among older adults than younger adults.
There is a persistent desire or unsuccessful efforts to cut down or control substance use.	It is the same as the general adult population.
A great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects.	Consequences from substance use can occur from using relatively small amounts.
There is craving or a strong desire to use the substance.	It is the same as the general adult population. Older adults with entrenched habits may not recognize cravings in the same way as the general adult population.
There is recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or at home.	Role obligations may not exist for older adults in the same way as for younger adults because of life-stage transitions, such as retirement. The role obligations more common in late life are caregiving for an ill spouse or family member, such as a grandchild.
There is continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance.	Older adults may not realize the problems they experience are from substance use.
Important social, occupational, or recreational activities are given up or reduced because of substance use.	Older adults may engage in fewer activities regardless of substance use, making it difficult to detect.
There is recurrent substance use in situations in which it is physically hazardous.	Older adults may not identify or understand that their use is hazardous, especially when using substances in smaller amounts.
Substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.	Older adults may not realize the problems they experience are from substance use.
Tolerance is developed, as defined by either of the following: **1** A need for markedly increased amounts of the substance to achieve intoxication or the desired effect **2** A markedly diminished effect with continued use of the same amount of the substance	Because of the increased sensitivity to substances as they age, older adults will seem to have lowered rather than increase in tolerance.
Withdrawal, as manifested by either of the following: **1** The characteristic withdrawal syndrome for the substance **2** The substance or a close relative is taken to relieve or avoid withdrawal symptoms	Withdrawal symptoms can manifest in ways that are more “subtle and protracted.” Late-onset substance users may not develop physiologic dependence; *or* nonproblematic users of medications, such as benzodiazepines, may develop physiologic dependence.

[a]SUD is defined as a medical disorder in which 2 or more of the aforementioned listed symptoms are occurring in the last 12 months

Adapted from Barry KL, Blow FC, Oslin DW. Substance abuse in older adults: review and recommendations for education and practice in medical settings. Subst Abus 2002;23(Suppl 3):105–31; and *Data from* American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th edition. Arlington (VA): American Psychiatric Publishing; 2013. p. 491.

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