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Substance-Related and Addictive Disorders

Rachel D. Maree and Craig A. Riccelli

Introduction

Substance use is a widely recognized medical and public health problem affecting patients across the lifespan [1]. The US Census Bureau has estimated that the population aged 65 years and older will be 72.1 million in 2030, almost double its estimated population of 40.3 million in 2010. This significant increase is due to the aging of the baby boomer cohort, as they began turning 65 years old in 2011 [2]. It has been established that substance use disorders both exist and persist among older adults [3]. As the baby boomers, who have had higher rates of substance use than those previously 65+ continue to age, it is estimated that older adults will have increasing rates of substance use, likely due to cohort effects. In fact, it is estimated that at least 5.7 million Americans aged 50 years and older (50+) will need substance misuse treatment in the year 2020 [4, 5]. Majority of substance use literature to date as it relates to older adults has been published on alcohol. There is limited published research on national prevalence rates of other specific substance use disorders among older adults and even fewer investigations into specialized treatments and interventions targeted toward this age group. As the baby boomer generation continues to age, older adults will increasingly present for first time substance use treatment [6]. The aging of the baby boomer cohort and the noted increase in substance use among those 65+ are areas of concern that require special thought for practitioners and providers.

Epidemiology

Alcohol

Previous National Survey on Drug Use and Health (NSDUH) results have shown significant levels of current, binge and heavy alcohol use for persons age 50+ [7]. The 2013 NSDUH results showed that 41.7% of adults aged 65+ used alcohol within the past month and considered 9.1% of those users to engage in binge drinking (5+ drinks on same occasion on at least 1 day in the past 30 days) and 2.1% to engage in heavy alcohol use (5+ drinks on same occasion on 5+ days in the past 30 days) [8]. Of note, estimates of alcohol problems are higher among health-care seeking populations as drinkers are more likely to seek medical care [9]. Older adults with medical, social, and emotional problems are also at higher risk for alcohol and other substance use, and this substance use can aggravate other medical comorbidities [10]. In a 2010 study of 3308 drinkers aged 60+ in primary care clinics, 21.5% of participants were identified as at risk of harm due to combined use of alcohol in the context of comorbidities, 21.2% were noted to be at risk of harm due to combined use of alcohol and medications, and 22.3% were found to be at risk based on alcohol use alone. Over half of the participants (56.1%) fell into more than one risk category [11].

Cannabis

Data from the 1999 to 2001 NSDUH estimated that 719,000 older adults aged 50+ used marijuana

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in the past year (1.1% of older adults). This was estimated to increase to 3.3 million in 2020 (355% increase), reflecting the increase in population and a 190% increase in rate of marijuana use, from 1.0 to 2.9% [12]. Based on data from the NSDUH from 2005 to 2006, 2.6% of respondents reported marijuana use in the last year. The use of marijuana was more prevalent in the 50–64 age groups (4%), rather than 65+ group (0.7%). This data also found that major depression was associated with higher prevalence of marijuana use (6.54%). Other subsets of the population associated with higher prevalence of marijuana use were sex (male 3.96% vs. female 1.39%), race/ethnicity (highest being American Indian or Alaskan Native 5.29% followed by African-American 3.78%), and marital status (never married, 5.23%) [13]. In 2012, 4.6 million adults aged 50+ reported past-year marijuana use [14]. These numbers reflect a rapid increase in the number of older adult marijuana users than previously projected. Nearly half of the United States and Washington D.C. have legalized marijuana use in some capacity. The increasing number of states legalizing the use of medicinal marijuana and decriminalizing recreational use will likely contribute to the rapidly growing number of older adult marijuana users [15].

Tobacco

Estimates have shown that among adults aged 65+, 14% reported tobacco use in the last 12 months. Another study estimates that nearly seven million adults aged 60+ are smokers [16]. Older adult smokers also tend to be long-term, heavy smokers. Tobacco use is independently associated with greater mortality, including increased risks of coronary events, cardiac deaths, smoking-related cancers, chronic obstructive lung disease, decline in pulmonary function, development of osteoporosis, risk of hip fractures, and poorer physical functioning. Rates of cardiovascular disease among adults 50+ are higher among individuals with comorbid drug use and cigarette smoking as compared to individuals with drug use alone (74 vs. 44%, respectively). Similarly, rates of pulmonary disease are higher in the comorbid smoking and drug use group as well (38 vs. 13%, respectively) [14, 17]. These stark differences highlight the potentially adverse physiologic effects of tobacco use.

Prescription Drug Use

The number of older adults age 50+ misusing prescription substances, defined as using pain relievers, stimulants, tranquilizers, and sedatives without a prescription or taking them for the feeling or experience they caused) is projected to increase approximately 190%, from 911,000 based on 1999 to 2001 data to 2.7 million in 2020. This reflects a doubling in the rate of use from 1.2 to 2.4%. Men accounted for 44% of prescription drug misuse in 1999–2001 and are expected to account for 52% in 2020. The age distribution in 1999–2001 showed 62% in their 50s and 19% in their 60s; in 2020, the age distribution of projected users is expected to show 48% in their 50s and 37% in their 60s, reflecting a significant increase in an almost 20-year time span [4]. In 2007, 4.62% of Medicare Part D recipients received greater than 90 days of prescriptions for combined schedule II/III opioids, and this percentage was noted to be 7.35% in 2012 [18]. Factors associated with prescription drug abuse in older adults include female sex, social isolation, history of a substance use or mental health disorder, and medical exposure to prescription drugs with abuse potential [19].

In 2007, an analysis of the Treatment Episode Data Set (TEDS) that assesses national admissions to substance abuse treatment services found that methamphetamine/ amphetamine was the primary substance for 7.87% (142,832 admissions) of all admissions, of which 3.75% were 50+. Other stimulants were the primary substances for 896 admissions, of which 8.4% were age 50+ [20, 21]. Data from 2013 showed that amphetamines and other stimulants were the primary substances used for 8.2% of admissions with the following age distributions: 51–55, 7.5%, 56–60, 2.9%, 61–65, 0.8%, and 66+ 0.1% [22]. These data do not show dramatic changes in the percentages for this demographic but do show that stimulant use among older adults has been consistent and should not be overlooked.

Illicit Substance Use

Based upon the 1999–2001 data, the overall number of illicit drug users, characterized in this study as marijuana, cocaine, inhalants, hallucinogens, heroin, and prescription type psychotherapeutic drugs, is projected to increase from 1.6 to 3.5 million in 2020. The sex distribution of users is expected to remain stable at 48% women and 52% men. Distribution by race/ethnicity will not change radically, but the proportion in their 50s will decline from 74 to 51%, whereas representation of persons in their 60s is expected to increase from 14 to 37% [4].

Neurobiology Including Risk Factors

Many neurotransmitters are involved in the effects of various types of drugs of abuse (Table 20-1). However, dopamine has been shown to have significant effects on reinforcing use. Research has shown that drugs of abuse promote faster and longer extracellular dopamine release than other natural factors that reinforce drug use. This increase in dopamine can occur by inhibiting dopamine reuptake from the synaptic cleft or by promoting the release of dopamine into the cytoplasm [23].

Urine drug screens are useful for screening and as confirmation of verbal reports of substance use. Depending on the type of drug and frequency of use, it can be detected in the urine up to periods ranging from 12 h to several weeks.

Table 20-1. Neurotransmitter targets of commonly misused substances [24]

Drug	Neurotransmitter
Cocaine, amphetamines	Dopamine, serotonin, norepinephrine
Opioids	Endogenous opiates
Nicotine	Acetylcholine
Alcohol	GABA, glutamate
Marijuana	Endogenous cannabinoids
PCP, ketamine	Glutamate
LSD and other hallucinogens	Serotonin

GABA, γ-aminobutyric acid; *PCP*, Phencyclidine; *LSD*, lysergic acid diethylamide

Additional biomarkers have been studied for alcohol use. Liver function tests, including alanine transaminase (ALT), aspartate transaminase (AST), and gamma-glutamyl transpeptidase (GGT), can be tested in the blood and are sometimes used as indicators of chronic or more acute alcohol use. It should be noted that elevations in these biomarkers are not specific to alcohol use. Other markers of chronic alcohol use include percent carbohydrate-deficient transferrin (% CDT), mean corpuscular volume (MCV), and high-density lipoproteins (HDL), each of which would be elevated in the setting of chronic alcohol use [25].

Adverse events associated with substance use in older adults are in part related to altered hepatic metabolism and changing proportions of body fat and water which may impact effective dosing of various substances. Drug interactions also increase with age due to the likelihood of a higher number of pharmacologic agents being prescribed and because of changes in metabolism associated with age [26, 27].

Diagnosis

The general diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders* Fifth Edition (DSM-5) can be found in Table 20-2. These criteria can be applied to all

Table 20-2. DSM-5 substance use criteria and considerations for older adults [28, 29]

DSM-5 substance use disorder criteria At least two of the following over a 12-month period	Considerations for DSM criteria in older adults
Substance is taken in larger amounts or over a longer period than was intended	Substance use can exacerbate cognitive impairment and ability to self-monitor
Persistent desire or unsuccessful efforts to cut down or control substance use	
A great deal of time is spent in activities necessary to obtain, use, or recover from effects of substance	

(continued)

Table 20-2. (continued)

DSM-5 substance use disorder criteria At least two of the following over a 12-month period	Considerations for DSM criteria in older adults
Craving or a strong desire or urge to use substance	Older adults may have chronic habits related to substance use that they do not identify as cravings
Recurrent use resulting in a failure to fulfill major role obligations at work, school, or home	Role obligations for older adults can be significantly different given life transitions (i.e., retirement)
Continued use despite persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance	Older adults may have limited insight regarding substance use as a cause of their problems
Important social, occupational, or recreational activities are given up or reduced because of use	Older adults may not have a reduction in these activities despite substance use
Recurrent use in situations in which it is physically hazardous	Older adults may have limited insight regarding substance use as a cause of their problems
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	
Tolerance—need for markedly increased amounts OR markedly diminished effect with continued use of the same amount	Older adults can have increased sensitivity due to physiological changes with metabolism
Withdrawal—the characteristic withdrawal syndrome OR substance is taken to relieve or avoid withdrawal symptoms	May not develop physiologic dependence depending on the onset and type of substance used

classes of substances with the exception of caffeine. Severity of substance use disorders as per the DSM can be defined as mild (2–3 symptoms), moderate (4–5 symptoms), and severe (6 or more symptoms).

Complicating the identification of substance misuse problems in late life is the fact that substance use or intoxication may present similarly to depression, delirium, or dementia [30, 31]. Hence, practitioners should make every effort to screen and assess for these comorbidities that may present similarly or in addition to comorbid substance use. Data from the 2009 NSDUH found that some of the DSM-5 criteria, as listed in Table 20-2, need special consideration in older adults due to the physiology of aging and unique social circumstances older adults may face. With this in mind, strictly using the DSM-5 may result in under diagnosis of older adults with SUDs [14].

Another approach in diagnosing older adults with SUDs is a two-tier categorical classification: at risk and problem use. The first tier is defined by use of a substance more than the recommended amount. Problem use emphasizes the potential negative impact associated with use instead of the quantity and frequency of use [14]. When considering prescribed substances, there is also the potential for misuse of substances. Misuse can include adjusting doses without direction from a prescriber, unintentionally taking larger doses than prescribed or taking medication for indications other than the intended use [32]. Assessment for misuse may help patients adhere to medications as prescribed and reduce the potential for adverse effects associated with some prescription medications.

Most of the screening and diagnostic research in older adults has been done with alcohol. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the American Geriatrics Society (AGS) recommend no more than three drinks per day or seven drinks per week for adults over age 65 who are healthy and do not take medications [33]. There are several tools that can be used to screen and assess for alcohol use in older adults.

The CAGE questionnaire is a brief measure that asks four lifetime questions regarding cutting down use, being annoyed by others, feeling guilty about use, and needing an eye-opener in the morning. More than two responses indicate substance use disorder. A major limitation of the CAGE is that it does not distinguish between current and lifetime use. This is an especially difficult issue among those who are aging and have a history of problematic use without having a current problem. Because of the brief nature of the CAGE, it can be a useful screening tool, but it should not be a substitute for a more thorough assessment. It also does poorly in detecting heavy or binge drinkers. In a study assessing potentially

hazardous alcohol use among 5065 patients aged 60+ in primary care settings, the CAGE had 35% sensitivity and 96% specificity in detecting binge drinkers [34]. The CAGE-AID, with the AID meaning adapted to include drugs, is a modified version of the CAGE that assesses for alcohol and other drug use as well. It has not been validated in older adults.

The Michigan Alcohol Screening Test comes in a geriatric form (MAST-G) and a short, geriatric form (S-MAST-G) (Table 20-3). Both are used to identify those at risk for negative outcomes related to alcohol use. The MAST-G focuses more on potential stressors and behaviors relevant to alcohol use in late life, as opposed to questions toward family, vocational, and legal consequences of use. The short version has ten questions with two or more positive responses indicating a positive test. Although useful as an indicator of lifetime problem use, it lacks information about frequency, quantity, and current problems important for intervention [14, 35].

The AUDIT was developed and validated in older adults to identify formal alcohol disorders and hazardous drinkers. In a sample of almost 200 adults aged 65+ in primary care centers, the AUDIT was found to have a sensitivity of 66.7% and specificity of 95.3%. The AUDIT-C, which is a shorter version of the AUDIT, had a sensitivity of 100% and specificity of 80.7%. The cutoff threshold to indicate alcohol use disorder among a general population is eight. The AUDIT uses amount of drinking to define hazardous drinking, which may be useful in younger populations, but in older adults, the consideration of any amount of drinking must be weighed with other medical comorbidities and social and environmental problems [36, 37].

To date, there have not been any validated screening measures developed to assess for misuse of other substances in older adults. However, smaller studies have provided some ideas for screening and monitoring. There are screening tools available for benzodiazepine misuse, such as the benzodiazepine dependence self-report questionnaire and the severity of dependence scale [38, 39]. Asking about tolerance and attempts to stop have the greatest evidence as screening measures for older adults with benzodiazepine misuse [40]. Additionally, as substance use in older adults continues to be researched and understood, it will be important for practitioners to familiarize themselves with the most recent legal and medical regulations when evaluating older adults for cannabis use disorder [14].

Table 20-3. Short Michigan alcohol screening test-geriatric (S-MAST-G) [14, 35]

1. When talking with others, do you ever underestimate how much you drink?
2. After a few drinks, have you sometimes not eaten or been able to skip a meal because you didn't feel hungry?
3. Does having a few drinks help decrease your shakiness or tremors?
4. Does alcohol sometimes make it hard for you to remember parts of the day or night?
5. Do you usually take a drink to relax or calm your nerves?
6. Do you drink to take your mind off your problems?
7. Have you ever increased your drinking after experiencing a loss in your life?
8. Has your doctor or nurse ever said they were worried or concerned about your drinking?
9. Have you ever made rules to manage your drinking?
10. When you feel lonely, does having a drink help?

Treatments

The proportion of older adults seeking substance abuse treatment for the first time is growing at a rate faster than that of younger adults, making the focus on the specific needs of this population crucial [41]. Many of the well-studied interventions for older adults with substance use disorders have been conducted with alcohol. Nonetheless, evidence thus far shows that older adults do engage in substance use treatment, are able to complete treatment, and tend to respond well to age-appropriate interventions [42–45]. While there remains much to be discovered in order to tailor non-pharmacologic interventions toward this population, research thus far is promising.

Non-pharmacologic

Alcohol

Non-pharmacologic treatments for alcohol use disorders in the geriatric population have been studied in various settings. Older adults may

benefit from community options, including twelve-step groups such as "Alcoholics Anonymous" and other self-help groups; however, it is important to consider mobility and travel when making these recommendations [46]. Nonpharmacologic interventions have also been studied in inpatient and outpatient settings as well.

The Florida Brief Intervention and Treatment for Elders (BRITE) project, a 3-year pilot program of screening and brief intervention for older adult substance misusers, demonstrated improvements by using a series of brief interventions that included completion of a workbook and cognitive behavioral therapy (CBT) sessions [45, 47]. Additional studies have shown the benefits of addressing alcohol misuse in the primary care setting and utilizing other modes and combinations of treatment including one randomized controlled trial where there were reductions in the amount of drinking at 12 months with multifaceted treatment approach that included a personalized report, booklet about alcohol and aging, a drinking diary, brief advice from a care provider, and telephone counseling [48]. Other modes of treatment can include motivational interviewing (MI), contracting with a physician, CBT, and using care coordination services to maintain long-term sobriety. Positive effects have been noted from these modes of treatment in reducing alcohol use among older adults [45, 49].

Cannabis

Overall, there is a dearth of literature for nonpharmacologic treatment of cannabis use disorder in older adults. However, available evidence indicates efficiency for motivational enhancement therapy (MET), CBT, and contingency management. According to the literature, combining all three modalities had the best results, specifically in reducing frequency and quantity of use [50].

Tobacco

In a study that evaluated treatments specifically tailored for individuals aged 50–74 years, the investigators found that this population prefers clear evidence of the negative consequences of smoking [16]. In addition, they found that potential medical problems associated with smoking are a motivating factor for cessation of tobacco use. Furthermore, this study found that self-help was preferred to group programs for smoking cessation. The smoking cessation guide for smokers aged 50–74 years, "Clear Horizons," was developed based on the findings from this study. After 12 months, the self-reported quit rate of standard versus tailored treatment was 15 and 20%, respectively. Motivational interviewing has been shown to be effective for smoking cessation in older adults [51]. In a study examining MI-enhanced care in older adults, there was a statistically significant increase in attempts to stop smoking and decrease in number of cigarettes smoked that was demonstrated for as long as 12 months post intervention.

Prescription Drugs

Available evidence indicates that sending an intervention letter advising patients to gradually taper their benzodiazepine use, assessing benzodiazepine craving in a treatment intervention aimed at long-term benzodiazepine users, conducting brief interventions, and providing self-help booklets from primary care physicians are methods that can be utilized in the outpatient setting to target prescription drug misuse among older adults [3–5, 31, 47, 52, 53]. Other community and self-help groups like "Narcotics Anonymous," adapted from Alcoholics Anonymous are available for individuals with prescription drug to utilize to reduce their substance use.

Pharmacological

Alcohol

Older adults are at higher risk for medical complications during alcohol withdrawal including myocardial ischemia, delirium tremens, and convulsions when compared to the younger adults [54]. Short-acting benzodiazepines, specifically lorazepam and oxazepam, are recommended for management of acute withdrawal among these individuals. Given the potential physiological changes associated with aging, the effective dosages of these medications are less than those required among the general adult population. Additionally, lorazepam and oxazepam are not hepatically metabolized and can be safely taken by individuals with liver dysfunction [55].

One randomized controlled trial demonstrated that older adults with alcohol use disorder who were given naltrexone were significantly less likely to relapse when exposed to alcohol when compared to the control group of older adults who did not receive naltrexone [14]. The long-acting, injectable formulation of naltrexone may be particularly helpful in older adults with cognitive disorders [54].

Acamprosate has been shown to be effective for alcohol use disorder among older adults with treatment outcomes similar to the general adult population; however, there are no controlled studies assessing the efficacy of this medication specifically for older adults [14]. Studies that have looked at outcomes when combining naltrexone and acamprosate have found limited efficacy for the combined treatment among individuals with alcohol use disorders [54].

Disulfiram has demonstrated some benefit in adults 50+ with alcohol use disorder, but given the significant adverse effects including increased cardiovascular strain associated with its use, it is generally not recommended for use among older adults [14, 54] (Table 20-4).

Although not FDA approved for alcohol use disorder, topiramate and gabapentin are being researched as potential treatments for this disorder. The adverse side effect profile of topiramate, including effects on cognition and increased risk of falls, should be taken into account when considering this medication as a possible treatment for alcohol use disorders among older adults [58]. It should also be taken into account that gabapentin has the potential for misuse and should be prescribed with caution among the older adult population [59].

Cannabis

Based on the most recent review of the available literature, no specific pharmacological agents have demonstrated clear efficacy for treatment of cannabis use disorder in the general adult population or for the older adult population. One study did find a significant decrease in cannabis use among adults with comorbid depression when treated with fluoxetine. Medications such as nefazodone, extended-release bupropion, dronabinol, divalproex, and buspirone have been researched in the general population with non-specific results. As the number of older adults with cannabis use disorder continues to rise, this area proves to be imperative for future research [50].

Table 20-4. FDA-approved medications for alcohol dependence [56, 57]

Medication	Naltrexone	Acamprosate	Disulfiram
Dosage	Oral: 50 mg/day OR 100 mg on Monday and Wednesday and 150 mg on Friday Injectable: 380 mg every 4 weeks	666 mg three times daily	250–500 mg/day; do not take until 12 h after drinking
Mechanism of action	Opioid receptor antagonist	Reduces excitatory glutamate transmission; blocks certain glutamate receptors; increases inhibitory GABA transmission	Aldehyde dehydrogenase inhibitor
General physiologic considerations	Cannot be used in patients using opioid therapy	Can be used in patients prescribed opioids for pain control	Tachycardia, diaphoresis, nausea, and vomiting can be experienced if alcohol is used with this medication
Adverse side effects	Dizziness, headache, GI distress	Diarrhea, nausea	Dermatitis, drowsiness, metallic taste
Special considerations	Use with caution in those with decreased liver function	Can be used in patients with severe liver disease; cautious use in patients with renal insufficiency/chronic renal failure	Avoid in patients with cognitive impairment, cardiac disease, severe liver disease, or alcohol intoxication

Tobacco

Nicotine replacement therapy (NRT), bupropion, and varenicline are all effective and safe pharmacologic agents for tobacco cessation in the general adult population; however, these have been understudied in the geriatric population [60]. There are a variety of NRT products available in the United States, both prescription and over the counter (OTC). The OTC products include the patch, lozenge, and gum, while the prescription products include nasal spray and an oral inhaler each of which has special considerations in older adults (Table 20-5). Of note, a nicotine mouth spray and sublingual tablet are available in other countries but not in the United States [61].

It has been shown that older adults metabolize nicotine slower than young adults; however, it has not been empirically demonstrated that this impacts efficacy of NRT. There is a theoretical risk of increased cardiovascular events with NRT; however, the risk is less than that associated with active tobacco use. Although studies have not demonstrated an increased risk, special consideration should be used with NRT in older adults immediately following a cardiovascular event [60]. Combination NRT (patch plus gum or lozenge) has been shown to be more efficacious in the general population without clear evidence if this is consistent with older adults [61].

Bupropion has been shown to be effective in smoking cessation in adults; however, there is a dearth of information regarding its efficacy among older adults. Blood pressure should be monitored before and during treatment with bupropion. This medication is known to lower the seizure threshold and is contraindicated in those with seizure disorders or certain conditions with high seizure risk [56]. The two most common adverse effects among individuals taking bupropion for smoking cessation are insomnia and dry mouth with discontinuation rates around 10%. The most recent review did not detect a significant difference between bupropion and NRT [60]. The recommended dosing of varenicline is no different in the geriatric population when compared to the general population. Special consideration should be given when using this medication in older adults with comorbid psychiatric conditions as there is limited data for this specific patient population [56]. The most recent review for older adults is limited but suggests that it is more efficacious than bupropion and NRT [60].

Illicit and Prescription Drug Use

There are no widespread, validated measures of treatment for substance use disorders, namely, opioid and sedative/hypnotic/anxiolytic use disorders in older adults. However, previous studies have shown that engaging older adults in a slow, stepwise taper (reduction of 25% of dose every 2 weeks) for benzodiazepines has been effective with reduced risk of complex side effects [63]. Older adults are and will also be engaged in various treatment modalities for drugs including methadone, buprenorphine, buprenorphine/naloxone, and naltrexone, but there are limited studies assessing differences in treatment need and special considerations for this population. Medical comorbidities should be considered when starting or continuing these treatments in older adults. Recent research on pharmacological interventions for cocaine use disorder includes

Table 20-5. Nicotine replacement therapy (NRT) and special considerations for older adults [62]

Type of NRT	Available dosage	Side effects	Considerations in older adults
Patch	7 mg, 14 mg and 21 mg	Local skin irritation	Daily dosing, which may be particularly beneficial in those with cognitive
Gum	2 mg and 4 mg	Buccal mucous irritation, sore jaw and nicotine related as listed below	Requires specific dosing for maximal results; should not be use in those with poor dentition, temporomandibular joint disorders, or dental appliances
Lozenge	2 mg and 4 mg	Abdominal pain, nausea, vomiting, diarrhea, headache, and palpitations	Easier to use than gum

clinical trials assessing medications impacting the dopamine neurotransmitter pathways, a cocaine vaccine, and plant-based therapy. None of these interventions have been specifically studied in older adults [64]. Studies assessing the efficacy of gabapentin for cocaine use disorder have shown this approach to be inappropriate. Gabapentin has also been shown to be ineffective in treating methamphetamine and opioid use disorders [59].

Conclusion

Substance use among older adults provides a unique challenge with regard to both diagnosis and treatment. This chapter highlights the most up-to-date review of the available literature including specialized diagnostic approach and treatment modalities. Most of the evidence basis is for alcohol use; however, epidemiologic studies show the high prevalence of other substance use including cannabis, prescription medications, and illicit substances. The use of these substances is projected to significantly increase as the aging baby boomer generation ages. Given this projected demand for treatment of substance use among older adults, it is imperative that there be continued research for additional epidemiological data in addition to further studies that target specific treatments and interventions for older adults.

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