Published in final edited form as:
Prof Psychol Res Pr. 2005 January 1; 36(2): 203–207. doi:10.1037/0735-7028.36.2.203.

Alcohol Use Among Depressed Patients: The Need for Assessment and Intervention

Susan E. Ramsey, **Patricia A. Engler**, and **Michael D. Stein**
Brown University Medical School and Rhode Island Hospital

Abstract

For many depressed patients, drinking may interfere with the successful treatment of their depression. Even among patients whose alcohol use does not rise to the level of an alcohol-use disorder, drinking can have a deleterious effect on depression and depressive symptoms and may dampen the impact of treatment for depression. However, subclinical drinking may not be addressed during the course of psychological or psychiatric treatment for depression. The authors advocate for the routine assessment of alcohol use, beyond questioning to diagnose alcohol abuse or dependence, in psychological and psychiatric settings. There is reason to believe that once identified, heavy alcohol use among depressed patients could be addressed effectively through the use of brief motivationally focused interventions.

Keywords

Alcohol; comorbidity; depression; hazardous drinking

Why should we be concerned about nondependent levels of drinking among depressed patients? There is reason to believe that patients who drink at heavy or hazardous levels do not fare as well in depression treatment, when compared with those who drink at lower rates or do not drink at all. There is also a great deal of evidence for a strong association between level of drinking and level of depressive symptoms. Heavy or hazardous drinking differs from alcohol-use disorders in that a heavy-drinking individual may not currently be experiencing the types of negative consequences of drinking associated with the clinical syndromes of alcohol abuse and dependence; however, these individuals are drinking at levels that may place them at risk for these consequences.

Increasing evidence indicates that heavy alcohol use may interfere with depression treatment. Rae, Joyce, Luty, and Mulder (2002) found that among depressed patients with a history of alcohol dependence, those who were current heavy drinkers experienced worse depression treatment outcomes. Worthington et al. (1996) found that level of baseline alcohol consumption was significantly related to poorer response to fluoxetine in a sample of depressed outpatients who did not abuse substances, even after adjusting for baseline major depressive disorder (MDD) severity. In this study, average alcohol intake was less than one ounce per day, demonstrating that even very moderate levels of alcohol consumption can negatively impact the pharmacological treatment of depression (Worthington et al., 1996). Even after excluding patients with alcohol and drug use disorders from their clinical trial, Hoencamp, Haffmans,

Correspondence concerning this article should be addressed to Susan E. Ramsey, Rhode Island Hospital, Division of General Internal Medicine, 593 Eddy Street, Providence, RI 02903. Susan_Ramsey@Brown.edu.

and Duivenvoorden (1998) found that depressed patients with a history of moderate alcohol use were more likely to drop out of pharmacological depression treatment.

Hazardous alcohol use has also been found to be associated with greater depressive symptoms among individuals who are not undergoing treatment for depression. Caldwell et al. (2002) found that male hazardous drinkers experienced less positive affect and greater depression and anxiety, while female hazardous drinkers experienced greater negative affect and depression. Levels of depressive symptoms have been found to be related to frequency of intoxication, drinking to get drunk, and binge drinking (Bonin, McCreary, & Sadava, 2000; Wang & Patten, 2002), and levels of alcohol involvement and dysphoria have been found to be significantly related to one another (Locke & Newcomb, 2001). Using a large community sample, Rodgers et al. (2000) found that those who reported hazardous drinking were 1.89 to 2.34 times more likely than nonhazardous drinkers to exceed clinical cutoffs on measures of depressive symptoms. In addition, men drinking 14 to 27 drinks per week and women drinking 7 to 13 drinks per week endorsed significantly more symptoms of depression than those who drank at lower levels (Rodgers et al., 2000). In a meta-analysis of 10 general population studies, heavy drinkers consistently were more likely than light drinkers to be depressed (Fillmore et al., 1998). Hamalainen et al. (2001) found in a large community sample that weekly intoxication was associated with meeting criteria for MDD in the past year, even after controlling for other risk factors for MDD.

Other research has demonstrated a prospective relationship between depression and heavy alcohol use. For example, Aalto-Setala, Marttunen, Tuulio-Henriksson, Poikolainen, and Lonnqvist (2002) found that depressive symptoms among high school students predicted problem drinking in early adulthood. In a population study, Wang and Patten (2001) found that depressed women were at greater risk than nondepressed women of becoming frequent heavy drinkers. Similarly, Crum, Brown, Liang, and Eaton (2001) demonstrated that depressed female problem drinkers were twice as likely to become daily drinkers compared with nondepressed female problem drinkers. Depressed male problem drinkers were three times as likely to become daily drinkers compared with their cohort of nondepressed problem drinkers (Crum et al., 2001).

Similarly, heavy drinking has been found to be associated with two to three times the risk of mood disorders, compared with lifetime abstinence from alcohol (Ross, Rehm, & Walsh, 1997). This relationship has been supported longitudinally. Brook, Brook, Zhang, Cohen, and Whiteman (2002) found that heavy alcohol use during childhood, adolescence, or early adulthood significantly predicted MDD in a person's late twenties, even after controlling for earlier MDD. Additionally, Perreira and Sloan (2002) found that within an older male population, problem drinkers at baseline were significantly more likely than those who were not problem drinkers to develop depression at a 6-year follow-up.

Heavy alcohol use may produce or exacerbate depressive symptoms through several potential mechanisms. The first concerns the direct pharmacological effects of alcohol use. Even moderate doses of alcohol can reduce the availability of tryptophan, which is a precursor to serotonin (Badawy, Morgan, Lovett, Bradley, & Thomas, 1995), and low serotonin levels have been implicated in the etiology of depression (Meltzer & Lowy, 1987). Second, as proposed by Davidson and Ritson (1993), heavy alcohol use may produce or exacerbate depressive symptoms indirectly through its effects on the psychosocial functioning of the individual. Alcohol-related negative consequences may result in feelings of guilt, hopelessness, and low self-worth. Third, heavy alcohol use may impede treatment seeking and adherence to psychotherapy and antidepressant medication. Fourth, heavy alcohol use may interfere with the adoption of alternative, more adaptive methods of coping with negative affect through its negative impact on cognitive functioning. Reliance on drinking as a means of coping with

negative affect has been found to be associated with higher levels of alcohol consumption, more drinking problems, and dependent drinking (e.g., Holahan, Moos, Holahan, Cronkite, & Randall, 2003). Therefore, depressed patients who drink may be at particular risk for developing significant alcohol-related problems.

While the literature suggests that nondependent levels of alcohol consumption may impact the treatment of depression, subclinical levels of consumption may not be addressed in a general psychiatric or psychological setting. Taken together, the current literature suggests a need to routinely assess alcohol use and to address alcohol use among the large number of depressed patients who are drinking heavily.

Alcohol Use Should Be Assessed Routinely as Part of Psychological or Psychiatric Care

Of course, the first step to being able to address potentially problematic alcohol use is to assess alcohol use as a routine part of psychological or psychiatric care (Hulse & Tait, 2002). Although clinicians may assess alcohol use and symptoms of alcohol-use disorders, they may not fully appreciate the importance of addressing subclinical alcohol use among their depressed patients. As reviewed above, even drinking that does not rise to the level of alcohol abuse or dependence may worsen depressive symptoms and dampen the efficacy of depression treatment. Therefore, there is a need for a thorough assessment of alcohol use, in addition to alcohol-related problems and disorders. This can be achieved through very simple questions concerning quantity and frequency of alcohol use: “How often do you drink alcohol?” and “When you do drink alcohol, how many drinks do you typically have?”

Unfortunately, to our knowledge, no extant studies have attempted to determine the level at which alcohol consumption is detrimental to depression treatment. It is quite likely that standard recommendations, such as the limits suggested by the National Institute on Alcohol Abuse and Alcoholism (1995) for “at risk” drinking, are not appropriate for this population. The few studies that have examined the association between alcohol use and depression have found that alcohol use negatively impacts depression even among samples who drink moderately (Hoencamp et al., 1998; Sherbourne, Hays, & Wells, 1995; Worthington et al., 1996). Furthermore, there is likely to be significant individual variation in the level at which alcohol use negatively impacts depressive symptoms and depression treatment. Therefore, clinicians may need to conduct a thorough idiographic assessment to determine the potential influence of alcohol use on depressive symptoms and other functioning for each patient and make recommendations regarding drinking that are consistent with that assessment. Alternatively, clinicians may choose to recommend at least temporary periods of abstinence for their depressed patients.

Brief Motivationally Focused Interventions May Effectively Address Alcohol Use Among Depressed Patients

Recognition of the strong association between psychiatric and substance use disorders has led to the development of innovative interventions for dually diagnosed patients. Specifically, a growing body of research supports the use of motivational interventions for addressing substance use problems among patients with comorbid psychiatric and substance use disorders. Daley, Salloum, Zuckoff, Kirisci, and Thase (1998) compared motivational therapy with standard outpatient treatment following the hospitalization of depressed cocaine-dependent patients; motivational therapy resulted in greater treatment adherence and fewer hospitalizations over the course of 1 year, relative to standard outpatient treatment (Daley et al., 1998). Martino, Carroll, O’Malley, and Rounsaville (2000) reported less tardiness and

fewer early departures from partial hospital treatment following a preadmission, single-session motivational intervention, compared with a standard preadmission interview, among patients with comorbid psychiatric (mood or psychotic) and substance use disorders (Martino et al., 2000). In a similar vein, adding a one-session motivational intervention to standard inpatient psychiatric treatment has been found to result in a significantly higher rate of attendance at the initial outpatient appointment for patients with comorbid psychiatric and substance use disorders (Daley & Zuckoff, 1998; Swanson, Pantalon, & Cohen, 1999). Psychiatric treatment attendance is strongly related to clinical outcomes (e.g., Green & Pope, 2000). In a feasibility study, Carey, Carey, Maisto, and Purnine (2002) found that psychiatric outpatients with a comorbid schizophrenia spectrum disorder or bipolar disorder and a substance use disorder reported greater readiness to change their substance use and were more involved in substance-related treatment after a four-session motivational intervention, relative to baseline assessment.

Although an increasing body of empirical work has focused on interventions with patients with comorbid psychiatric and substance use disorders, far less attention has been devoted to psychiatric patients who drink heavily but do not meet diagnostic criteria for alcohol dependence. The proportion of the general population who drink heavily or excessively without being dependent on alcohol is substantially larger than the proportion who are dependent on alcohol (e.g., Skinner, 1990). In fact, the Institute of Medicine (1990) concluded that the ratio of “problem drinkers” to those who are alcohol dependent is approximately 4:1. As discussed previously, even moderate levels of alcohol consumption may negatively impact depression treatment (Hoencamp et al., 1998; Worthington et al., 1996). Furthermore, heavy drinkers with less severe alcohol problems may be especially amenable to change following relatively brief intervention (Heather, 1995), and heavy drinking is less likely than alcohol dependence to be addressed routinely in psychiatric care.

To date, only one intervention has specifically addressed heavy drinking among psychiatric patients. Hulse and Tait (2002) evaluated the efficacy of a brief motivational intervention among psychiatric patients who reported drinking at hazardous levels prior to hospitalization. The patients were randomized to either the motivational-intervention condition or a psychoeducational condition when discharged from an inpatient hospitalization. At a 6-month follow-up, patients in the motivational-intervention condition reported a significantly greater reduction in weekly alcohol consumption compared with the psychoeducational group.

Despite the scant empirical literature examining motivational interventions with heavy-drinking psychiatric populations, the existing literature does provide a strong basis for the potential of brief, motivationally focused interventions that are based on the principles of motivational interviewing (Miller & Rollnick, 1991) to reduce heavy drinking in the general population. Motivational interviewing is a collaborative, nonconfrontational approach to addressing a patient’s ambivalence regarding behavior change. In McCrady’s (2000) review of treatments for alcohol abuse and dependence, brief intervention was one of only two treatments that met criteria for *efficacious treatment*, and motivational enhancement was the sole treatment that met criteria for *probably efficacious treatment*. Similar conclusions have been reached in other reviews (e.g., Miller et al., 1995; Miller & Wilbourne, 2004; Moyer, Finney, Swearington, & Vergun, 2002; Wilk, Jensen, & Havighurst, 1997). Furthermore, brief motivationally focused interventions have been shown to be effective even among drinkers who are not seeking treatment for alcohol problems (e.g., Heather, Rollnick, Bell, & Richmond, 1996; Marlatt et al., 1998; Neal & Carey, 2004; Wutzke, Conigrave, Saunders, & Hall, 2002) and, in fact, may be most appropriate for those with less severe alcohol problems (Heather, 1995).

Bien, Miller, and Tonigan (1993) suggested that despite differences among studies, the content of brief interventions tends to involve elements of the FRAMES acronym described by Miller

and Rollnick (1991): *Feedback* about the person's drinking and risk relative to population norms, an emphasis on personal *responsibility* for deciding to change behavior, *advice* to change drinking behavior, a *menu* of options for carrying out a change strategy, the use of *empathy* by the clinician, and the encouragement of *self-efficacy* for successful change. The nonconfrontational approach advocated by Miller and Rollnick (1991) lends itself especially well to a context in which individuals are not seeking treatment for alcohol problems, where patients may be ambivalent about changing their alcohol use and may resist admonishments to do so. Personalized feedback on the effects of drinking on depressive symptoms and discussion of alternative options for modifying alcohol use may encourage patients to make more meaningful changes in alcohol use than standard psychological or psychiatric care alone. Depression treatment may represent an ideal context in which to intervene around alcohol use when the connection is drawn between drinking and the depressive symptoms for which patients are seeking treatment. Reductions in drinking may, in turn, result in significantly improved depression outcomes.

A key premise of interventions based on motivational interviewing is that ambivalence is normal (Miller & Rollnick, 1991). The assumption is that an individual would not be engaging in a given behavior if it did not serve some function. Brief alcohol interventions can address ambivalence directly by asking patients about both the pros and cons of their current drinking levels. In addition, the therapist can help patients to understand the nature of the connection between heavy drinking and the symptoms of depression that they are experiencing, which may help to tip the balance in favor of making a change in alcohol use. Decision-making models suggest that expectations about the effects of behavior change determine, in large part, whether a decision to change is made (Sutton, 1987). For example, perceived costs and benefits of changing drinking (Cunningham, Sobell, Gavin, Sobell, & Breslin, 1997; Rollnick, Morgan, & Heather, 1996), as well as positive (Brown, 1985) and negative alcohol expectancies (Jones & Mc-Mahon, 1994a, 1994b), have been shown to predict future alcohol use.

Among heavy-drinking depressed patients, readiness to change drinking behavior may be influenced not only by expectancies regarding alcohol use, but also by beliefs about the effects of alcohol use on their depressive symptoms. That is, patients who believe that their current alcohol use will interfere with their depression treatment may be more willing to change their drinking than those who do not see a link between the two. As part of this discussion, the therapists can attempt to highlight the discrepancy that exists between patients' current situations and what they desire (Miller & Rollnick, 1991). How does the current situation differ from their ideal? For most patients, relief of depressive symptoms will be the foremost concern. Therefore, it may be particularly important for therapists to help patients understand the impact of their alcohol use on depressive symptoms. Therapists can attempt to draw on patients' own experiences in this regard, when possible. For example, therapists can question patients about changes they have noticed in their mood, sleep, energy level, libido, and concentration when they have been drinking and can provide psychoeducation about the connection between alcohol use and these factors. During the course of depression treatment, it may be useful for therapists to reassess alcohol use when there are increases in depressive symptoms (e.g., sleep, libido) that are affected by drinking or when these symptoms do not improve. It may even be helpful to ask patients to keep a log of their drinking and depressive symptoms to help determine whether there is a temporal association between the two.

Another key principle of motivational interviewing is supporting self-efficacy (Miller & Rollnick, 1991). This goal is particularly important for interventions with depressed patients, given that hopelessness is a commonly endorsed symptom of MDD (American Psychiatric Association, 1994). Therapists can attempt to enhance self-efficacy in a number of ways: expressing confidence in patients' ability to make a change, making it clear to patients that they are responsible for choosing to make a change and for carrying out that change, presenting

patients with a number of change options, and highlighting the resources patients have available to assist in the desired change, including psychological and psychiatric treatment providers and significant others (Miller & Rollnick, 1991). It is important to incorporate the remaining general principles of motivational interviewing (express empathy, avoid argumentation, and roll with resistance; Miller & Rollnick, 1991) into a brief alcohol intervention with depressed patients. Most heavy-drinking depressed patients will not be seeking treatment for alcohol-related issues. Therefore, avoiding argumentation and rolling with resistance are crucial to continuing a productive discussion about their alcohol use. These efforts are aided by making it clear to patients that it is up to them to decide what they will do about their drinking and that the therapist is available as a resource to help them make a more informed choice.

Implications for Practice

Heavy drinkers represent a significant subpopulation of depressed patients who are more likely to do poorly in depression treatment in the absence of a change in their drinking behavior and are at risk for drinking-related consequences as well. We believe that current research and practice have devoted insufficient attention to assessing alcohol use and addressing heavy alcohol use among depressed patients. In the absence of the data necessary to establish recommended drinking levels for depressed patients, clinicians may need to conduct an idiographic assessment to determine the potential influence of alcohol use on depressive symptoms for a particular patient. Brief motivationally focused interventions to reduce heavy alcohol use have been well validated in a variety of patient populations and offer the promise of improving depression treatment outcomes among heavy-drinking patients. Such interventions could be readily integrated into depression treatment in a variety of treatment settings.

Acknowledgments

THIS WORK WAS SUPPORTED in part by Grant AA13895 to Susan E. Ramsey from the National Institute on Alcohol Abuse and Alcoholism.

Biographies

SUSAN E. RAMSEY earned her PhD in clinical psychology from Indiana University. She is an assistant professor (research) at Brown University Medical School and Rhode Island Hospital. Her research focuses on comorbid psychiatric and substance use disorders.

PATRICIA A. ENGLER earned her PhD in clinical psychology from Kent State University. She is a postdoctoral fellow at Brown University Medical School and Rhode Island Hospital. Her research focuses on affect regulation and brief interventions.

MICHAEL D. STEIN received his MD from Columbia College of Physicians and Surgeons. He is professor of medicine and community health at Brown University Medical School and director of the Substance Abuse Research Unit at Rhode Island Hospital. His research focuses on the intersection of primary care, mental health, and substance abuse treatment.

References

Aalto-Setala T, Marttunen M, Tuulio-Henriksson A, Poikolainen K, Lonnqvist J. Depressive symptoms in adolescence as predictors of early adulthood depressive disorders and maladjustment. American Journal of Psychiatry 2002;159:1235–1237. [PubMed: 12091207]

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Author; Washington, DC: 1994.

Badawy AA, Morgan CJ, Lovett JW, Bradley DM, Thomas R. Decrease in circulating tryptophan availability to the brain after acute ethanol consumption by normal volunteers: Implications for alcohol-induced aggressive behavior and depression. Pharmacopsychiatry 1995;28:93–97. [PubMed: 8614707]

Bien TH, Miller WR, Tonigan JS. Brief interventions for alcohol problems: A review. Addiction 1993;88:315–336. [PubMed: 8461850]

Bonin MF, McCreary DR, Sadava SW. Problem drinking behavior in two community-based samples of adults: Influence of gender, coping, loneliness, and depression. Psychology of Addictive Behaviors 2000;14:151–161. [PubMed: 10860114]

Brook DW, Brook JS, Zhang C, Cohen P, Whiteman M. Drug use and the risk of major depressive disorder, alcohol dependence, and substance use disorders. Archives of General Psychiatry 2002;59:1039–1044. [PubMed: 12418937]

Brown SA. Reinforcement expectancies and alcoholism treatment outcome after a one-year follow-up. Journal of Studies on Alcohol 1985;46:304–308. [PubMed: 2993749]

Caldwell TM, Rodgers B, Jorm AF, Christensen H, Jacomb PA, Korten AE, Lynskey MT. Patterns of association between alcohol consumption and symptoms of depression and anxiety in young adults. Addiction 2002;97:583–594. [PubMed: 12033659]

Carey KB, Carey MP, Maisto SA, Purnine DM. The feasibility of enhancing psychiatric outpatients' readiness to change their substance use. Psychiatric Services 2002;53:602–608. [PubMed: 11986511]

Crum RM, Brown C, Liang K-Y, Eaton WW. The association of depression and problem drinking: Analyses from the Baltimore ECA follow-up study. Addictive Behaviors 2001;26:765–773. [PubMed: 11676386]

Cunningham JA, Sobell LC, Gavin DR, Sobell MB, Breslin FC. Assessing motivation for change: Preliminary development and evaluation of a scale measuring the costs and benefits of changing alcohol or drug use. Psychology of Addictive Behaviors 1997;11:107–114.

Daley DC, Salloum IM, Zuckoff A, Kirisci L, Thase ME. Increasing treatment adherence among outpatients with depression and cocaine dependence: Results of a pilot study. American Journal of Psychiatry 1998;155:1611–1613. [PubMed: 9812129]

Daley DC, Zuckoff A. Improving compliance with the initial outpatient session among discharged inpatient dual diagnosis clients. Social Work 1998;43:470–473. [PubMed: 9739634]

Davidson KM, Ritson EB. The relationship between alcohol dependence and depression. Alcohol & Alcoholism 1993;28:147–155. [PubMed: 8517885]

Fillmore KM, Golding JM, Graves KL, Kniep S, Leino EV, Romelsjo A, et al. Alcohol consumption and mortality: I. Characteristics of drinking groups. Addiction 1998;93:183–203. [PubMed: 9624721]

Green CA, Pope CR. Depressive symptoms, health promotion, and health risk behaviors. American Journal of Health Promotion 2000;15:29–34. [PubMed: 11184116]

Hamalainen J, Kaprio J, Isometsa E, Heikkinen M, Poikolainen K, Lindeman S, Aro H. Cigarette smoking, alcohol intoxication and major depressive episode in a representative population sample. Journal of Epidemiology and Community Health 2001;55:573–576. [PubMed: 11449015]

Heather N. Interpreting the evidence on brief interventions for excessive drinkers: The need for caution. Alcohol and Alcoholism 1995;30:287–296. [PubMed: 7545982]

Heather N, Rollnick S, Bell A, Richmond R. Effect of brief counseling among male heavy drinkers identified on general hospital wards. Drug and Alcohol Review 1996;15:38.

Hoencamp E, Haffmans PMJ, Duivenvoorden HJ. Predictability of dropout in unipolar depressed outpatients. European Psychiatry 1998;13:63–66. [PubMed: 19698601]

Holahan CJ, Moos RH, Holahan CK, Cronkite RC, Randall PK. Drinking to cope and alcohol use and abuse in unipolar depression: A 10-year model. Journal of Abnormal Psychology 2003;112:159–165. [PubMed: 12653424]

Hulse GK, Tait RJ. Six-month outcomes associated with a brief alcohol intervention for adult in-patients with psychiatric disorders. Drug and Alcohol Review 2002;21:105–112. [PubMed: 12188988]

Institute of Medicine. Broadening the base of treatment for alcohol problems. National Academy Press; Washington, DC: 1990.

Jones BT, McMahon J. Negative alcohol expectancy predicts post-treatment abstinence survivorship: The whether, when and why of relapse to a first drink. Addiction 1994a;89:1653–1665. [PubMed: 7866249]

Jones BT, McMahon J. Negative and positive alcohol expectancies as predictors of abstinence after discharge from a residential treatment program: A one-month and three-month follow-up study in men. Journal of Studies on Alcohol 1994b;55:543–548. [PubMed: 7990464]

Locke TF, Newcomb MD. Alcohol involvement and dysphoria: A longitudinal examination of gender differences from late adolescence to adulthood. Psychology of Addictive Behaviors 2001;15:227–236. [PubMed: 11563800]

Marlatt GA, Baer JS, Kivlahan DR, Dimeff LA, Larimer ME, Quigley LA, et al. Screening and brief alcohol intervention for high-risk college student drinkers: Results from a 2-year follow-up assessment. Journal of Consulting and Clinical Psychology 1998;66:604–615. [PubMed: 9735576]

Martino S, Carroll KM, O'Malley SS, Rounsaville BJ. Motivational interviewing with psychiatrically ill substance abusing patients. American Journal on Addictions 2000;9:88–91. [PubMed: 10914297]

McCrady BS. Alcohol use disorders and the Division 12 Task Force of the American Psychological Association. Psychology of Addictive Behaviors 2000;14:277–286. [PubMed: 10998953]

Meltzer, HY.; Lowy, MT. The serotonin hypothesis of depression. In: Meltzer, HY., editor. Psychopharmacology. Raven Press; New York: 1987. p. 513-526.

Miller, WR.; Brown, JM.; Simpson, TL.; Handmaker, NS.; Bien, TH.; Luckie, LF., et al. What works? A methodological analysis of the alcohol treatment outcome literature. In: Hester, RK.; Miller, WR., editors. Handbook of alcoholism treatment approaches: Effective alternatives. Allyn & Bacon; Needham Heights, MA: 1995. p. 12-44.

Miller, WR.; Rollnick, S. Motivational interviewing: Preparing people to change addictive behaviors. Guilford Press; New York: 1991.

Miller WR, Wilbourne PL. Mesa Grande: A methodological analysis of clinical trials of treatments for alcohol use disorders. Addiction 2004;97:265–277. [PubMed: 11964100]

Moyer A, Finney JW, Swearington CE, Vergun P. Brief interventions for alcohol problems: A meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. Addiction 2002;97:279–292. [PubMed: 11964101]

National Institute on Alcohol Abuse and Alcoholism. The physician's guide to helping patients with alcohol problems. National Institutes of Health; Rockville, MD: 1995. (NIH Publication No. 95–3769)

Neal DJ, Carey KB. Developing discrepancy within self-regulation theory: Use of personalized normative feedback and personal strivings with heavy-drinking college students. Addictive Behaviors 2004;29:281–297. [PubMed: 14732417]

Perreira KM, Sloan FA. Excess alcohol consumption and health outcomes: A 6-year follow-up of men over age 50 from the health and retirement study. Addiction 2002;97:301–310. [PubMed: 11964106]

Rae AM, Joyce PR, Luty SE, Mulder RT. The effect of a history of alcohol dependence in adult major depression. Journal of Affective Disorders 2002;70:281–290. [PubMed: 12128240]

Rodgers B, Korten AE, Jorm AF, Jacomb PA, Christensen H, Henderson AS. Non-linear relationships in associations of depression and anxiety with alcohol use. Psychological Medicine 2000;30:421–432. [PubMed: 10824662]

Rollnick S, Morgan M, Heather N. The development of a brief scale to measure outcome expectations of reduced consumption among excessive drinkers. Addictive Behaviors 1996;21:377–387. [PubMed: 8883487]

Ross H, Rehm J, Walsh G. Patterns of alcohol consumption and psychiatric disorders among Ontario adults. Contemporary Drug Problems 1997;24:533–556.

Sherbourne CD, Hays RD, Wells KB. Personal and psychosocial risk factors for physical and mental health outcomes and course of depression among depressed patients. Journal of Consulting and Clinical Psychology 1995;63:345–355. [PubMed: 7608346]

Skinner HA. Spectrum of drinkers and intervention opportunities. Canadian Medical Association Journal 1990;143:1054–1059. [PubMed: 2224673]

Sutton S. Social–psychological approaches to understanding addictive behaviors: Attitude–behavior and decision-making models. British Journal of Addiction 1987;82:355–370. [PubMed: 3472583]

Swanson AJ, Pantalon MV, Cohen KR. Motivational interviewing and treatment adherence among psychiatric and dually diagnosed patients. Journal of Nervous and Mental Disease 1999;187:630–635. [PubMed: 10535657]

Wang JL, Patten SB. A prospective study of sex-specific effects of major depression on alcohol consumption. Canadian Journal of Psychiatry 2001;46:422–425.

Wang JL, Patten SB. Prospective study of frequent heavy alcohol use and the risk of major depression in the Canadian general population. Depression and Anxiety 2002;15:42–45. [PubMed: 11816052]

Wilk AI, Jensen NM, Havighurst TC. Meta-analysis of randomized control trials addressing brief interventions in heavy alcohol drinkers. Journal of General Internal Medicine 1997;12:274–283. [PubMed: 9159696]

Worthington J, Fava M, Agustin C, Alpert J, Nierenberg AA, Pava JA, Rosenbaum JF. Consumption of alcohol, nicotine, and caffeine among depressed outpatients. Psychosomatics 1996;37:518–522. [PubMed: 8942202]

Wutzke SE, Conigrave KM, Saunders JB, Hall WD. The long-term effectiveness of brief interventions for unsafe alcohol consumption: A 10-year follow-up. Addiction 2002;97:665–675. [PubMed: 12084136]