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Sub-diagnostic Alcohol Use by Depressed Men and Women Seeking Outpatient Psychiatric Services: Consumption Patterns and Motivation to Reduce Drinking

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Abstract

Background—This study examined alcohol use patterns among men and women with depression seeking outpatient psychiatric treatment, including factors associated with recent heavy episodic drinking and motivation to reduce alcohol consumption.

Methods—The sample consisted of 1183 patients ages 18 and over who completed a self-administered, computerized intake questionnaire and who scored ≥ 10 on the Beck Depression Inventory-II (BDI-II). Additional measures included current and past alcohol questions based on the Addiction Severity Index, heavy episodic drinking (≥ 5 drinks on one or more occasions in the past year), alcohol-related problems on the Short Michigan Alcoholism Screening Test (SMAST), and motivation to reduce drinking using the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES).

Results—Among those who consumed any alcohol in the past year (73.9% of the sample), heavy episodic drinking in the past year was reported by 47.5% of men and 32.5% of women. In logistic regression, prior-year heavy episodic drinking was associated with younger age (p=.011), male gender (p=.001) and cigarette smoking (p=.002). Among patients reporting heavy episodic drinking, motivation to reduce alcohol consumption was associated with older age (p=.008), greater usual quantity of alcohol consumed (p<.001), and higher SMAST score (p<.001).

Conclusions—In contrast to prior clinical studies, we examined sub-diagnostic alcohol use and related problems among psychiatric outpatients with depression. Patients reporting greater drinking quantities and alcohol-related problems also express more motivation to reduce drinking, providing intervention opportunities for mental health providers that should not be overlooked.

Keywords

depression; alcohol; hazardous drinking; prevalence; motivation

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INTRODUCTION

High co-occurrence of alcohol use disorders and depression are well established (Kessler, 2004), while the extent of sub-syndromal alcohol use and hazardous drinking has been much less investigated. For example, a recent review of 35 studies of alcohol problems in major depression found that 97% of studies evaluated alcohol abuse or dependence (Sullivan et al., 2005). In contrast, the review found few studies of alcohol use not meeting diagnostic criteria for abuse or dependence. The current investigation focuses on an outpatient treatment sample with mild or greater baseline depression symptoms and examines patterns of alcohol use including prior-year heavy episodic (binge) drinking, patient characteristics associated with heavy episodic drinking, and history of alcohol-related problems. To inform intervention strategies, we investigate factors associated with recent heavy episodic drinking and motivation to reduce alcohol consumption.

These issues are important to investigate because there is significant potential for sub-diagnostic alcohol use to exacerbate depression symptoms (Barry et al., 2006). Several population-based studies have found an association between elevated depression symptoms and heavy drinking (Alati et al., 2005; O'Donnell et al., 2006); and clinical studies have shown even stronger relationships between depression, alcohol and related problems (Davis et al., 2005; McDermut et al., 2001; Sanderson et al., 1990). Even moderate alcohol use may have a negative impact on antidepressant response, reduce adherence and increase risk of side effects (Worthington et al., 1996). Individuals with depression are also at high risk for escalation of substance problems (Abraham and Fava, 1999; Gilman and Abraham, 2001). These findings suggest that alcohol use among patients seeking depression treatment is likely to be clinically problematic.

The relationships between depression and alcohol use and related problems may be complex and multidirectional. Individuals with depression, especially men, frequently report use of alcohol to relieve mood symptoms (Bolton et al., 2009). Recent longitudinal studies indicate that alcohol problems may more often arise first, and lead to increased risk for major depression onset (Fergusson et al., 2009). Such studies help to explain the high co-occurrence of depression and alcohol use disorders. The current analysis contributes to this literature by examining the relationship of alcohol problem history and recent drinking patterns to current depression symptoms, as well as risk factors associated with heavy episodic drinking in a depression treatment sample.

For those reporting heavy episodic drinking, understanding factors associated with motivation to reduce drinking could help inform interventions in depression treatment settings (Zhang et al., 2006). For example, a prior study found that greater depression symptoms were associated with increased motivation to reduce drinking among those arrested for drunk driving (Wells-Parker et al., 2006). Alcohol-related problems (Blume et al., 2006; Shealy et al., 2007) and alcohol-related diseases (Lau et al., 2010) have also been found to be associated with motivation to decrease alcohol use. Brief interventions in health care settings have often been successful in reducing harmful alcohol use (Madras et al., 2009), and patient concern regarding health is a potentially significant motivating factor (Substance Abuse and Mental Health Services Administration and Center for Substance Abuse Treatment, 2008). Thus, patients in depression treatment could be motivated to reduce drinking and present an important intervention opportunity.

This study examined alcohol use patterns, the relationship of alcohol use to depression symptom severity, psychiatric comorbidity, alcohol-related problems, and factors associated with heavy episodic drinking and motivation to reduce drinking. Prior studies have not examined these relationships among patients with depression in treatment settings. Based on

the literature, we anticipated that recent heavy episodic drinking would be substantial in this population; and that heavy episodic drinking would be associated with demographic (male gender, younger age, being unmarried) and clinical characteristics (greater depression severity, cigarette smoking, and worse self-reported health) (McKee et al., 2007; Mertens et al., 2005). We anticipated that greater motivation to reduce drinking would be associated with older age, greater depression severity (Blume et al., 2001; Wells-Parker et al., 2006), worse self-reported health, and greater usual drinking quantity and self-reported drinking-related problems (Blume et al., 2006; Shealy et al., 2007). Findings may assist the development of interventions for hazardous drinking by informing targeted screening among patients seeking treatment for depression and by identifying factors associated with greater motivation to reduce drinking.

METHODS

Participants

Study participants were men and women ages 18 and over seeking outpatient services in the Adult Psychiatry Clinic of the Langley Porter Hospital and Clinics, University of California, San Francisco (UCSF). Patients are mainly referred by their insurance carrier or are self-referred, but are also referred by primary or specialty care providers in the community. Patients seeking chemical dependency treatment or who have co-occurring alcohol or drug dependence are not eligible. Individuals are screened by telephone prior to intake, and those with serious alcohol or drug problems are referred to programs elsewhere in the community.

In order to examine alcohol use patterns among patients with depression, the sample included individuals with mild or greater symptoms of depression (≥ 10 on the Beck Depression Inventory=II (BDI-II) at intake (Steer et al., 2001). 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 problems (Kemp et al., 2008), we did not sample patients enrolling in an intensive day treatment program for severe mental illness. We included only patients entering regular outpatient psychotherapy and/or medication management services.

Clinical and demographic information for participants was obtained from medical records at UCSF, including results of a computerized alcohol use assessment battery. All participants had appointments for initial evaluation at UCSF. Patients arrived 1 hour early to complete medical questionnaires, including the Electronic Health Inventory (EHI), as part of clinical intake (Satre et al., 2008). The EHI is completed on private computers in the clinic intake area. Front desk staff assists patients with log-in or navigation if patients ask for assistance. Similar computerized systems have been used effectively in studies of alcohol use in primary care (Nemes et al., 2004). Patients are informed that de-identified medical records in the clinic may be used for research. But because these questionnaires are administered as part of clinical intake, patients are not asked for informed consent prior to responding.

Approximately 75% of clinic patients completed the EHI during the study window. Patients who are unable or unwilling to use the computer were given a paper version to be completed with their provider (Satre et al., 2008). For example, patients arriving late and patients from the geriatric clinic were more likely to be offered the paper version. Based on a previous analysis, patients who completed the computerized EHI were younger than those not completing the EHI (mean age of 42.9 (sd=15.0) vs. 55.6 (sd=17.5)), but there were no other demographic differences (Satre et al., 2008).

Computerized printouts of the EHI, including responses to alcohol use questions, were used during clinical intake to assist with diagnosis and treatment planning. Although there was

not a formal protocol in place to give feedback to patients regarding alcohol use levels, providers have anecdotally reported that screening data have facilitated discussion of risky drinking levels in the context of depression treatment.

Measures

Demographic information obtained utilizing the EHI included date of birth, gender, ethnicity, education level, marital status and employment. Alcohol use questions were based on the Addiction Severity Index (McLellan et al., 1992). Participants were asked if they had ever used alcohol (yes, no, or refuse to state). Those who responded “yes” were asked to indicate the timing of most recent use (in years, months or days prior to intake) and number of days used in the prior 30 days. Further questions on alcohol use included usual quantity per drinking occasion (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 (Stahre et al., 2006). Responses to these two questions were combined to obtain a single measure of prior-year heavy episodic drinking (5+ drinks) (Kerr et al., 2009), a validated indicator of alcohol-related problems (Dawson et al., 2010). Computerized alcohol use questions may have greater validity than face-to-face interviews because patients may be more frank in their responses (Paperny et al., 1990). 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) (Selzer et al., 1975), a valid and reliable 13-item scale. Scores range from 0–13, with higher scores denoting greater history of alcohol problems. The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) is a 19-item instrument to measure readiness to change drinking behavior (Maisto et al., 1999; Miller and Tonigan, 1996). Patients completed 10 items from the instrument measuring ambivalence (4 items) and problem recognition (6 items of the original 7 subscale items, one item being omitted for brevity: “I really want to make changes in my drinking”). Cronbach’s alpha on this modified recognition subscale was .95, similar to previous findings (Miller and Tonigan, 1996). Recognition and ambivalence scores were highly correlated ($r = .83$, $p < .001$), so analysis of patient motivation only used the recognition score as the dependent variable.

These two measures were completed by a subset of patients during the computerized intake. The intake questionnaire was programmed so that patients indicating that they were potentially at risk of alcohol problems based on usual drinking quantity (3 or more drinks) or frequency (3 or more times per week), or heavy episodic drinking (5 or more drinks on one occasion at any time in the prior year) were given additional assessment, by being directed to complete the SMAST and SOCRATES. The criteria for completing the additional measures included the widely used screening measure of five or more drinks on one occasion (National Institute on Alcohol Abuse and Alcoholism, 2005); the additional usual quantity and frequency items were also added by the clinic as more conservative drinking thresholds for patients seeking treatment for psychiatric disorders.

Beck Depression Inventory-II (BDI-II) (Beck et al., 1996a) is a valid 21-item depression scale (Steer et al., 1997). With permission from the publishers, it was administered electronically. Computer administration of the BDI-II has been validated against paper-and-pencil administration (Schulenberg and Yutrzenka, 2001). A score of 10+ is indicative of mild or greater depression symptoms (Steer et al., 2001).

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 health care utilization and morbidity (Bierman et al., 1999). The measure was dichotomized (excellent, very good, or good vs. fair or poor) for the regression models.

Primary psychiatric diagnoses were based on the DSM-IV(American Psychiatric Association, 2000) and were included in electronic administrative records maintained by the department. Primary patient diagnoses are assigned by clinic providers, primarily psychiatrists or supervised psychiatry residents following initial appointment.

Analyses

The study team obtained permission from the UCSF Committee on Human Research to examine de-identified records of patients who had an initial clinic visit between September 30th, 2005 and March 31st, 2009. Differences in alcohol use between men and women were compared using chi-square and t-tests. Prevalence of heavy episodic drinking in the prior year was examined by diagnostic category using chi-square.

We examined bivariate associations between depression severity (BDI-II score of <29 vs. ≥ 29, a frequently used cutoff score for severe depression (Beck et al., 1996b) and alcohol use measures (binge drinking in prior year, usual quantity and frequency) using chi-square and t-tests; and in logistic regression controlling for age, gender and self-reported health. We examined risk factors associated with prior-year heavy episodic drinking based on the literature: demographic characteristics (McGee et al., 1999; Satre et al., 2007), smoking (McKee et al., 2007), health status (Mertens et al., 2005), and depression symptoms (Bolton et al., 2009) using logistic regression.

To explore the relationship of alcohol problems to current depression symptoms (Fergusson et al., 2009), we compared BDI-II scores of patients scoring above and below the cut point on the SMAST for lifetime history of significant alcohol problems (SMAST total score of ≥ 3 vs. <3) using the t-test.

Among patients reporting prior-year heavy episodic drinking, multiple regression analysis examined predictors of interest in reducing alcohol consumption (“recognition” SOCRATES scale score was the dependent variable), including BDI-II score (Wells-Parker et al., 2006), usual drinking quantity, SMAST score, and worse self-reported health (Blume et al., 2006; Shealy et al., 2007); controlling for age, gender and marital status (Miller and Tonigan, 1996). Analyses were conducted using SPSS Statistics for Windows (Version 17).

RESULTS

Demographic Characteristics

During the study intake window, 1545 patients ages 18 and over completed outpatient clinic intake procedures. Of these, 1183 (76.6%) scored 10+ on the BDI-II. The final sample (N = 1183) ranged in age from 18 to 91, with a mean age of 42.2 (sd=14.7). See Table 1 for demographic characteristics, health status and alcohol use prevalence. Based on patient administrative records, the most common primary psychiatric diagnosis assigned to patients following their first visit was major depressive disorder (48.4%), followed by bipolar disorder (14.8%), anxiety disorders (11.2%), depressive disorder not otherwise specified (7.5%), mood disorder not otherwise specified (4.3%), adjustment disorders (4.3%), schizophrenia (1.2%), and 9.1% all other diagnoses combined. BDI-II scores ranged from 10 to 57 (mean = 25.7 (sd = 10.6), a level consistent with a diagnosis of major depressive disorder (Steer et al., 2001).

Alcohol Use Patterns

In the sample, 73.9% of participants reported prior-year alcohol consumption, with no difference by gender. Among those who consumed any alcohol in the prior year (n=874), men had higher prevalence of heavy episodic drinking in the prior year (47.5% vs. 32.5%, χ^2 = 18.0, 1 df, n=872, p<.001), and reported greater usual number of standard drinks consumed (2.5 (sd=1.92) drinks for men vs. 1.9 (sd=1.36) drinks for women, t=4.6, 1df, n=838, p<.001). Usual frequency was 7 days (sd=8.1), with no difference by gender (not shown). By diagnostic category, prevalence of heavy episodic drinking in the prior year was: major depressive disorder (30.9%), bipolar disorder (30.3%), anxiety disorders (39.1%), depressive disorder not otherwise specified (33.7%), mood disorder not otherwise specified (33.3%), adjustment disorders (45.0%), schizophrenia (35.7%), and other diagnoses (32.4%) (NS).

Patients with severe depression (≥29 on the BDI-II) drank less frequently than those with moderate depression (<29 on the BDI-II), (4.5 (sd=7.1) days per month vs. 6.7 (sd=8.1) days per month, t=4.1, 1df, n=855, p<.001). In multiple regression controlling for age, gender and self-reported health, this relationship remained significant (p =.001) (not shown). Prior history of alcohol or drug treatment was reported by 17.0% of men and 9.3% of women (χ^2 = 12.4, 1 df, n=995, p<.001) (not shown).

In logistic regression analysis, variables associated with prior-year heavy episodic drinking were younger age, male gender, and prior-year smoking (Table 2).

Alcohol-Related Problems and Motivation to Reduce Drinking

Of the 1183 participants, a sub-sample of 507 were administered additional alcohol measures (SMAST and SOCRATES) based on their usual drinking quantity (3 or more drinks) or frequency (3 or more times per week), or because they reported heavy episodic drinking (5+ drinks on one or more occasions) at any time in the prior year. These patients were younger than those not administered the measures (mean age = 38.9 years (sd=14.50) vs. 44.6 years (sd=14.30), t = 6.79, 1 df, n=1181, p < .001) and disproportionately male (including 49.9% of men (n = 175) vs. 40.1.7% of women (n = 331), χ^2 = 9.62, 1 df, n = 1177, p < .001). Of this sub-sample, 61.1% of men and 40.5% of women reported heavy episodic drinking in the prior year (χ^2 = 19.60, 1 df, n = 506, p < .001).

The average SMAST score was 2.1 (sd= 2.86) for men vs. 1.5 (sd = 2.17) for women (t = 2.65, 1 df, n=479, p=.008). Of those completing the measure, 30.2% of men vs. 22.1% of women received a score of 3 or higher, the cut off level suggesting an alcohol problem (Barry and Fleming, 1993) (χ^2 = 3.8, 1 df, n=481, p=.034). Participants scoring ≥ 3 on the SMAST had higher BDI-II scores than patients scoring <3 (mean score = 26.6 (sd=10.17) vs. 24.4 (sd=10.54), t = 1.99, 1 df, n=480, p = .047) (not shown).

Among participants who completed the SMAST and SOCRATES who also reported heavy episodic drinking in the prior year (n=227), we used multiple regression to test predictors of SOCRATES alcohol problem recognition score (Table 3). Results found that older age, higher number of drinks usually consumed, and scoring 3 or higher on the SMAST predicted higher alcohol problem recognition score.

DISCUSSION

This study examined patterns of alcohol use among patients with depression in an outpatient psychiatry clinic, factors associated with heavy episodic drinking and motivation to reduce drinking. In contrast to most prior studies (McDermut et al., 2001; Sanderson et al., 1990), we examined patterns of sub-diagnostic use. Results found that heavy episodic drinking and

alcohol-related problems were prevalent among both men and women. These findings are especially striking given the practice of the clinic to pre-screen and refer patients with significant alcohol problems to outside services. Heavy episodic drinking in the year prior to intake was associated with demographic characteristics (male gender and younger age) and smoking; and among these patients, motivation to reduce drinking was associated with older age, higher alcohol consumption and more drinking-related problems. These findings have implications for the development of appropriate alcohol interventions, which are integral to the delivery of effective psychiatric services (Weisner and Matzger, 2003).

The levels of alcohol use in our results, similar to that found in depressed primary care patient (Roeloffs et al., 2002) and emergency room samples (Barry et al., 2006), indicate that a substantial number of depression patients are at risk for poor outcomes. Heavy episodic drinking and alcohol-related problems were even more common in our sample than in these prior studies. While these other studies also examined patients with depression, our sample may not be directly comparable because patients seeking specialty psychiatric services have sociodemographic and clinical differences compared with patients treated in primary care, including higher income, education, and history of suicidality, and better physical health (Gaynes et al., 2008; Simon et al., 2001; Xakellis, 2005). Higher levels of education are associated with treatment seeking for depression after controlling for other factors (Carragher et al., 2010). Therefore, this sample is likely to be somewhat different in alcohol use prevalence and depression severity from either the general population with depression or those patients with depression treated in primary care.

As in prior studies of non-depressed samples, hazardous drinking was associated with male gender, younger age and smoking (Harrison and McKee, 2008). It has been suggested that in primary care, smoking status can be used as a likely clinical indicator of alcohol misuse and a cue to screen for heavy drinking (McKee et al., 2007). Our results suggest that among adults seeking treatment for depression, in which prevalence of these health risk behaviors is correlated, appropriate intervention for both problems may be especially important.

While higher depression severity was not associated with prior-year hazardous drinking, we did find a modest but significant bivariate association between history of alcohol-related problems and depression severity at the time of clinic intake. This pattern of findings is consistent with prior studies suggesting that alcohol problems may precede depression onset (Fergusson et al., 2009), and contrasts with self-medication theories regarding the association between alcohol consumption and depression. Our finding that moderately depressed participants drank somewhat more frequently than patients with severe depression contrasts with general population studies that found no association between depression severity and drinking frequency (Graham et al., 2007; Patten and Charney, 1998). In a treatment-seeking depressed sample, it may be that factors we could not control for, e.g., multiple medications or higher-dose psychotropic medications prescribed to patients with more severe depression (in which case drinking may be strongly contraindicated), could help to explain the observed relationship. Although alcohol problem prevalence has varied by psychiatric disorder, e.g., with higher prevalence among bipolar patients, variation in heavy episodic drinking by diagnosis in our sample (outpatients with mild or greater depression severity) was not significant. To further explore the role of comorbidity, future studies should examine patterns of heavy episodic drinking across diagnostic categories including non-depressed psychiatric patients.

Understanding motivational factors is an important aspect of intervention development, especially in treatment of substance use disorders in which motivational interviewing has emerged as a major intervention approach (Miller and Rollnick, 2002). Based on the limited prior literature including a study of drunk-driving offenders(Wells-Parker et al., 2006) and a

study of community members with alcohol abuse or dependence and minimal depressive symptoms (Blume et al., 2001), it was anticipated that greater depression severity might be associated with motivation to reduce drinking. In a psychiatric treatment sample of hazardous drinkers, however, it may be that depression severity lacks motivating force among patients who may or may not have had recent problems related to drinking. Rather, we found that history of alcohol-related problems was the strongest predictor of motivation to reduce drinking, apart from health status or depression symptoms. We also found that older age predicted motivation to reduce drinking. This is consistent with general population studies showing that adults often cut down on alcohol consumption or eliminate drinking as they get older (Moos et al., 2005; Satre et al., 2007) and a chemical dependency program study that found that adults age 55 and over were more likely than younger adults to have an abstinence goal at intake (Satre et al., 2003), and indicates that among depression patients, younger adults may be less ready than older adults to reduce drinking.

Clinical Implications

Although treatments for alcohol problems are most successful at early stages (Babor et al., 2007), most people do not seek treatment until their condition is severe. Instead, many individuals with alcohol problems first seek psychiatric treatment (Weisner and Schmidt, 1992). Yet in psychiatric service settings, providers often fail to recognize warning signs that present opportunities for intervention (Weisner and Matzger, 2003). When alcohol problems are identified, they are usually those meeting criteria for dependence, while lower levels of use are often not detected or addressed.(Institute of Medicine, 2006) As a result, potential problems can go unrecognized and untreated even in psychiatric clinics. Our research indicates, somewhat counter-intuitively, that patients reporting higher drinking quantities and alcohol-related problems also express more motivation to reduce drinking, providing intervention opportunities for mental health providers that should not be overlooked. Rather than being discouraged by identifying problem drinking in their patients, clinicians should recognize this as a chance to enhance treatment.

Our results suggest that providers in all psychiatric settings should conduct appropriate screening and treatment when appropriate. For example, brief motivational intervention for heavy episodic drinking could be an effective supplement to depression treatment (Babor and Higgins-Biddle, 2000; Eberhard et al., 2009) and could help prevent escalation of alcohol problems. Limited evidence suggests that cognitive behavioral psychotherapy can effectively integrate treatment for depression and sub-diagnostic misuse of alcohol (Hides et al., 2010). These strategies may be important tools to address co-occurring alcohol problems among patients with depression.

Study Limitations and Strengths

The study has several limitations. Our use of a computerized intake system under-sampled frail and cognitively impaired older adults (Satre et al., 2008), although these patients are less likely than others to report heavy episodic drinking (Satre et al., 2007). While computerized measures are valid and very few patients refused to answer, under-reporting of alcohol use by patients would make our prevalence rates conservative. The clinic pre-screened and excluded patients with serious alcohol problems. However, limiting the sample to patients scoring 10+ on the BDI-II in an outpatient setting helps make findings generalizable to treatment-seeking depressed adults.

We note that to increase sensitivity it is preferable to use a lower cutoff for binge drinking for women than for men (3 or 4 drinks per occasion rather than 5), a measure not available in our data. Our use of the higher cutoff could make our estimates of binge drinking among women conservative.

The study also has a number of strengths. Co-occurrence of sub-diagnostic alcohol use, drinking-related problems and depression has received very little study compared to studies of co-occurring substance use disorders (Sullivan et al., 2005). It is important to study alcohol consumption patterns and risk factors for heavy episodic drinking in this population, in which even moderate alcohol consumption can reduce depression treatment effectiveness (Worthington et al., 1996). Understanding factors contributing to patient motivation to reduce drinking can help inform clinical services (Blume et al., 2006; Lau et al., 2010; Shealy et al., 2007). We used a treatment-seeking sample who reported recent heavy episodic drinking and elevated depression symptoms in order to investigate motivation. Our results highlight the importance of thoroughly evaluating alcohol consumption among adults with depression.

Conclusion

This study found that heavy episodic drinking was prevalent among men and women seeking outpatient psychiatric treatment for depression. Recent drinking problems were associated with greater depression severity. Importantly, patients with sub-diagnostic heavy episodic drinking may be targeted to prevent substance problem escalation. Patients reporting greater usual alcohol consumption quantity and more alcohol-related problems also express greater motivation to reduce drinking, providing further impetus for mental health clinicians to intervene.

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Table 1

Demographic Characteristics, Health Status and Alcohol Use Prevalence of Depressed Adults Seeking Outpatient Psychiatric Services (N=1183)

Variables	Mean or %
Age, mean (sd)	42.2 (sd=14.7)
Gender (%)	
Men	29.7
Women	69.8
Unknown	0.5
Ethnicity (%)	
White	70.6
Asian	10.4
Black	4.8
Hispanic	7.4
Other	6.8
Marital status (%)	
Married or partnered	34.7
Single	52.7
Divorced or separated	9.3
Widowed	2.4
Unknown	0.9
Education (%)	
High school graduate or less	16.5
Some college or technical training	13.5
College graduate	26.2
Some graduate training	42.0
Unknown	1.8
Employment status (%)	
Employed full time	38.9
Employed part-time	7.8
Retired	10.1
On disability	12.5
Student	14.5
Unemployed	13.1
Unknown	3.1
Self-reported health (%)	
Excellent	6.5
Very good	20.8
Good	35.8

Variables	Mean or %
Fair	27.6
Poor	9.3
Any alcohol use (%)	
Lifetime	86.0
Prior year	73.9
Prior month	58.7

Table 2

Predictors of Prior-Year Heavy Episodic Drinking (N=872)

	OR	95% CI	p
Age in years	0.98	(0.97, 0.99)	.011
Gender (male)	1.88	(1.38, 2.54)	.001
Married or partnered (vs. single)	0.98	(0.72, 1.33)	.888
Self-reported health	1.03	(0.75, 1.42)	.861
BDI-II score	1.00	(0.99, 1.02)	.658
Prior-year smoking	1.63	(1.20, 2.23)	.002

Note. Analyses used logistic regression. OR= odds ratio. 95% CI = 95% confidence interval. Heavy episodic drinking = any consumption of 5+ drinks on one or more occasions; BDI-II = Beck Depression Inventory-II. Self-reported health= excellent, very good or good vs. fair or poor.

Table 3

Predictors of Self-Reported Alcohol Problem Recognition Among Depressed Men and Women Seeking Outpatient Psychiatric Services (N= 227)

Variable	Parameter estimate	Standard error	p
Age in years	0.06	0.02	.008
Gender (female)	−0.12	0.59	.836
Married or partnered (vs. single)	−0.67	0.65	.304
BDI-II score	0.01	0.03	.781
Self-reported health	0.61	0.65	.347
Usual drinking quantity	0.57	0.15	.000
SMAST score ≥3	7.16	0.72	.000

Notes: The dependent variable of alcohol problem recognition is based on the recognition subscale of the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES). BDI-II = Beck Depression Inventory-II. SMAST = Short Michigan Alcohol Screening Test.