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Patterns of Alcohol and Drug Use Among Depressed Older Adults Seeking Outpatient Psychiatric Services

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Objective: *Alcohol and drug use and related problems may compromise depression treatment, and older adults may be especially at risk for poor outcomes. However, alcohol and drug use among older adults have not been studied in settings in which depression treatment is provided. This study examined the prevalence and clinical and demographic correlates of alcohol and drug use and misuse of prescription drugs among adults with depression seeking outpatient psychiatric care (excluding chemical dependency treatment).* **Methods:** *The sample included 154 older adults (age 60 years and older who scored ≥10 on the Beck Depression Inventory-II [BDI-II] at intake). Participants also completed alcohol and drug use questions and the Short Michigan Alcohol Screening Test.* **Results:** *Recent alcohol and drug use, heavy episodic drinking, and history of alcohol-related problems were common. Alcohol use in the prior 30 days was reported by 53% of men and 50% of women. Cannabis use in the prior 30 days was reported by 12% of men and 4% of women; and misuse of sedatives in the prior 30 days was reported by 16% of men and 9% of women. In exact logistic regression, higher BDI-II score was associated with cannabis use (odds ratio = 15.8, 95% confidence interval = 2.0–734.0, exact p = 0.003).* **Conclusions:** *Older adults with depression are likely to present for treatment with a range of concurrent alcohol and drug use patterns, including cannabis use and misuse of prescription medication. Clinicians should evaluate depressed patients for substance use and related problems and consider appropriate interventions. (Am J Geriatr Psychiatry 2010; ●:000–000)*

Key Words: Depression, alcohol, cannabis, prescription drug misuse

The negative impact of alcohol and drug abuse and dependence on depression symptoms and treatment effectiveness is well established.[1] However, there are several reasons why alcohol and drug use at lower levels can also be problematic. Even moderate drinking may reduce antidepressant response and increase risk

of side effects.[2] Adults with depression use cannabis at rates 2–8 times higher than the general population,[3] and cannabis users may also benefit less from depression treatment than nonusers.[4,5] Individuals with depression are also at high risk for escalation of substance problems, and appropriate intervention has the potential to improve depression outcomes and prevent onset of dependence.[6] For these reasons, identification of problematic alcohol and drug use among depression patients is essential.

It may be particularly important to understand alcohol and drug use among older patients. Compared with younger individuals, older adults are more sensitive to alcohol because of physiological changes that occur with age.[7] They are more likely to have alcohol and drug problems that do not meet criteria for dependence, which contributes to low rates of detection.[8] Older adults with depression are at elevated suicide risk, and alcohol is an additional significant risk factor.[9] As with younger adults, substance problems may exacerbate depressive symptoms and interfere with treatment. Older adults may be particularly vulnerable to stigma and thus more easily deterred from accessing chemical dependency programs. For these reasons, it is important for clinicians in mental health and primary care to identify alcohol and drug use problems among older patients with depression.

Determining the prevalence and clinical and demographic correlates of alcohol and drug use among depressed older adults at the time of treatment seeking is essential for the development of targeted screening and interventions.[10] Such interventions are especially important to develop now. Because the aging "Baby Boom" cohort uses more alcohol and drugs than the preceding generation, growing numbers of older adults with alcohol and drug problems are expected to strain treatment systems.[11,12] Growth is also anticipated in cannabis use rates[13] and in misuse of prescription pain medication and sedatives (use other than as prescribed)[14] among older adults. Medication misuse is especially relevant because of the high prevalence of chronic pain and insomnia among older adults with depression.[15] Therefore, patients seeking services for depression are more likely than other older adult populations to experience problems with medication misuse.

To help address these issues, we examined the extent of alcohol and drug use among treatment-seeking patients reporting depression symptoms. To better under-

stand which older patients may be at risk, we explored the relationships of age, gender, marital status, self-reported health status, and depression severity (factors associated with substance use in prior studies of non-depressed samples)[11,16,17] to heavy episodic (binge) drinking, use of common drugs including cannabis, and use of prescription sedative/hypnotics and opiates other than as prescribed. The extant literature suggests that among older adults, heavy episodic drinking is more common among men than women, among those who are unmarried than those who are married (possibly because of the negative impact of social isolation and/or losing a spouse), in better health and in younger age subgroups.[16] It has been hypothesized that older adults may increase alcohol consumption in connection with depressed mood[18] or that alcohol problems could lead to later depression.[19] Prescription drug misuse has also been associated with younger age,[11] female gender, and worse health status.[20] On the basis of this limited literature, we anticipated that younger age, male gender, being unmarried, and having better health status and worse depression would be associated with greater alcohol and drug use; and female gender and worse health status were hypothesized to be associated with sedative and opiate misuse. To our knowledge, this is the first study to examine these factors in an older depressed sample and the first to study cannabis use in this population. Determining prevalence and correlates of drug and alcohol use in psychiatric settings can help to inform services, improve outcomes, and reduce adverse consequences for older adults with depression.

METHOD

Study participants were men and women seeking outpatient services at the Langley Porter Adult Psychiatry Clinic, University of California, San Francisco (UCSF).[21] All participants had appointments for initial evaluation at in the clinic. The sample included individuals aged 60 years and older with mild or greater symptoms of depression (≥10 on the Beck Depression Inventory-II [BDI-II] at intake).[22] There were no exclusion criteria for other psychiatric symptoms. However, because patients with severe mental illnesses other than depression (such as bipolar disorder and psychosis) are likely to have even higher rates of alcohol and drug prob-

lems, we excluded patients enrolling in an intensive day treatment program for severe mental illness and included only patients entering regular outpatient psychotherapy and/or medication management services. Patients were referred by their insurance carrier or were self-referred. The clinic had no formal services for patients primarily seeking alcohol or drug treatment or who reported cooccurring alcohol or drug dependence. Individuals were screened by telephone before intake, and those with serious alcohol or drug problems were referred to programs elsewhere in the community.

Clinical and demographic information for participants was obtained from medical records, including results of a computerized alcohol and drug use assessment battery. All participants had appointments for initial evaluation at UCSF. Patients arrived 1 hour early to complete medical questionnaires, including an Electronic Health Inventory (EHI), as part of clinical intake.[21] The EHI is completed on private computers in the clinic intake area. Front-desk staff assisted patients with log in or use if they asked for assistance. The clinic's specialty geriatric service, which primarily evaluates memory loss and dementia, does not use the EHI system. Similar computerized systems have been used effectively in studies of drug and alcohol use among older adults in primary care.[23]

Measures

Demographic information obtained utilizing the EHI included date of birth, gender, ethnicity, education level, employment status, and marital status. Substance use questions were drawn from the Addiction Severity Index.[24] For each substance (alcohol, cannabis, cocaine, amphetamines, hallucinogens, MDMA "ecstasy," sedatives "other than as prescribed" (misuse), opioids "other than as prescribed" [misuse], and tobacco), participants were asked whether they had ever used that substance (yes, no, or refuse to state). Participants who responded "yes" were asked the timing of most recent use (in years, months, or days before intake). Among those using cannabis in the prior 30 days, we asked participants to indicate frequency of use in the prior 30 days and age of first cannabis use. Alcohol questions included usual quantity (in standard drinks) and frequency in the prior 30 days. To measure heavy episodic drinking, patients were asked the number of days consuming either 5–7 or 8+ drinks on an occasion in the prior

year based on the graduated frequency alcohol consumption measurement method.[25] Responses to these two questions were combined to obtain a single measure of prior-year, heavy episodic drinking (5+ drinks), which is a validated indicator of alcohol-related problems.[26] Computerized alcohol and drug use questions may have greater validity than face-to-face interviews because patients may be more frank in their responses.[27] Participants were also asked whether they had ever received any alcohol or drug treatment in the past (yes/no).

To detect lifetime alcohol problems, we used the Short Michigan Alcoholism Screening Test (SMAST),[28] a valid and reliable 13-item self-administered scale. Scores range from 0 to 13, with higher scores denoting greater history of alcohol problems. Those indicating risk of alcohol problems based on usual quantity (three or more drinks), frequency (three or more times per week), or heavy episodic drinking (5–7 or 8+ drinks on one or more occasions in the prior year) were directed to complete the SMAST. The BDI-II is a reliable and well-validated measure of depression symptom severity in older adults.[29] Scores on this measure range from 0 to 63, and higher scores denote greater depression severity.[22]

Participants were asked to rate their overall health status using the question, "In general, would you say your health is excellent, very good, good, fair or poor." This question is predictive of future healthcare utilization and morbidity.[30] The measure was dichotomized (excellent, very good, or good versus fair or poor) for the regression models.

Analyses

The study team obtained permission from the UCSF Committee on Human Subjects to examine deidentified records of patients who had an initial clinic visit between September 30, 2005, and March 31, 2009. Differences in alcohol and drug use between men and women were compared using χ^2 test (Fisher's exact test). Exact logistic regression was used to test predictors of the most commonly self-reported patterns of substance use that could be problematic for participants: heavy episodic drinking in the prior year and cannabis use and misuse of sedatives in the prior month.

Covariates in the models included demographic and clinical factors based on the literature: age

(60–70 versus 70+ years), gender, marital status (married or living as married versus unmarried),[16,31] self-reported health status (excellent, very good or good versus fair, or poor, as in prior studies),[16,20] and depression severity (<27 versus 27+ on the BDI, a cut point indicative of mild to moderate versus severe major depressive episode).[22] Descriptive and bivariate analyses were conducted using SPSS, and regression analyses were conducted using SAS.

RESULTS

During the study intake window, 1,797 patients aged 18–100 years completed the EHI as part of clinical intake. Of these, 214 (11.9%) were aged 60 years and older, and among these patients, 174 (80.4%) scored 10 or higher on the BDI-II. Twenty individuals were excluded because they enrolled in the intensive outpatient program, yielding a final sample of 154 participants. Demographic characteristics and health status are reported on Table 1. Mean BDI-II score was 24.3 (standard deviation [SD] = 10.4).

Lifetime, prior-year, and prior-month alcohol or drug use are reported by gender (Table 2). Among those who drank alcohol in the prior month (N = 78), usual quantity was 1.9 drinks for men (SD = 1.5) versus 1.6 drinks for women (SD = 0.7), $t_{[76]} = 1.06$, p = 0.294; frequency was 11.6 days for men (SD = 9.2) versus 13.5 days for women (SD = 10.3), $t_{[76]} = 0.79$, p = 0.432. Of those using cannabis in the prior month (N = 11), frequency was 13.1 day for men (SD = 11.2) versus 16.0 days (SD = 14.5) for women, $t_{[9]} = 0.37$, p = 0.722; and age at first cannabis use was 23.0 (SD = 4.4) years for men versus 22.5 (SD = 3.8) years for women, $t_{[9]} = 0.19$, p = 0.854. Heavy episodic drinking in the prior year was reported by 18 men (31.6%) versus 26 women (27.1%), $\chi^2(1, N = 153) = 0.35$, p = 0.339.

Past drug or alcohol treatment was reported by eight men (14.0%) and nine women (9.4%). Of the 154 participants, 20 men (35.1%) and 31 women (32.3%) were administered the SMAST because of their drinking patterns. Seven men (35.0% of those who completed the measure, or 12.3% of men in the total sample) and 11 women (35.5% of those who completed the measure, or 11.5% of women in the total sample) scored 3 or higher,[28] suggesting a possible lifetime alcohol problem, $\chi^2(1, N = 51) = 0.001$, p = 0.606 (not shown).

TABLE 1. Demographic Characteristics and Health Status of Older Adults Seeking Treatment for Depression (N = 154)

Variables	Mean or Percentage
Age (mean)	67.6 (SD = 6.8)
Gender (%)	
Men	37.0
Women	62.4
Missing	0.6
Ethnicity (%)	
White	79.9
Asian	7.1
Black	4.5
Hispanic	4.5
Other	4.0
Marital status (%)	
Married or partnered	33.7
Single	27.9
Divorced or separated	26.6
Widowed	11.7
Education (%)	
High school graduate or less	16.8
Some college or technical training	15.5
College graduate	14.3
Some graduate training	53.2
Employment status (%)	
Retired	64.3
Unemployed	9.1
Employed full time	9.7
Employed part time	6.5
On disability	8.4
Decline to state	1.9
Self-reported health (%)	
Excellent	4.5
Very good	17.5
Good	35.7
Fair	31.2
Poor	11.0

In exact logistic regression analyses (Table 3), we examined the association of patient age, gender, marital status (married or partnered versus unmarried), BDI-II score, and health status to alcohol and drug use variables (cannabis use, sedative misuse, and heavy episodic drinking). Higher BDI-II score was associated with cannabis use, and being married or partnered was associated with sedative misuse.

DISCUSSION

This study examined patterns of alcohol and drug use among depressed older adults in an outpatient psychiatry clinic. Our results indicate that alcohol and drug use in the prior month, especially cannabis use and misuse of sedatives, was prevalent in this

TABLE 2. Prevalence of Self-Reported Lifetime, Prior Year, and Prior Month Alcohol and Drug Use Among Depressed Men and Women Aged 60 Years and Older Seeking Outpatient Psychiatric Services

	Ever Used		Prior Year		Prior 30 Days	
Drug Type	N	Percentage	N	Percentage	N	Percentage
Alcohol						
Men	52	91.2	37	64.9	30	52.6
Women	79	82.3	60	62.5	48	50.0
Amphetamines						
Men	18	31.6	3	5.3	2	3.5
Women	19	19.8	2	2.1	1	1.0
Cannabis						
Men	26	45.6	8	14.0	7	12.3
Women	33	34.4	12	12.5	4	4.2
Cocaine						
Men	17	29.8	0	0.0	0	0.0
Women	16	16.7	0	0.0	0	0.0
Ecstasy						
Men	2	3.5	0	0.0	0	0.0
Women	1	1.0	0	0.0	0	0.0
Hallucinogens						
Men	16	28.1	0	0	0	0.0
Women	11	11.5	2	2.1	0	0.0
Opioids						
Men	14	24.6[a]	5	8.8[b]	0	0.0
Women	8	8.4	1	1.0	0	0.0
Sedatives						
Men	23	40.4	12	21.1	9	15.8
Women	26	27.1	17	17.7	9	9.4
Tobacco						
Men	39	68.4	8	14.0	8	14.0
Women	60	62.5	15	15.6	13	13.5

Notes: N = 153. Self-reported substance use was compared by gender within each time period (lifetime, prior year, and prior 30 days) using χ^2 (Fisher's exact test). Percentages are based on the total sample, by gender (57 men and 96 women), minus refusals. Heavy episodic drinking (5+) in the past year was reported by 31.6% of men and 27.1% of women. Patient refusal to answer substance questions was <1%. Sedative and opioid questions indicated use "other than as prescribed."
[a] $\chi^2(1,N = 152) = 7.50$, p = 0.007.
[b] $\chi^2(1,N = 153) = 5.67$, p = 0.027.

sample. These findings are particularly notable given the practice of the clinic to prescreen and refer patients with significant alcohol or drug problems to outside services. The rates of recent alcohol use in our sample were higher than those found in community samples and prior clinical studies. In a primary care study of adults aged 65 years and older, the rate of consuming more than four drinks in the prior year was 5.4% in the general sample but 11.9% among patients with depression.[17] In the IMPACT study, 2% of eligible participants (age 60+ years with a diagnosis of major depression) were excluded due to current alcohol problems based on the CAGE screening instrument. Heavy episodic drinking and alcohol-related problems were even more common in our sample than in these prior studies; and this could be due to our selection of a sample drawn from a well-educated, urban population, which tends to have greater alcohol use.[26]

In addition, patients seeking specialty psychiatric services have sociodemographic and clinical differences compared with patients treated in primary care, including higher income, history of suicidality, and better physical health.[32] Older patients treated in an academic medical setting may also differ from typical primary care patients in depression severity[33] and education.[34] Therefore, although this sample is likely to be somewhat different in substance use prevalence and depression severity from patients in primary care, it may be similar to samples found in specialty psychiatric settings.

Heavy episodic drinking in the prior year was substantial among both genders. Consumption of 5+ drinks on one or more occasions during the prior

TABLE 3. Predictors of Prior-30 Day Cannabis Use, Sedatives Misuse, and Prior-Year Heavy Episodic Drinking (N = 154)

	OR	95% CI	p
30-day cannabis use			
Age (≥70 versus <70 years)	0.14	0.003–1.18	0.0837
Married	5.39	0.60–269.89	0.1982
Female gender	3.19	0.65–18.51	0.1852
Health (fair/poor)	0.63	0.11–3.16	0.7631
Higher BDI-II score[a]	15.75	1.96–733.98	0.0034
30-day sedative misuse			
Age (≥70 versus <70 years)	1.56	0.45–5.14	0.5811
Married[b]	0.27	0.08–0.84	0.0210
Female gender	1.43	0.44–4.62	0.6697
Health (fair/poor)	1.13	0.35–3.81	1.0000
Higher BDI-II score	1.90	0.56–6.51	0.3616
Prior-year heavy episodic drinking			
Age (≥70 versus <70 years)	1.51	0.66–3.39	0.3751
Married	0.90	0.41–2.05	0.9238
Female gender	1.27	0.57–2.81	0.6420
Health (fair/poor)	0.84	0.38–1.85	0.7682
Higher BDI-II score	0.89	0.39–2.03	0.9269

Notes: Exact logistic regression was used in the analyses. p values reported are exact. "Married": married or partnered versus single, never married, widowed, or divorced; OR: not married vs. married; "Health (fair/poor)": fair or poor self-reported health versus excellent, very good, or good.
[a] $p < 0.01$.
[b] $p < 0.05$.

year has been used as an indicator of risky drinking in prior studies of older adults[26] and validated as a screening measure in healthcare settings for alcohol abuse. Utilizing this criterion, we would estimate that up to 29% of men and 14% of women in our sample could meet criteria for alcohol abuse. Because of the increased sensitivity of older adults to alcohol,[7] 5+ drinks is likely a conservative measure of drinking problems in this population. On the SMAST measure of lifetime alcohol problems, 13% of both men and women had elevated scores. This level of drinking and related problems is clinically significant, especially given the elevated suicide risk posed by heavy episodic drinking[9] and potential problems with antidepressant response and compliance.

Patients reporting any cannabis use were typically frequent users, with an average prior-month frequency of 13 days for men and 16 days for women. We found a significant association between depression severity and cannabis use even after controlling for age, gender and health status. Studies of younger adults have also found that depression severity is higher among cannabis users than nonusers.[5] Al-

though the study did not explore temporal relationships, some patients may use cannabis to help manage depression, cannabis may exacerbate depression symptoms, or the association could be explained by other symptoms such as anxiety. Limited evidence suggests that past cannabis use does not significantly predict onset of depression among adults,[35] although this has not been studied in adults older than 60 years. Future studies should investigate these relationships, especially because the number of older adults using cannabis is expected to increase.[12,36] Medical use of cannabis, which the study did not differentiate, is an important factor among educated, urban populations in which its use may be legal and socially accepted. Future studies should measure the extent of medical cannabis use among older adults and possible use of cannabis to manage depression, anxiety, and chronic pain.

Self-reported misuse of sedatives was also common in our sample and has important clinical implications. In a similar investigation, a primary care sample of adults older than 60 years in Sweden found that sedative use was higher among patients with depression than others, although the study did not report whether sedatives were used properly.[37] Sleep data on our sample were not available. However, older adults are more likely than younger adults to have sleep problems, and insomnia is prevalent among older adults with depression.[15] Clinicians should be aware that depression patients may not use sedatives as prescribed and consider strategies for improving adherence.

In contrast to prior studies, we did not find younger age or female gender predictive of prescription drug misuse.[20] The finding that being married or partnered was associated with sedative use "other than as prescribed" is not easily explained. It may be that participants in our sample accessed their partner's sedatives or that having a partner intolerant of sleep disturbance could motivate participants to use a higher dose than prescribed. Factors associated with prescription drug misuse may also differ by gender,[14] which our sample was not powered to test. These issues should be explored in future studies to identify modifiable risk factors.

Clinicians may be less likely to screen older adults than younger adults for drug and alcohol problems due to physical comorbidities that may be more salient during the clinical interview, discomfort, or lack of

awareness around substance use.[18] Our results suggest that despite these obstacles, evaluating alcohol and drug use is an important part of assessing older patients. In addition to quantity, frequency, and problem-based measures, assessment should include the social context and circumstances of alcohol and drug use, as well as use of alcohol or drugs to cope with low moods, loneliness, grief, physical pain, or sleep problems.[18] Older patients should be asked about prior experiences in alcohol and drug treatment and whether they would consider returning if needed. Understanding these aspects of alcohol and drug use is critical in developing effective interventions.

Psychiatric clinics are important settings for screening and intervention.[38] Many people with drug or alcohol problems first seek mental health treatment, although screening rates generally have been poor.[6] Brief interventions could supplement psychiatric services and prevent escalation of alcohol and drug problems and have been used effectively in studies of hazardous drinking among older adults.[39] Older patients seeking treatment for depression thus provide clinicians with an opportunity to integrate care and to facilitate referral to more intensive services if needed.

Study Limitations and Strengths

The study has several limitations. Our use of a computerized intake system is likely to undersample frail or cognitively impaired older adults, although these patients are less likely than others to report drug or alcohol use.[16] Although computerized measures are valid and very few patients refused to answer, underreporting of alcohol and drug use by patients would make our prevalence rates conservative. The clinic prescreened and excluded patients with serious alcohol and drug problems. However, limiting the sample to patients aged 60 years and older (with a mean age of 67.5 years) with symptoms consistent with major depression (10+ on the BDI-II) in an outpatient setting helps make findings generalizable to treatment-seeking depressed older adults.

Although the BDI-II has been validated among older adults, its inclusion of somatic symptoms more commonly experienced by older adults could result in the confounding of physical symptoms of depression with those of age-related illness. Thus, the BDI could overstate depression severity. We note that to increase sensitivity, it is preferable to use a lower cutoff for binge drinking for women than for men (three or four drinks per occasion rather than five), a measure not available in our data. Our use of the higher cutoff could make our estimates of binge drinking among older women conservative. Future studies should explore the relationship of depression to alcohol consumption among older adults using more sensitive drinking measures, because prior studies have found significant associations between alcohol problems and onset of major depression.[19] Multiple testing increases the possibility of Type 1 errors in the analyses (e.g., gender differences in Table 2), although adjustment was not considered necessary.[40] The small total numbers of patients reporting heavy episodic drinking, cannabis use, and misuse of sedatives limited statistical power for these analyses. However, results regarding greater depression severity and cannabis use were significant after controlling for other factors, suggesting that these relationships were strong.

The study also has a number of strengths. Cooccurrence of substance use, substance-related problems, and depression among older adults has received very little study compared with research based on younger populations.[9,10] To our knowledge, this is the first study to examine predictors of cannabis use and sedative misuse in an older adult psychiatric sample, including potential associations with depression symptoms after controlling for health and other factors. As a next step, future studies should examine medical cannabis use, especially because attitudes toward its use are more tolerant among older adults of the "Baby Boom" cohort than prior older adult cohorts.[13] Our results highlight the importance of thoroughly evaluating patterns of alcohol and drug use among older adults seeking treatment for depression.

CONCLUSIONS

This study found that recent alcohol and drug use among depressed adults aged 60 years and older seeking outpatient psychiatric services was prevalent, especially cannabis use, misuse of prescription sedatives, and heavy episodic drinking. Worse depressive symptoms were associated with cannabis use. Given the relationship of alcohol and drug use

to poor depression treatment outcomes, our findings underscore the importance of screening and appropriate intervention for alcohol and drug use and related problems in settings in which older adults receive treatment for depression.

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