

Managing Depressive Symptoms: A Review of the Literature*

Treatment Improvement Protocol (TIP) Series

48

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*This document is available online only (<http://www.kap.samhsa.gov>) and supports TIP 48, Managing Depressive Symptoms in Substance Abuse Clients During Early Recovery.



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Section 1—A Review of the Literature

Introduction

Overview

This Treatment Improvement Protocol (TIP) is designed to assist **substance abuse counselors** in working with adult clients who are experiencing **depressive symptoms** (see discussion in Part 1, Chapter 1) and **administrators** in supporting the work of substance abuse counselors. Depressive symptoms are common among clients in substance abuse treatment. Research indicates that substance abuse counselors will encounter significant numbers of individuals with co-occurring depressive symptoms.

When they occur, depressive symptoms can make working with clients more difficult. They can also interfere with clients' recovery and ability to participate in treatment. Table 1.1 in Part 1, Chapter 1 of this TIP lists symptoms of depression. These symptoms are found in clients with mood disorders defined in the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, Text Revision (DSM IV-TR; American Psychiatric Association [APA] 2000) as well in clients who present with depressive symptoms but without psychiatric illness. These clients are often referred to as experiencing “subclinical” or “mild” depression. Subclinical depression is differentiated from mood disorders by the number of symptoms present, the impact (or severity) of symptoms on the individual, and by the length of time the symptoms have been present.

The methods and techniques presented in this TIP are appropriate for clients in all stages of recovery. However, the focus of this TIP is on the first few months of **early recovery**, when depressive symptoms are particularly common.

This TIP is not intended to instruct or encourage substance abuse counselors in treating any mood disorder as defined in the DSM IV-TR (APA 2000a). Clients with diagnosed mood disorders (e.g., major depression, dysthymia, cyclothymia, bipolar disorder, substance-induced mood disorder, etc.) need specialized treatment from a trained and licensed mental health professional.

Content

This TIP is divided into three parts that are bound or produced separately:

- **Part 1:** *Managing Depressive Symptoms in Substance Abuse Clients During Early Recovery*
- **Part 2:** *Managing Depressive Symptoms: An Implementation Guide for Administrators*
- **Part 3:** *Managing Depressive Symptoms: A Review of the Literature*

This part, **Part 3**, is a literature review on the topic of depressive symptoms, and is available for use by clinical supervisors, interested substance abuse counselors, and administrators. It includes literature that addresses both clinical and administrative concerns. To facilitate ongoing updates (which will be performed every 6 months for up to 5 years from first publication), the literature review will only be available online at <http://www.kap.samhsa.gov>.

The following topics are addressed in **Part 3**:

- Review of the literature pertaining to clinical issues discussed in Part 1 of this TIP.
- Review of the literature pertaining to administrative issues discussed in Part 2 of this TIP.
- Information about the methodology used to perform the literature search (see appendix A).
- An annotated bibliography of 82 core sources and a general bibliography.

Printed copies of Parts 1 and 2 can be obtained from SAMHSA's National Clearinghouse for Alcohol and Drug Information (<http://www.ncadi.samhsa.gov>). Electronic copies can be downloaded from <http://www.kap.samhsa.gov>.

More information on substance abuse treatment for people with depressive disorder diagnoses can be found in TIP 42, *Substance Abuse Treatment for Persons with Co-Occurring Disorders* (Center for Substance Abuse Treatment, 2005).

Clinical Issues

There is a small but useful body of literature that focuses specifically on the relationship of depressive symptoms that do not reach the diagnostic criteria for clinical depression to substance use disorders and their treatment. This section of the review addresses:

- What is meant by depressive symptoms.
- Epidemiology and nosology.
- Depressive symptoms, substance abuse/dependence, and substance abuse treatment.
- Treatment modalities for depressive symptoms.

Defining Depressive Symptoms

The introduction of specific inclusion, exclusion, and duration criteria for depressive disorders in the 1970s resulted in a high degree of reliability in diagnosis. However, as Klein, Shankman, and McFarland (2006) note, there is growing recognition that these classification systems, including the DSM-IV-TR (APA, 2000) and the *International Statistical Classification of Diseases and Health Related Problems* (ICD-10; World Health Organization 2004) do not adequately capture the distinction between normality and pathology. On the one hand, some major depressive symptoms are considered a “normal” response to bereavement, but not to other losses such as divorce or abandonment. On the other hand, depressive symptoms that do not meet a diagnostic threshold may cause considerable suffering and impairment (Angst & Merikangas, 1997), and research has consistently shown that dysfunction and impairment (both occupational and social) are associated with subdiagnostic levels of depressive symptoms (Solomon, 2001). At least one major longitudinal study (Angst, Sellaro, & Merikangas, 2000) suggests that individuals followed for 15 years showed little stability in regard to depression diagnoses.

Among the various recommendations for revisions to the classification of depressive disorders have been several efforts to define depressive disorders that are milder in symptomatology or duration than major depressive disorder (MD), dysthymic disorder, bipolar disorders, substance-induced mood disorders, or other depressive illnesses. Most evidence suggests that subthreshold depressive symptoms exist on a continuum with unipolar clinical depression, but further research is needed to rule out the possibility of a latent qualitative difference between subthreshold and diagnosable depression (Solomon, 2001). These disorders have been variously referred to “subclinical depression,” “minor depression,” and “mild depression.” Objections may be raised that terms such as “mild” and “minor” minimize the suffering associated with these disorders. Accordingly, we will refer to “depressive symptoms” with the understanding that this term implies a level of disorder (i.e., clinically significant impairment or dysfunction) that does *not* qualify for diagnosis as a mood disorder. Where investigators use a specific term in their writing, we simply use the term they have chosen.

As early as 1978, Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978, p. 773) defined a non-major depressive disorder as, “Nonpsychotic episodes of illness in which the most prominent disturbance is a relatively sustained mood of depression without the full depressive syndrome, although some associated features must be present. It may be chronic or episodic.”

The RDC classification excludes symptoms due to bereavement and requires depressed mood, two depressive symptoms, and impairment or help-seeking. The duration of symptoms must be 1 week for a probable diagnosis and 2 weeks for a definite diagnosis.

The descriptive portion of the RDC criteria (i.e., “relatively sustained mood of depression without the full depressive syndrome”) captures the essence of almost all phenomenological discussion of “depressive symptoms”

(e.g., Angst & Merikangas, 1997; Beck & Koenig, 1996; Kessler, Zhao, Blazer, & Swartz, 1997; Rapaport et al., 2002), in which the sufferer feels depressed and is dysfunctional but does not meet the criteria for clinical depression.

Not surprisingly then, many attempts to operationalize definitions of “depressive symptoms” rely on the DSM or ICD criteria for MD, but choose some lesser number of criteria as the cutoff. This is the strategy adopted by DSM-IV-TR in establishing research criteria for minor depression: two to four of the nine criteria for MD (one of the symptoms must be depressed mood) accompanied by distress or impairment of functioning.

Beck and Koenig’s (1996) review suggests that the “not MD” operational definition is also widely used. These definitions differ in the number of MD criteria that must be met (which can be as few as one), the requirement that one of the symptoms is depressed mood (not universally required), whether a previous episode of mood disorder is an exclusion criterion, and whether MD and dysthymia must be specifically ruled out.

Within the research context (e.g., Peck, Reback, Yang, Rotheram-Fuller, & Shoptaw, 2005; Rapaport et al., 2002), some investigators have relied on questionnaires and rating scales (e.g., Beck Depression Inventory, the National Institute of Mental Health Diagnostic Interview Schedule) to classify subjects as having “depressive symptoms.” However, these strategies are conceptually similar to those that rely on DSM or ICD criteria in that a lower cutoff than that associated with MD is chosen as the inclusion criterion.

Despite a rather wide range of possible definitions, there appears to be a general consensus that the phenomenon variously called mild depression, minor depression, or depressive symptoms is a real condition and that it causes significant disruptions in functioning for those it affects (e.g., Martin, Blum, Beach, & Roman, 1996; Solomon, 2001).

Epidemiology and Nosology

Because the major work in this area has been conducted by Kessler and his colleagues, we will use here his term, “mild depression.” Studies of mild depression are relatively recent and, as already noted, definitions and inclusion criteria differ. However, some epidemiologic findings are available.

Kessler and colleagues (1997) analyzed data from the National Comorbidity Survey (NCS) to study the lifetime prevalence, correlates, course, and impairments associated with mild depression and to compare these with lifetime prevalence, correlates, course, and impairments associated with two levels of MD: 5–6 symptoms (MD 5–6) and 7–9 symptoms (MD 7–9). The estimated lifetime prevalence for mild depression was 10 percent in the general population as compared to 8.3 percent for MD 5–6, and 7.5 percent for MD 7–9. All three disorders were elevated among women, non-Hispanic whites, and the unemployed. However, unlike the case with MD and dysthymic disorder, rates of mild depression showed significant regional differences, with rates highest in the West and lowest in the South.

Almost 75 percent of persons with mild depression report more than one depressive episode. Symptom severity was correlated with the number of episodes and their duration. Over their lifetimes, people with mild depression showed fewer episodes of shorter duration than those with MD 5–6 or MD 7–9. Impairment associated with a given episode also increased as a function of the number of symptoms. However, the number of people with mild depression who reported impairment (42%) was not much lower than the number of persons with MD 5–6 who reported impairment (49.7%).

A replication study has been conducted for the NCS, but to date no publications are available detailing findings from that study relative to mild depression.

Kessler’s data are in substantial agreement with a Zurich study of 600 young adults that found 11 percent had experienced mild depression at some time before the age of 30 (Angst et al., 2000). In a review of multiple studies, Beck and Koenig (1996) report lifetime rates of mild depression ranging from 8 to 74 percent using a wide range of inclusion criteria. A recent review of mild depression studies places the point prevalence of mild depression between 2 and 5 percent (Rapaport et al., 2002).

The temporal relationship between mild depression and MD has received some research attention. Kessler and colleagues (1997) found that most people who made a transition to MD did so after a large number of mild

depression episodes. Rapaport and colleagues (2002) conclude that mild depression can occur independently of a lifetime history of MD, or can be a stage of MD in the course of recurrent unipolar depression. However, they note an odds ratio of 4.4 of developing MD within a year for persons with depressive symptoms compared with people with no symptoms. Based on their own work and a review of the literature, Rapaport and colleagues (2002, p. 637) sum up the evidence on the relationship between MD and mild depression, stating that “individuals with a history of major depressive disorder freely traverse between major depressive disorder, minor depression, and subsyndromal depressive symptoms.”

It is as yet unclear whether mild depression represents a separate disorder or reflects the lower end of a spectrum of depressive disorders (Angst et al., 2000; Solomon, 2001) that differ in intensity and duration, but not necessarily in kind. However, data raise questions as to the validity of viewing mild depression as a separate category. Kessler and colleagues (1997) note that almost all observed differences between mild depression and MD categories 5–6 and 7–9 are monotonic functions that are well described by the number of symptoms. Moreover, the magnitude of differences between mild depression and MD 5–6 are similar to the magnitude of differences between MD 5–6 and MD 7–9. In other words, the data suggest a single disorder varying in severity rather than any real difference between mild depression and MD. Rapaport and colleagues (2002) also note that data on familial transmission of MD and mild depression and the fluidity of MD and mild depression with relatively short timeframes argue against treating these as separate disorders.

Elsewhere, Kessler and colleagues (2005) note that almost half the respondents in the NCS who received treatment did not meet DSM-IV-TR criteria for a disorder.

Using a different measure (i.e., whether individuals endorsed specific screening questions for low mood and anhedonia), the National Institute on Alcohol Abuse and Alcoholism’s National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) determined that 33.8 percent of the population had some form of “mild” or “minor” depression (Compton, Conway, Stinson, & Grant, 2006). However, the NCS measure of mild depression is a more clinically significant measure of depressive symptoms than this measure from the NESARC.

The DSM-IV-TR also recognizes that there are specific features of depressive-spectrum disorders related to gender and cultural background, with certain symptoms being more common depending on age, gender, and culture. It should be expected that there can be differences in the incidence and presentation of subclinical depressive symptoms related to these factors as well.

Depressive Symptoms, Substance Abuse, and Substance Abuse Treatment

The recent emergence of concern with subclinical depressive symptoms and difficulties agreeing on definitions of the phenomenon limit the availability of data on the relationship between depressive symptoms and substance use disorders. However, a few studies that directly address the relationship do exist. In addition, useful information may be inferred from studies of clinical depression and substance abuse to the extent that subclinical and clinical depression represent points on a continuum rather than discrete disorders. Pending further research on this hypothesis, however, the most conservative approach is to stay within the bounds of studies that specifically address mild depression as defined by Kessler and colleagues (1997).

Comorbidity

Kessler and colleagues (1997) report that prior substance use disorder raises the odds of mild depression insignificantly, but that all substance use disorders taken together are a significant predictor of mild depression. There is a small but significant relationship between a client’s prior history of a substance use disorder and later mild depression.

Karno and Longabaugh (2003) studied depressive symptoms as measured by the Beck Depression Inventory (BDI) in 141 substance abuse admissions to the Providence Clinical Research Unit of Project MATCH. Of these, nearly 30 percent had BDI scores of 10 to 18 (indicative of elevated depressive symptoms) while an additional 18 percent had scores greater than 19 (indicative of clinical depression). By contrast, a study of a nontreatment

population of 75 individuals with alcohol use disorders (84% of whom met DSM-IV criteria for dependence) found only about 20 percent of participants had elevated BDI scores (Blume, Schmalings, & Marlatt, 2001).

Another study administered the BDI to 162 gay and bisexual methamphetamine abusers admitted for treatment (Peck et al., 2005). Results indicated somewhat higher levels of depression than those reported by Karno and Longabaugh: 44.8 percent were in the mild to moderate range on the BDI and an additional 28 percent were in the moderate to severe range.

Based on these very limited data, it would appear that the rates of mild depression are perhaps two to three times higher among individuals with substance use disorders than in the general population.

Treatment Outcomes Among Individuals With Substance Use Disorders and Depressive Symptoms

A number of nonexperimental studies have examined the relationship between depressive symptoms and substance abuse treatment outcomes. In general, these studies find that depressive symptoms are an impediment to recovery.

For example, an analysis of 1,450 subjects from Project MATCH (Conner, Sorensen, & Leonard, 2005) examined the association of BDI score and drinking at treatment entry and in months 2 and 3 of treatment. Elevated BDI scores predicted greater quantity and frequency of drinking during the first month of treatment, but showed little association with drinking in months 2 and 3. The authors suggest that this effect reflects drinking as a coping response, but also the interference of depressive symptoms with engagement in or attendance at treatment. Paradoxically, the effects of treatment-entry levels of drinking did not predict drinking levels during month 1. Thus, the authors conclude that depressive symptoms can provide a unique marker of those clients needing specialized interventions to increase engagement and reduce the risk of dropout.

In a study of individuals with polysubstance use disorders, Dodge, Sindelar, and Sinha (2005) found that higher depressive symptom scores at intake predicted decreased likelihood of abstinence at discharge even when demographic and treatment-related variables (e.g., length of stay) were controlled. Dumas, Blasey, and Thacker (2005) found that higher levels of depressive symptoms at treatment entry were also associated with increased dropout rates from treatment. Another study found that current major depression at admission to a hospital inpatient alcoholism program was predictive of poorer treatment outcomes at 1 year (Greenfield et al., 1998), and Strowig (2000) found that depressed mood was the most commonly cited reason for relapse after alcohol treatment.

A study of 298 male veterans (Curran et al., 2000) measured depressive symptoms during and 3 months after participation in an inpatient alcohol treatment program. Clients with mild to moderate depressive symptoms at the 3-month followup were 2.9 times more likely than nondepressed subjects to experience relapse. Severely depressed clients were 4.9 times more likely to relapse. Depressive symptoms both during treatment and at followup were no more likely to be associated with relapse than were depressive symptoms at followup only. A second study by Curran, Kirchner, Worley, Rookey, and Booth (2002) found that severe depression at intake to an intensive outpatient Department of Veterans Affairs program predicted early attrition.

Another study suggests that associating alcohol-related consequences with depression can increase clients' motivation to change their drinking behavior (Blume et al., 2001). The authors hypothesized that elevated BDI scores would be related to greater motivation to change within the stages of the transtheoretical stages of change model (Prochaska & DiClemente, 1992). Seventy-five clients with alcohol use disorders participated in the study. Of these, about 15 percent had elevated BDI scores. As predicted, BDI scores were positively correlated with precontemplation and contemplation scores as measured by the Readiness to Change questionnaire.

A limited number of studies have looked specifically at the effects of treating elevated depressive symptoms on substance abuse outcomes. Karno and Longabaugh (2003) examined whether patient depressive symptoms interacted with therapist focus on painful emotional material in predicting the outcome of alcohol treatment. For clients with clinically diagnosable depression, a low therapist focus on painful emotional material was associated with better drinking outcomes. However, this relationship did not hold for clients with mild depression. These results were confirmed by a more recent reanalysis of the data from Project MATCH (Karno & Longabaugh, 2007).

Investigators at Brown University School of Medicine (Brown, Evans, Miller, Burgess, & Mueller, 1997; Ramsey, Brown, Stuart, Burgess, & Miller, 2002) provided 8 sessions of cognitive-behavioral therapy for depression (CBT-D) or a relaxation control to 35 patients undergoing alcohol abuse treatment at a day treatment program. Subjects had Dynamic Personality Inventory scores greater than 10 and were referred to by the authors as “alcoholics with elevated depressive symptoms” to distinguish them from “depressed alcoholics” meeting diagnostic criteria for a depressive disorder. During the first 3 months of followup, the CBT-D group had more abstinent days than the control subjects, but not lower overall abstinence. However, in the 3- to 6-month followup period, the CBT-D group showed significantly greater total abstinence (47% versus 13%) as well as more days abstinent and fewer drinks per day. The authors report that subjects in the CBT-D group found the depression coping skills useful and relevant to their recovery.

Peck and colleagues (2005) monitored the course of depressive symptoms as treatment for methamphetamine dependence progressed. Participants reported a significant decrease in depressive symptoms regardless of specific treatment modality or other key variables such as HIV/AIDS status. A study by Janiri and colleagues (2005) found similar results among alcohol, opioid, and polysubstance users in three different clinical settings. In this study, depressive symptoms were correlated with craving and protracted withdrawal.

A recent meta-analysis (Nunes & Levin, 2004) examined controlled trials of antidepressant medication for the treatment of combined substance use and depressive disorders. Fourteen trials met the analysis inclusion criteria: five trials of tricyclics, seven of serotonin-specific reuptake inhibitors, and two of other classes of antidepressants. The authors conclude that antidepressant medication exerts a modest beneficial effect for patients with combined depressive and substance use disorders. However, medication should not be considered a stand-alone treatment, and concurrent therapy directly targeting the addiction is also indicated.

Subclinical levels of depressive symptoms have been associated with poorer outcomes for other health problems such as heart disease (Kubzansky, Davidson, & Rozanski, 2005).

In summary, limited available evidence suggests that elevated depressive symptoms are an impediment to recovery and that treatment outcomes improve when these symptoms are specifically addressed.

Treatment Modalities for Depressive Symptoms

The literature on the treatment of depressive disorders is vast (see, for example, Reinecke & Davison, 2002; Stein, Kupfer, & Schatzberg, 2006), but the relationship between specific treatments and improvements remains evasive (Lambert & Davis, 2002). However, in summarizing the literature on treatment of depression, Lambert and Davis (2002) conclude that the sum total of naturalistic studies and randomized controlled trials presents a comprehensive picture that demonstrates the effectiveness of psychotherapy for individuals with depression. These same authors conclude that pharmacotherapies are also effective but no more effective than psychotherapy. Additionally, current treatment guidelines for depression indicate that psychotherapy is effective, particularly with mild and moderate depression (APA, 2000b) and that a combination of psychotherapy and pharmacotherapy is more effective than pharmacotherapy alone (Fochtmann & Gelenberg, 2005).

Overall, the major impediment to successful treatment of depression appears not to be a lack of effective treatments but a lack of effective implementation of these treatments.

By comparison, research is sparse on specific treatments for depressive symptoms that do not rise to the level of diagnosable depression. As is the case for treatment of depressive symptoms in substance abuse settings, the pool of available research can be substantially increased by accepting the hypothesis that depressive symptoms and diagnosable depression constitute a continuum of severity rather than kind. Again, however, pending validation of this hypothesis, a focus specifically on populations with depressive symptoms is the most conservative approach.

Ackermann and Williams (2002) report on an extensive analysis of controlled studies of treatment for depressive symptoms. Studies were collected using the keywords “depressive disorder,” and “depression” crossed with “minor,” “subsyndromal,” “subthreshold,” and “nonmajor.” They found only five studies that compared a psychological or pharmacological treatment for depressive symptoms to a placebo or control. Their table summarizing these five controlled trials is reprinted below (see Figure 1) in its entirety.

Ackermann and Williams conclude that, collectively, these studies provide mixed support for a small to moderate benefit of the pharmacological and psychological treatments tested. The authors also report on studies of alternative treatments including aerobic exercise. They conclude that the evidence supports a positive effect of supervised exercise three times per week on mild to moderate MD. Some weak evidence exists for various botanicals and vitamins, but there is too little research upon which to base a conclusion about these treatments. The authors conclude that the currently available clinical trial data provide little guidance in the treatment of depressive symptoms that do not rise to the level of diagnosable depression.

One widely studied intervention for subclinical depressive symptoms is the Coping with Depression (CWD) course, originally developed as a treatment for MD (Lewinsohn & Clarke, 1984). The course content is based on the social learning theory premise that depression is a learned response that can be unlearned. It uses a cognitive-behavioral intervention that teaches participants techniques to influence their moods and to enhance coping skills. CWD has been implemented on a national scale for the treatment of adults with subclinical depressive symptoms in the Netherlands (Allart-van Dam, Hosman, Hoogduin, & Schaap, 2003). In the Dutch version, the course consists of 12 weekly 2-hour sessions consisting of lectures, skills training, and review of homework assignments. A booster session is offered 6 weeks after course completion. Allart-van Dam and colleagues (2003) conducted a randomly-controlled clinical trial of CWD with 110 adults with subclinical depressive symptoms. Short-term outcome data indicated that the course was successful in reducing depressive symptoms as well as affecting mediating variables such as frequency of depressive thoughts, participation in pleasant activities, and social support. Long-term outcomes are currently under investigation.

An effectiveness trial of CWD in the Netherlands was also conducted using participants in 20 CWD groups organized by 10 different providers of outpatient services (Cuijpers, Smit, Voordouw, & Kramer, 2005). Improvements in the treated groups mirrored those in the clinical trial reported by Allart-Van Dam and colleagues (2003). However, the investigators note that their treated clients were still “considerably more depressed than the general population.” They conclude that CDW alone may not be a sufficient intervention for some individuals with subclinical depressive symptoms.

In summary, there are some promising treatments for persons with subclinical depressive symptoms and substance use disorders, but few proven strategies.

Administrative Issues

The successful implementation of strategies to address depressive symptoms in substance abuse treatment depends heavily on the leadership and support provided by treatment organizations and their administrators. This section provides a conceptualization of the implementation of clinical innovations and directs the reader to sources that elaborate the empirical basis for recommendations made in the Administrator’s Guide that accompanies this TIP.

What Is Known About the Adoption of Clinical Innovations

Numerous recent reports, including the President’s New Freedom Commission on Mental Health (2003), have noted a significant gap between what is known about effective treatments and what is actually delivered in practice. Substantial progress has been made in the treatment of substance abuse and co-occurring disorders including depression (see TIP 42, *Substance Abuse Treatment for Persons With Co-Occurring Disorders* [CSAT 2005]); however, the challenge remains of ensuring that this progress is reflected in the care that is offered to clients.

Although the literature on implementation of clinical innovations is vast (see Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005), there is no more dramatic illustration of the challenges involved than the case of the United States Preventive Services Task Force’s (USPSTF) *Guide to Clinical Preventive Services*. This collection of science-based recommendations for health screening was developed by a prestigious panel of experts, well publicized in the professional and public press, accessible online through the National Library of Medicine, and reprinted by private publishers who have sold more than 64,000 copies. Woolf, DiGuseppi, Atkins, & Kamerow

Figure 1
Major Characteristics of Controlled Trials in Patients with Minor Depressive Condition

Citation	Sample Size*	Setting	Comparison	Duration	Major Qualitative Result(s)
Paykel, Hollyman, Freeling, & Sedgwick 1988	37	Primary Care	Amitriptyline 125 mg/day vs placebo	6 wk	No significant improvement in depressive symptoms
Parnetti, Sommacal, Morselli Labate, & Senin 1993	130	Not clearly stated	Minaprine vs placebo	12 wk	Small, statistically significant improvement globally and in depressive symptoms compared to placebo
Williams, Barrett, Oxman, et al. 2000	204	Primary care	Paroxetine 10–40 mg/day vs problem-solving therapy vs placebo	11 wk	Modest, statistically significant improvement in depressive symptoms for paroxetine and problem-solving therapy compared to placebo. Clinically significant improvement in functioning for paroxetine and problem-solving therapy groups, but only when severe functional impairment was present at baseline
Miranda & Munoz 1994	49	Primary care	Cognitive-behavioral therapy vs no intervention	8 two-hr sessions	No significant effect on depressive symptoms after completion of CBT, but moderately positive effect when compared with placebo group at 4- and 12-mo follow-up
Lynch, Tamburrino, & Nagel 1997	29	Primary care	Telephone-administered PST vs no intervention	6 sessions	Trend toward improvement in depressive symptoms scores but statistically insignificant at conclusion of intervention
<p>*Number of patients with minor depression, which for some studies is a subset of the total sample. CBT, cognitive/behavioral therapy; PST, problem-solving therapy.</p> <p>Adapted from: Ackermann & Williams 2002, p. 296. Reprinted with permission.</p>					

(1996) reviewed studies of the use of this *Guide* and found that 55 percent of family practitioners had not looked at it, and that 25 percent of family practitioners and 80 percent of internists had not heard of it. Accordingly, the chances of the average patient benefiting from this carefully constructed and heavily publicized clinical resource were quite low. This case study clearly illustrates the point made by Peterslia (1990) that innovative programs such as this “are not self-executing.”

A lack of specific and informed attention to implementation leads to frustration (for both administrators and clinicians), wasted resources (both on research and ineffective implementation), and most important, services to clients that are less effective than they could be. As noted by Haynes (1993, p. 221), “it is troubling to spend billions on health care research while neglecting the fact that most of the evidence generated from such studies is going to waste.”

However, there is now considerable practical knowledge on how to foster successful implementation of strategies such as those presented in this TIP. The remainder of this review surveys this knowledge and directs the reader to useful resources.

The Centrality of Organizational Change and Administrative Support in Successful Implementation

Two common assumptions must be challenged at the outset: (1) that innovations will be embraced simply because they are superior to current practice, and (2) that the responsibility for adopting clinical innovations rests with clinicians.

Regarding the first point, Emerson assured us that “if you build a better mousetrap, the world will beat a path to your door,” but half a century of research on the adoption of innovation suggests that Emerson was wrong about both mousetraps and new clinical practices (Rogers, 2003). Although superiority to current practice is a factor in adoption, it is by no means the only or even the most important factor (Davis & Taylor-Vaisey, 1997).

The second assumption could be an overgeneralization from our experience as consumers (we can freely switch from brand X to brand Y). By contrast, the individual clinician is highly constrained by context, and the factors that facilitate or impede adoption and implementation are almost all associated with the organization (e.g., the program, clinic, or hospital) and with the larger systems in which the organization operates (e.g., local, State) (Fixsen et al., 2005).

Providers may want to be members of what Kamerow (1997) calls, “the good provider club.” However, as Kamerow further notes, good intentions are not enough. Without organizational change and organizational support, most efforts by well-intentioned clinicians to adopt new practices will fail. The responsibility for adoption and implementation of new practices falls squarely on organizations and their administrators.

Implementation and the Factors Affecting It

A primary source used in the preparation of this subsection of the review was *Implementation Research: A Synthesis of the Literature* (Fixsen et al., 2005). This landmark document is recommended reading for all administrators who wish to improve the implementation of clinical innovations in their programs and organizations.

Implementation is a *purposeful and planned process of organizational change*, not an outcome, as such. Administrators should be able to *describe* their implementation activities. These activities should be *measurable*, and the implementation activities should be *visible* to those both inside and outside the organization. Implementation has three goals (Fixsen et al., 2005):

1. Changes in professional behavior (i.e., the knowledge and skills of practitioners and other key staff members within an organization or system).
2. Changes in organizational structures and cultures, both formal and informal (values, philosophies, ethics, policies, procedures, decisionmaking), to routinely bring about and support changes in professional behavior.
3. Changes in relationships to consumers, systems partners, and stakeholders (regarding location and nature of engagement, inclusion, and satisfaction).

It is important to understand the difference between something that looks like implementation and something that actually *is* implementation. As described by Fixsen and colleagues (2005), three types of implementation can be identified:

1. *Paper Implementation* in which new policies and procedures are developed, written down, and placed in filing cabinets. Here, actual changes in clinical practice (which do not occur) are uncoupled from the paper trail. However, when necessary, the paper policies and procedures can be produced to demonstrate that change has taken place.
2. *Process Implementation* in which largely irrelevant training is conducted, new vocabulary (usually devoid of operational meaning) is adopted, a new “culture” is promulgated, motivational posters are hung, and so on. In other words, the trappings of change are visible, but no substantive changes are actually made—this can also be described as a process of “cargo cult implementation” (see box on next page).
3. *Performance Implementation* means achieving the three implementation objectives described earlier in ways that result in tangible benefits to clients and other stakeholders.

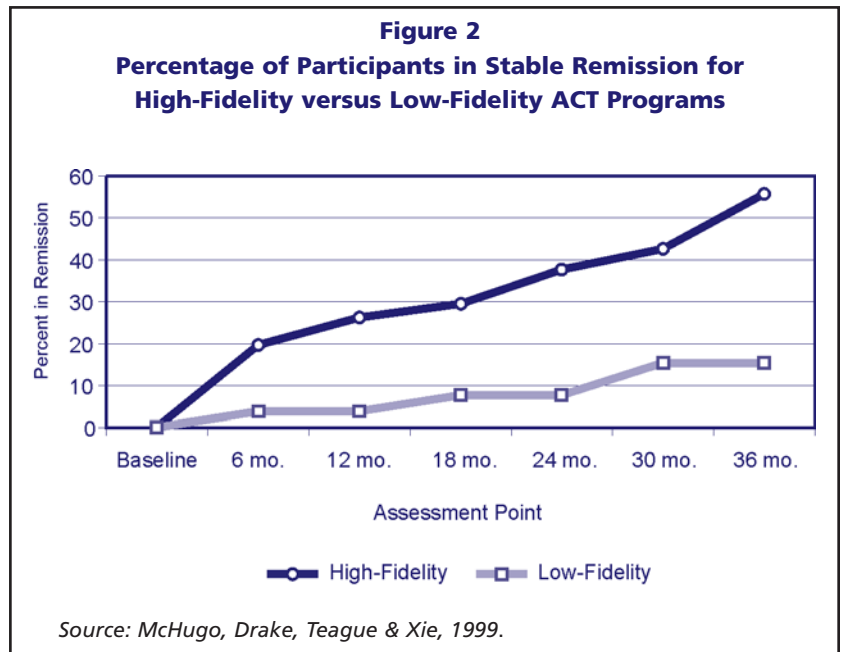
The effects of real (performance) versus paper or process implementation on client outcomes can be profound. Figure 2 shows the difference in client outcomes over time for a high-fidelity and low-fidelity implementation of Assertive Community Treatment (ACT). By the third year, remission rates in the low-fidelity implementation were almost four times the rates in the high-fidelity implementation.

Working With Factors That Affect Implementation

Before discussing the factors affecting implementation, it is necessary to distinguish between what we are calling an “innovation” and evidence-based practices (EBPs). By innovation, we mean a new approach to agency or organization services or some component of these services. So, for example, offering onsite health care at a homeless shelter, providing child care to mothers in an outpatient treatment program, or addressing depressive symptoms in a substance abuse treatment program (the topic of this TIP) fit the definition of an innovation. Innovations often involve considerable experimentation and formative evaluation by administrators and staff (Tharp & Gallimore, 1979).

An EBP is a practice that, based on expert or consensus opinion about available evidence, is expected to produce a specific clinical outcome (measurable change in client status). EBPs are well-specified, and are clearly defined as to what they are and are not, how to implement them, and so on. Examples of EBPs include ACT (Drake et al., 1998) and motivational interviewing (Miller & Rollnick, 2002). EBPs generally must be implemented with fidelity to the original model in order to have the expected impact, and many types of changes to the EBP will be undesirable and threaten outcomes (Adams, 1994; Mowbray, Holter, Teague, & Bybee, 2003; Yeaton & Sechrest, 1981). Such undesirable changes are called “drift.”

An innovation may or may not consist of or include one or more EBPs. So, for example, a health screening program in a homeless shelter might draw a number of EBPs for health screening from the USPSTF *Guide to*



Clinical Preventive Services that need to be implemented with fidelity. However, the manner in which the screening program is structured, outreach is conducted, and health counseling is provided might better fit the definition of an innovation. Here, approaches used by similar programs might be copied, modified, and/or refined based on actual implementation experience.

The factors that affect implementation of an innovation are described in detail by Fixsen and colleagues (2005) and summarized in Figure 3. These factors can be conceptualized as a set of matches or mismatches between an innovation and the context into which it is introduced. When such mismatches occur, administrators must find ways to reconcile them. So, for example, changes in training and supervision are needed to respond to a mismatch between staff skills and the requirements of the innovation. One way to respond to a mismatch between current interagency networks and those that the innovation requires might be the establishment of referral agreements. Both of these accommodations operate by changing the context and “matching” it to the innovation.

Cargo Cult Implementation

In the South Seas, there is a cargo cult of people. During the war they saw airplanes with lots of good materials, and they want the same thing to happen now. So they've arranged to make things like runways, to put fires along the sides of the runways, to make a wooden hut for a man to sit in, with two wooden pieces on his head for headphones and bars of bamboo sticking out like antennas—he's the controller—and they wait for the airplanes to land. They're doing everything right. The form is perfect. It looks exactly the way it looked before. But it doesn't work. No airplanes land.

Dr. Richard Feynman in a 1974 Cal Tech commencement address

Figure 3 Factors Affecting Implementation	
Client Population and Community	<ul style="list-style-type: none"> • Language of preference, reading levels • Expectations • Values and norms • Special health issues • Special social issues
Staff	<ul style="list-style-type: none"> • Commitment to current practices • Necessary skill sets • Necessary licensure, certification • Appropriate team structures
Facilities and Resources	<ul style="list-style-type: none"> • Space, equipment • Information technology • Support staff
Agency Policies and Practices	<ul style="list-style-type: none"> • Training • Supervision • Evaluation
Local/State/Federal Regulation	<ul style="list-style-type: none"> • Certification and licensure • Reporting/accountability • Zoning
Interagency Networks	<ul style="list-style-type: none"> • Existence of needed outside resources • Relationships with other agencies
<i>Adapted from Fixsen et al., 2005.</i>	

Accommodations can also be made by altering the innovation. When dealing with an “innovation” as defined above, such accommodations are part of the development process and their effects can be tested with formative evaluations. However, when dealing with an EBP or an EBP that is a component of an innovation, alterations risk drift (noting that local alterations to an EBP can lead to desirable refinements as well as problems with fidelity). In a practical sense, this means that the administrator must make every attempt to alter the context to accommodate the EBP.

Organizational Factors Affecting Implementation

A key organizational factor that affects implementation is receptivity to innovation. Rogers (2003) discusses how organizations differ in their receptivity and how key factors such as the degree of centralization, how formalized rules are, and the level of staff knowledge/expertise affect the implementation of new innovations. Some of these factors play different roles in the early and later stages of innovation. Low centralization, high complexity, and low formalization appear to facilitate initiation of the innovation process. However, these same organizational characteristics can present challenges to long-term implementation.

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Section 2—Annotated Bibliography

Clinically Related Treatment and Intervention Studies

Reference: Ackermann, R. T., & Williams, J. W. (2002). Rational treatment choices for non-major depressions in primary care: An evidence-based review. *Journal of General Internal Medicine, 17*, 293–301.

Purpose: To review research on managing depressive disorders (including minor depression) in primary care settings.

Conclusions: The research evaluated provides only limited (i.e., mixed and small to moderate in effect size) support for the effectiveness of both antidepressant medications and those psychological interventions that have been tested in treating minor depression.

Methodology: The authors searched a number of major databases and other sources for guidelines and studies. Two independent reviewers abstracted data from the studies that were located and these data were synthesized using qualitative methods.

Summary of Results: The studies evaluated suggest that there are short-term improvements in depressive symptoms for individuals treated with paroxetine but not with amitriptyline. Also, short-term improvements in symptoms were found for individuals who received problem-solving and cognitive-behavioral interventions. Strong evidence was found that the use of serotonin-selective reuptake inhibitors (SSRIs), in comparison with placebos, resulted in significant improvements in depressive symptoms. They also found some evidence that venlafaxine improved depressive symptom scores.

Reference: Allart-van Dam, E., Hosman, C. M. H., Hoogduin, C. A. L., & Schaap, C. P. D. R. (2003). The Coping With Depression Course: Short-term outcomes and mediating effects of a randomized controlled trial in the treatment of subclinical depression. *Behavior Therapy, 34*, 381–396.

Purpose: To evaluate the effectiveness of the Coping With Depression Course for treating depressive symptoms.

Conclusions: The intervention effectively reduces depressive symptoms over a short-term (1-month) period.

Methodology: Researchers randomized 110 Dutch adults with subclinical depression into one of two treatment conditions: (1) assessment and advice only delivered in a group setting, and (2) a group Coping with Depression Course. Participants were recruited from the general population and were screened using the Composite Diagnostic Interview, a standardized interview for DSM-IV diagnoses. Individuals who were accepted for the study were also assessed using a battery of other instruments, including the Beck Depression Inventory (BDI), which was used to assess depressive symptoms. A followup assessment was given a month after treatment.

Summary of Results: After completing the Coping with Depression course, participants had significantly larger reductions in depressive symptoms than the control group. Participants had significant increases in pleasing activities and social encounters, in their levels of self-esteem, and in the frequency with which they received social support. The authors conclude that this intervention will help reduce depressive symptoms and, because of the relative ease with which it can be implemented, can help providers reach that segment of the population that currently does not seek services for depression (including those with subclinical levels of depressive symptoms).

Reference: Carroll, K. M., Nich, C., & Rounsaville, B. J. (1995). Differential symptom reduction in depressed cocaine abusers treated with psychotherapy and pharmacotherapy. *Journal of Nervous and Mental Disease, 183*, 251–259.

Purpose: To evaluate the relative effectiveness of an antidepressant (desipramine) and psychotherapy for depressive symptoms among individuals with cocaine use disorders.

Conclusions: Desipramine is an effective antidepressant for individuals with cocaine use disorders. Relapse prevention is associated with better substance-related outcomes among individuals with moderate to high levels of symptoms than is clinical management.

Methodology: An initial 121 subjects were recruited from a substance abuse treatment program, 109 of whom completed the study. Subjects had to meet DSM-III-R criteria for cocaine dependence; not currently be dependent on opioids, alcohol, or barbiturates; not currently have a DSM-III-R Axis I disorder other than a depressive

or anxiety disorder; not have been in substance abuse treatment in the prior 2 months; and not currently be receiving treatment for any other psychiatric disorder. The interventions provided were manualized and delivered in weekly sessions over the course of 12 weeks. The researchers assessed participants prior to the start of treatment, weekly during the course of treatment, and after treatment concluded. Self-reports concerning substance use were confirmed with urine toxicology screens at each assessment. Depressive symptoms were assessed with the Beck Depression Inventory (BDI) and the Hamilton Rating Scale for Depression (HDRS). The researchers assigned participants to either a relapse prevention intervention based on Marlatt's model or a clinical management intervention adapted from the National Institute of Mental Health Collaborative Study on the Treatment of Depression. Some members from both groups also received desipramine, while the others received a placebo.

Summary of Results: At the initial assessment, 35 percent of subjects ($n=37$) had at least moderately high levels of depressive symptoms (meaning they had both a BDI score of ≥ 8 and a HDRS score of ≥ 7). Subjects who had that level of depressive symptoms attended a significantly greater number of treatment sessions (an average of 7.9 sessions compared to 6.9 for those with lower scores). Individuals with moderate or higher levels of depressive symptoms completed significantly more sessions of treatment if they were assigned to the relapse prevention treatment (an average of 10 sessions) than if they were assigned to the clinical management intervention (an average of 6). On the other hand, individuals with low or no depressive symptoms stayed longer in clinical management (an average of 7.4 sessions) than in relapse prevention (average of 6.5 sessions), but that difference was not significant. Individuals treated with desipramine also had significant reductions in depressive symptoms whether or not they had a depressive disorder.

Reference: Gottheil, E., Thornton, C., & Weinstein, S. (2002). Effectiveness of high- versus low-structure individual counseling for substance abuse. *American Journal of Addiction, 11*, 279–290.

Purpose: To evaluate the relative effectiveness of two types of individual counseling (i.e., high-structure, behaviorally oriented and low-structure, facilitative care) for clients with substance use disorders.

Conclusions: For clients with elevated levels of depressive symptoms, a more highly-structured behavioral intervention is associated with better abstinence rates, while the reverse is true for those who have lower levels of depressive symptoms.

Methodology: The researchers evaluated data on 80 individuals who were seeking treatment for substance abuse problems at a publicly funded outpatient treatment program over a 12-week period. Participants were randomly assigned to receive one of two types of individual counseling delivered by counselors who had been trained and evaluated in the use of that specific treatment model: (1) highly structured, behaviorally oriented counseling (HSB) or (2) low-structure, facilitative counseling (LSF). Two independent evaluators judged counselor adherence to the model, and they were in agreement that models were consistently and appropriately implemented. A number of different measures were used to assess participants, including the Beck Depression Inventory (BDI) for depressive symptoms and the Addiction Severity Index for the severity of the substance use disorder. Urine drug screens were given at each treatment session. Participants also provided self-ratings of treatment benefit.

Summary of Results: There were no significant differences between the two treatment groups in terms of client self-ratings of treatment effectiveness, counselor ratings of effectiveness, number of sessions attended, duration of stay in treatment, or number of drug-free urine samples provided. The authors did find that individuals with BDI scores of 17 or greater provided significantly more drug-free urine samples during treatment if they attended the HSB counseling, while those with BDI scores of 16 or less provided significantly more drug-free urine samples if they attended LSF counseling.

Reference: Nunes, E. V., & Levin, F. R. (2004). Treatment of depression in patients with alcohol or other drug dependence: A meta-analysis. *JAMA: Journal of the American Medical Association, 291*, 1887–1896.

Purpose: To perform a meta-analytic review on the efficacy of antidepressant medications for individuals with co-occurring depression and substance use disorders.

Conclusions: Antidepressants have a modest beneficial effect in this population. Medication should be provided along with a psychotherapeutic intervention in order to provide the greatest benefit to patients.

Methodology: The authors searched the PubMed, Medline, and Cochrane Collaboration databases for research from 1970 to 2003 regarding the use of antidepressants for patients with co-occurring depression and substance use disorders. They selected only studies that used random assignment and placebo controls; used diagnostic

criteria from the DSM-III, III-R, or IV; diagnosed patients through diagnostic interviews; and reported outcomes regarding depressive symptoms. They found a total of 14 studies that met their inclusion criteria (5 using tricyclic antidepressants, 7 using selective serotonin reuptake inhibitors [SSRIs], and 2 involving other antidepressant medications). Meta-analytic methods of data analysis were used to compare data across studies and determine overall findings.

Summary of Results: The authors found that antidepressants were effective for treating depression in individuals with substance use disorders. Evidence-based psychosocial interventions appear to add to the overall effectiveness, and the authors suggest that such interventions be used first before prescribing medication and continued while the patient is receiving antidepressants. Antidepressants had a greater effect on individuals who had at least a week of abstinence in a treatment setting prior to being prescribed the medication, and the authors recommend that diagnoses of depression and decisions to use antidepressants be made after the patient has established at least a brief period of abstinence. When medications were effective at reducing depressive symptoms, they also tended to reduce the amount of substance use, but the effect was not large enough (in most cases) to be associated with a significant difference in length of abstinence. Findings regarding the preferred medication for treating depression were mixed, but the authors suggest that SSRIs be used initially and, if ineffective, be replaced with another type of antidepressant.

Reference: Palmer, J. A., Palmer, L. K., Michiels, K., & Thigpen, B. (1995). Effects of type of exercise on depression in recovering substance abusers. *Perceptual and Motor Skills, 80*, 523–530.

Purpose: To evaluate the effectiveness of different types of exercise programs for relieving depressive symptoms in clients with substance use disorders.

Conclusions: Anaerobic exercise (in the form of bodybuilding activities) resulted in significant decreases in depressive symptoms among individuals in recovery from substance use disorders, but such decreases were not seen with aerobic exercise or aerobic in combination with anaerobic exercise.

Methodology: The authors tested three different types of exercise programs with a group of 45 clients in an inpatient substance abuse treatment program: aerobic (aerobic step exercise), anaerobic (bodybuilding), and a combination of the two (circuit training). Clients were randomly assigned to an exercise program. Depressive symptoms were evaluated using the Center for Epidemiological Studies—Depression scale.

Summary of Results: Individuals enrolled in the bodybuilding group had significant reductions in depressive symptoms after completing the program, but there were no significant decreases in symptoms for participants in the other two exercise groups. The authors suggest several possible explanations for the effect the bodybuilding program had on client depressive symptoms: (1) this exercise program, unlike the other two, gave participants clear indicators of gains in strength that could have given them a feeling of mastery they otherwise lacked; (2) clients worked as teams in the bodybuilding program and the social bonds that developed as well as the peer encouragement of compliance could have added to the benefit.

Reference: Peck, J. A., Reback, C. J., Yang, X., Rotheram-Fuller, E., & Shoptaw, S. (2005). Sustained reductions in drug use and depression symptoms from treatment for drug abuse in methamphetamine-dependent gay and bisexual men. *Journal of Urban Health, 82*, i100–i108.

Purpose: To determine the relationship between methamphetamine use and depressive symptoms in the gay and bisexual male population.

Conclusions: A significant portion of depressive symptoms reported by people with methamphetamine use disorders beginning treatment is substance-related, and those symptoms typically improve during and after treatment.

Methodology: Study participants were 62 gay or bisexual men seeking treatment for methamphetamine dependence. Researchers assessed depressive symptoms using the Beck Depression Inventory (BDI) weekly during treatment and at 26 and 52 weeks after treatment completion. Participants also provided urine drug screens three times a week during treatment. Participants were randomly assigned to one of four treatments (cognitive-behavioral therapy based on the Matrix model, contingency management, cognitive-behavioral therapy plus contingency management, and a cognitive-behavioral therapy intervention developed specifically for gay men). All four interventions ran for 16 weeks.

Summary of Results: According to initial assessment, 28.5 percent of participants had moderate to severe levels of depression (i.e., BDI scores of 19 or greater), 44.8 percent had mild to moderate levels (BDI scores of 10 to

18), and 26.6 percent had no to mild depressive symptoms (BDI scores of 9 or less). A number of participants (52.9%) also met criteria for a diagnosis of a mood disorder at some point during their lifetimes, and 28.4 percent had a lifetime diagnosis of major depression specifically. There were no statistically significant differences in depressive symptoms among individuals in different treatment conditions either before or after treatment (at either followup evaluation), but all four interventions did result in reductions of depressive symptoms over time, with the largest drop in symptoms occurring during the first week of treatment. Using a mixed regression model, the authors determined that methamphetamine use in the 5 days prior to assessment with the BDI strongly predicted higher levels of depressive symptoms ($p < .0001$), but that depressive symptoms did not predict subsequent use of methamphetamines.

Research-Related Studies

Reference: Airaksinen, E., Larsson, M., Lundberg, I., & Forsell, Y. (2004). Cognitive functions in depressive disorders: Evidence from a population-based study. *Psychological Medicine, 34*, 83–91.

Purpose: To determine the level and types of cognitive impairments resulting from different depression-related diagnoses in a general population sample.

Conclusions: Minor depression does not result in reduced cognitive performance, while other depressive spectrum disorders (i.e., major depression, dysthymia, mixed anxiety-depression disorder) do result in reduced cognitive performance.

Methodology: The authors selected a group of participants ($n=1,093$) from a larger Swedish general population sample who had been identified as having depressive disorders (using the Schedules for Clinical Assessment in Neuropsychiatry). They studied two regular DSM-IV diagnoses (68 individuals with major depression and 28 with dysthymia) and two DSM-IV research diagnoses (25 with mixed anxiety-depression disorder and 66 with minor depression), and compared them with a control group of 175 individuals who had no pathological symptoms and were not taking any psychoactive drugs. All subjects were administered a battery of cognitive tests.

Summary of Results: Minor depression (as diagnosed according to the DSM-IV research disorder definition) was not associated with an increase in cognitive deficits, while all other depressive disorders evaluated were associated with significantly higher levels of such deficits.

Reference: Angst, J., Sellaro, R., & Merikangas, K. R. (2000). Depressive spectrum diagnoses. *Comprehensive Psychiatry, 41*, 39–47.

Purpose: To determine the prognostic significance of major depressive disorder, dysthymia, recurrent brief depression, and minor depression.

Conclusions: People who have long-term depressive symptoms can switch between different diagnostic categories of depressive disorders. This lack of longitudinal stability leads the authors to conclude that depression should be conceived of as a spectrum rather than a set of discrete diagnoses.

Methodology: The authors looked at data from 591 young Swiss adults (selected from participants in a larger study) over a 15-year period. Of this initial group, 69 percent participated in at least one followup assessment. Participants were assessed for depressive symptoms using the Symptom Checklist-90-Revised and were diagnosed according to DSM-III-R (i.e., major depression, dysthymia, minor depression) and International Classification of Diseases 10 (ICD-10) (recurrent brief depression) diagnostic categories. In order to determine the longitudinal stability of initial diagnoses, the authors looked at the most severe diagnosis that could be assigned at each of the five followup assessments, and, based upon that, determined what (if any) changes occurred in diagnosis.

Summary of Results: The authors found diagnostic categories changed frequently for individuals between subdiagnostic levels of depressive symptoms to levels of symptoms qualifying for a diagnosis, as well as between different diagnostic categories. In particular, there was little stability for the diagnosis of minor depression, with only one of 40 individuals who received that diagnosis meeting criteria for that same diagnosis again during the followup period.

Reference: Blume, A. W., Schmalting, K. B., & Marlatt, G. A. (2001). Motivating drinking behavior change: Depressive symptoms may not be noxious. *Addictive Behaviors, 26*, 267–272.

Purpose: To better understand the relationship between depressive symptomatology and motivation to change drinking-related behavior.

Conclusions: Lower levels of depressive symptoms can make an individual more willing to engage in substance abuse treatment.

Methodology: These researchers evaluated 75 participants with alcohol use disorders (63 with alcohol dependence) who did not have a co-occurring drug use or psychotic disorder. Participants were recruited through fliers and newspapers ads from the general population. The researchers administered the Beck Depression Inventory (BDI) to assess depressive symptoms and the Brief Readiness to Change Questionnaire to assess readiness to change alcohol-related behavior. Other measures were used to assess negative drinking-related consequences (the Losses Of Significance Self-Report Questionnaire-Revised [LOSS-QR]), drinking rates (the Steady Pattern Chart from the Comprehensive Drinker Profile), and self-efficacy (the Situational Confidence Questionnaire-42 [SCQ-42]).

Summary of Results: In the initial assessment, 11 individuals had BDI scores in the minimally depressed range, 2 had scores in the mild to moderate range, and 2 had moderate to severe depression scores. Researchers found a significant correlation between depressive symptoms (i.e., BDI scores) and greater motivation to change (i.e., being less likely to be in the precontemplation stage and more likely to be in the contemplation or action stages). There was a significant correlation between LOSS-QR scores and BDI scores, but not between SCQ-42 scores and BDI scores. Also, depressive symptoms were not associated with increased alcohol use during the course of the study.

Reference: Brown, S. A., Inaba, R. K., Gillin, J. C., Schuckit, M. A., Stewart, M. A., & Irwin, M. R. (1995). Alcoholism and affective disorder: clinical course of depressive symptoms. *Journal of Psychiatry, 152*, 45–52.

Purpose: To compare the severity of depressive symptoms and changes in those symptoms among men who had alcohol dependence, affective disorders, or both alcohol dependence and an affective disorder while they were in treatment for substance abuse or an affective disorder.

Conclusions: There is a more rapid decrease in depressive symptoms among individuals who have a primary alcohol dependence disorder (even if they also have a secondary affective disorder) in comparison with individuals who have a primary affective disorder (with or without a secondary alcohol dependence disorder).

Methodology: The authors assessed 54 male veterans who had entered either a substance abuse treatment program ($n=27$) or mental health treatment program ($n=27$). Of those in the substance abuse treatment program, 12 also met DSM-III criteria for a secondary, co-occurring major affective disorder at some point during their lifetime (determined by having had one or more episodes of depression during drinking and no major depressive episodes prior to the onset of their alcohol use disorder). Of those in mental health treatment, 12 also met DSM-III criteria for a secondary, co-occurring alcohol dependence disorder (determined by having met criteria for alcohol dependence at some point after the onset of their affective disorder). Individuals with antisocial personality disorder, drug dependence, other DSM-III axis I diagnoses predating their alcohol dependence or affective disorder, severe medical impairment, and no available relative/friend to confirm their history were excluded from the study. Subjects in both groups were also matched according to age, socioeconomic status, marital status, education, length of abstinence, and time in treatment. The severity of depressive symptoms was evaluated using the Hamilton Depression Rating Scale. Participants were assessed at treatment entry and weekly for 4 weeks thereafter.

Summary of Results: Men who had a primary alcohol use disorder, whether or not they also had an affective disorder, had significant reductions in depressive symptoms following treatment when compared with those who had a primary affective disorder. Specifically, men with a primary alcohol dependence disorder had a 49 to 63 percent reduction in depression scale scores; those with a primary affective disorder diagnosis had a 14 to 16 percent reduction if they did not receive medication. The authors found that a minimum of 3 weeks of abstinence from alcohol was necessary to determine consistently whether individuals with elevated depressive symptoms actually had co-occurring disorders. They also found that different depressive symptoms had distinct rates of change within each group.

Reference: Charney, D. A., Palacios-Boix, J., Negrete, J. C., Dobkin, P. L., & Gill, K. J. (2005). Association Between Concurrent Depression and Anxiety and Six-Month Outcome of Addiction Treatment. *Psychiatric Services, 56*, 927–933.

Purpose: To determine the effect of symptoms of anxiety and depression (assessed at treatment entry) on substance abuse treatment measures during the course of treatment.

Conclusions: Depressive symptoms measured at program entry have a small but significant relationship with decreased service use and abstinence, even after controlling for other confounding factors. Individuals with depressive symptoms combined with symptoms of anxiety fared significantly poorer than those with symptoms of only one of the two disorders.

Methodology: Clients with substance use disorders ($n=326$) who were entering a substance abuse treatment program were evaluated by trained interviewers using the Addiction Severity Index, the Beck Depression Inventory, and the Symptom Checklist 90-Revised to assess substance use disorder severity and symptoms of depression and anxiety. Participants were then enrolled in an outpatient treatment program, which lasted from 6 to 9 months and included random urine drug screens. At 6 months after the initial assessment, study participants were again assessed regarding symptoms and treatment outcomes (e.g., days abstinent, length of stay in treatment). Participants were contacted whether or not they remained in treatment for the full 6 months. In analyzing the effect of depression and anxiety symptoms, the authors controlled for variables that are known to affect treatment outcomes (e.g., severity of substance use disorder, length of treatment stay).

Summary of Results: In the initial assessment, 32 percent ($n=105$) had symptoms of both anxiety and depression, 15 percent ($n=49$) had depressive symptoms alone, and 16 percent ($n=53$) had symptoms of anxiety alone. Only 40 percent of clients with both anxiety and depression symptoms were abstinent after 6 months in treatment, compared to 73 percent of those who had depressive symptoms alone, suggesting that the combination of depression and anxiety symptoms is a particular problem in substance abuse treatment. Of the total sample, 56 percent were abstinent at 6 months. Individuals with symptoms of depression (with or without concurrent symptoms of anxiety) were more likely than others to require inpatient detoxification. The authors note that individuals with symptoms of both anxiety and depression were more likely to be dependent on prescription opioids and/or benzodiazepines and that that might account in part for low levels of abstinence in that group.

Reference: Conner, K. R., Sorensen, S., & Leonard, K. E. (2005). Initial depression and subsequent drinking during alcoholism treatment. *Journal of Studies on Alcohol*, *66*, 401–406.

Purpose: To determine whether higher levels of depressive symptoms at treatment entry had an effect on client response to treatment for alcohol use disorders.

Conclusions: Depressive symptoms evaluated at treatment entry predict poorer drinking-related outcomes during the first month of treatment but have little relation to outcomes during the second and third months.

Methodology: The authors used data from 1,726 individuals enrolled in the National Institute on Alcohol Abuse and Alcoholism's Project MATCH study. Depressive symptoms were evaluated using the Beck Depression Inventory (BDI). Participants were enrolled in one of three treatments (i.e., motivational enhancement therapy, 12-Step facilitation therapy, cognitive-behavioral therapy) over a period of up to 3 months and were assessed over that 3-month period.

Summary of Results: Depressive symptoms, as assessed at treatment entry, did have a significant relationship to poorer drinking outcomes (both in terms of drinks per drinking day and percentage of days abstinent) at the 1-month assessment but not at the 2- or 3-month assessments. Depressive symptoms also decreased over time, and the mean BDI score of treatment entry of 10.1 had fallen to 7.4 by the 3-month assessment.

Reference: Curran, G. M., Booth, B. M., Kirchner, J. E., & Deneke, D. E. (2007). Recognition and management of depression in a substance use disorder treatment population. *American Journal of Drug and Alcohol Abuse*, *33*, 563–569.

Purpose: To determine the relationship of depressive symptoms to relapse.

Conclusions: Clients with moderate to severe levels of depressive symptoms (i.e., those with Beck Depression Inventory [BDI] scores of 20 or greater) were more than four times as likely to return to substance abuse 3 months after treatment than were those with lower levels of depressive symptoms.

Methodology: The authors examined depressive symptoms and substance abuse treatment outcomes among a group of 126 clients consecutively admitted to a Veterans Affairs intensive outpatient treatment program. Depressive symptoms were measured with the BDI and the authors' analysis compared clients with moderate to severe levels of depression (i.e., with BDI scores of 20 or higher) to those with lower levels of depressive symptoms. All participants received the same course of intensive outpatient treatment.

Summary of Results: The mean BDI score for participants at treatment entry was 21.3, normally considered as representing severe depression. At treatment exit, the mean BDI score had fallen to 14.5. Individuals who entered treatment with BDI scores of 20 or greater were more than four times as likely to return to using substances by their 3-month, posttreatment assessment. For individuals with BDI scores of 20 or greater, the use of antidepressant medication was associated with significantly lower rates of relapse (with 40% of those receiving medication relapsing to use compared with 70% of those who did not receive antidepressant medication).

Reference: Dodge, R., Sindelar, J., & Sinha, R. (2005). The role of depression symptoms in predicting drug abstinence in outpatient substance abuse treatment. *Journal of Substance Abuse Treatment, 28*, 189–196.

Purpose: To determine the effects of depressive symptoms on short-term abstinence for individuals in outpatient treatment.

Conclusions: After controlling for other treatment and demographic variables, the authors found that elevated levels of depressive symptoms at treatment entry were significantly associated with lower rates of abstinence at discharge.

Methodology: The authors assessed 827 individuals attending an outpatient substance abuse treatment program at treatment entry and upon the leaving the program. The Beck Depression Inventory (BDI) was used on treatment entry to assess depressive symptoms (scores of 11 to 17 were coded as indicating mild depression and scores of 18 and above as having a clinically significant level of depression). Random urine and breathalyzer tests prior to discharge were used to confirm reports of abstinence in 73 percent of cases, with the remainder being determined by client self-report. In analyzing data, the authors controlled for a number of potentially confounding factors including race, age, length of stay in treatment, primary substance of abuse, and frequency of substance use at time of admission.

Summary of Results: After controlling for potentially confounding factors associated with abstinence rates, the authors found that higher BDI scores were associated with significantly lower rates of abstinence at discharge from treatment after up to 350 days of treatment. This finding remained true for BDI scores below 18 (the cut-off point for clinically significant depression); while the effect for lower BDI scores in decreasing abstinence was smaller than for higher BDI scores, it was still significant.

Reference: Doumas, D. M., Blasey, C. M., & Thacker, C. L. (2005). Attrition from alcohol and drug outpatient treatment: Psychological distress and interpersonal problems as indicators. *Alcoholism Treatment Quarterly, 23*, 55–67.

Purpose: To explore the relationship between program attrition, symptoms of anxiety and depression, and interpersonal problems among a treatment-seeking population with substance use disorders.

Conclusions: There is a significant association between failure to complete treatment and elevated levels of symptoms of depression and/or anxiety.

Methodology: The authors studied 120 consecutive admissions to an intensive outpatient substance abuse treatment program. Depressive symptoms were evaluated at treatment entry using the Beck Depression Inventory (BDI).

Summary of Results: The treatment retention rate for participants was 67 percent (33% dropped out early). The BDI measures for those who dropped out (a mean score of 18.9 on the BDI) were significantly higher than for those who completed treatment (mean BDI score of 12.7). Anxiety symptoms were also significantly higher for participants who did not complete treatment compared with those who did complete treatment.

Reference: Janiri, L., Martinotti, G., Dario, T., Reina, D., Paparello, F., Pozzi, G., et al. (2005). Anhedonia and substance-related symptoms in detoxified substance-dependent subjects: A correlation study. *Neuropsychobiology, 52*, 37–44.

Purpose: To determine the relationship of anhedonia (i.e., the lack or loss of the ability to experience pleasure) to substance craving among individuals with substance use disorders.

Conclusions: Craving and anhedonia are positively correlated among people with opioid use disorders but not among those with other types of substance use disorders. Anhedonia, a common depressive symptom, may be a factor in research findings that demonstrate a high level of craving among individuals with co-occurring depression and substance use disorders.

Methodology: The authors looked at 70 substance abuse treatment clients from three Italian treatment programs. Three different instruments were used to evaluate anhedonia and the results from all three were evaluated together. Other scales were used to evaluate withdrawal and craving.

Summary of Results: Drug craving was significantly correlated with anhedonia among individuals with opioid use disorders but not for those who had other types of substance use disorders.

Reference: Joosen, M., Garrity, T. F., Staton-Tindall, M., Hiller, M. L., Leukefeld, C. G., & Webster, J. M. (2005). Predictors of current depressive symptoms in a sample of drug court participants. *Substance Use and Misuse, 40*, 1113–1125.

Purpose: To evaluate which factors may help predict elevated depressive symptoms among individuals entering substance abuse treatment.

Conclusions: Five variables are significantly associated with elevated levels of depressive symptoms in this population.

Methodology: The authors evaluated 4,775 individuals entering a Kentucky drug court program using the Addiction Severity Index and the Brief Symptom Inventory (BSI) (the latter to assess depressive symptoms). The BSI depression scale had participants rate the degree of discomfort they felt as a result of depressive symptoms on a five point scale ranging from 0 (no discomfort) to 4 (extremely discomforting). A multiple regression analysis was performed to determine the most significant correlates of depressive symptoms.

Summary of Results: In the initial assessment, 31.4 percent of participants had no significant (i.e., ones that caused discomfort) depressive symptoms, 37.4 percent had a “little bit,” 19.4 percent had a moderate level, 9.4 percent had “quite a bit,” and 2.4 percent had an extremely high level. The average level of significant depressive symptoms was .73, which fell between none and a little bit. After multiple regression analysis, the significant correlates of depressive symptoms were (1) perceived overall health in the past 6 months, (2) having been hospitalized for a psychological problem, (3) having difficulties with one’s family in the past 6 months, (4) having had conflicts with people outside one’s family in the past 6 months, and (5) being female. The authors conclude that the presence of such factors are reasonable indications that clients entering treatment have been or are currently at risk for depression.

Reference: Karno, M. P. & Longabaugh, R. (2007). Does matching matter? Examining matches and mismatches between patient attributes and therapy techniques in alcoholism treatment. *Addiction, 102*, 587–596.

Purpose: To reanalyze data from the National Institute on Alcohol Abuse and Alcoholism’s Project MATCH study to determine whether matching clients to particular treatments based on personal characteristics (such as depressive symptoms) improved treatment outcomes.

Conclusions: Interventions that have a strong focus on emotional material appear to be less effective for clients with high levels of depressive symptoms.

Methodology: The sample for this study was drawn from participants in Project MATCH and included 137 individuals who received treatment for alcohol use disorders at one of the Project MATCH treatment sites. Participants were enrolled in either a cognitive–behavioral coping skills training program, a motivational enhancement program, or a 12-Step facilitation program. Depressive symptoms were evaluated using the Beck Depression Inventory (BDI); scores below 9 ($n=73$) were considered low, scores between 10 and 18 ($n=39$) were considered medium, and scores of 19 or higher ($n=25$) were considered as representing high levels of depressive symptoms.

Summary of Results: Clients with high levels of depressive symptoms (but not those with lower levels of depressive symptoms) who received treatment with a low focus on emotionally charged material had significantly higher levels of abstinence. Clients who had high levels of depressive symptoms and who received therapy that directed them away from highly emotional material were abstinent on 98.2 percent of the days in the year following treatment compared with 87 percent of those with high levels of depressive symptoms who did not attend that type of treatment.

Reference: Kessler, R. C., Zhao, S., Blazer, D. G., & Swartz, M. (1997). Prevalence, correlates, and course of minor and major depression in the national comorbidity survey. *Journal of Affective Disorders, 45*, 19–30.

Purpose: To determine the incidence, prevalence, correlates, and course of both minor and major depression in the general US population.

Conclusions: Minor depression should not be considered a “natural” reaction to environmental stress but rather a type of depressive disorder that should receive serious attention from clinicians.

Methodology: The National Comorbidity Study (NCS), from which the data in this article are drawn, is a large ($n=8,098$) general population survey of the prevalence and correlates of DSM-III-R disorders conducted

between 1990 and 1992. The survey used structured interviews to examine psychiatric symptoms and demographic factors. In addition to diagnosing depressive disorders, the survey was used in this article to analyze minor depression (a condition in which individuals met all major depression criteria except that they only had between 2 and 4 Criterion A symptoms and had no history of major depression or dysthymia). Impairment from depressive disorders (including minor depression) was evaluated by asking respondents whether or not their depression was interfering with their lives, whether they had ever seen a doctor and/or other professional about their depression, and whether they ever took medication for their depression. The analysis in this article also separated two different levels of major depression, one involving 5–6 DSM-II-R symptoms and the other involving 7–9 symptoms

Summary of Results: The authors found a lifetime prevalence of minor depression in the general population of 10 percent. Individuals with mild depression were less likely to have any co-occurring mental or substance use disorder than were individuals with major depression (54.4% and 73% respectively had another disorder). The age of onset was about the same for minor and major depression. Almost 75 percent of persons with minor depression report more than one depressive episode. Symptom severity was correlated with the number of episodes and their duration. Over their lifetimes, people with mild depression showed fewer episodes of shorter duration than those with major depression. The level of impairment for minor depression was lower (42% reported impairment) than for major depression, with 5–6 symptoms (49.7% reported impairment) or 7–9 symptoms (68.2% reported impairment) but still represented a considerable burden. Unlike major depression and dysthymia, rates of minor depression showed significant regional differences, with rates highest in the West and lowest in the South.

Reference: Moscato, B. S., Russell, M., Zielezny, M., Bromet, E., Egri, G., Mudar, P., et al. (1997). Gender differences in the relation between depressive symptoms and alcohol problems: A longitudinal perspective. *American Journal of Epidemiology*, *146*, 966–974.

Purpose: To determine the effect of depressive symptoms on alcohol problems in relation to gender.

Conclusions: Depressive symptoms are consistently associated with significantly higher levels of subsequent alcohol-related problems for women but not for men.

Methodology: Researchers interviewed a random, general population sample of adults ($n=1,036$) in 1986, 1989, and 1993. They used the Center for Epidemiologic Studies Depression (CES-D) Scale to assess past-month depressive symptoms and the National Institute of Mental Health Diagnostic Interview Schedule to assess alcohol problems and heavy alcohol use. Participants were considered to have a high level of depressive symptoms if they scored 18 or higher on the CES-D or if they reported having had treatment for depression in the year prior to the assessment. Selected sociodemographic variables were also analyzed in relation to depressive symptoms. Data were analyzed using logistical regression models.

Summary of Results: After the logistical regression analysis, the authors found a significant and consistent association between high levels of depressive symptoms and later alcohol use disorders among women. For men, however, they found no consistent or significant association between alcohol use disorders and later development of depressive symptoms.

Reference: Ramsey, S. E., Kahler, C. W., Read, J. P., Stuart, G. L., & Brown, R. A. (2004). Discriminating between substance-induced and independent depressive episodes in alcohol-dependent patients. *Journal of Studies on Alcohol*, *65*, 672–676.

Purpose: To determine how accurate classifications of substance-induced depression are for clients in treatment for alcohol use disorders.

Conclusions: A significant percentage of cases that are reported as “substance-induced” depression in individuals with alcohol use disorders (more than 25% in this study) do not remit after 1 year of abstinence.

Methodology: The authors looked at a subsample of 95 individuals from a larger study on treatment effectiveness for individuals with alcohol dependence. Participants were assessed using the Structured Clinical Interview for DSM-IV Disorders (SCID) and the Beck Depression Inventory (BDI). They qualified for the study if they met DSM-IV diagnostic criteria for a substance-induced mood disorder with depressive symptoms as well as for alcohol dependence.

Summary of Results: In the year following treatment, more than 25 percent of the depressive episodes originally evaluated as substance-induced were reclassified as resulting from an independent major depressive disorder. Participants who had a prior history of major depressive disorder and/or who had lower levels of alcohol dependence were more likely to have their disorder reclassified as independent major depressive disorder during that period.

Reference: Rao, S. R., Broome, K. M., & Simpson, D. D. (2004). Depression and hostility as predictors of long-term outcomes among opiate users. *Addiction, 99*, 579–589.

Purpose: To determine the relationship of client hostility and depression to long-term treatment outcomes in individuals with opioid use disorders.

Conclusions: Among individuals with opioid use disorders not exposed to treatment, depressive symptoms are associated with somewhat better outcomes in terms of substance use and criminal activity.

Methodology: The authors used data from a sample of 727 methadone maintenance clients enrolled in the National Institute on Drug Abuse's (NIDA) Drug Abuse Treatment Outcome Study. All participants were enrolled in methadone outpatient treatment at the start of the study and completed at least one of the two follow-up assessments (conducted 1 and 5 years after the initial treatment). The Symptom Check List-90 (SCL-90) scale was used to assess depressive symptoms and hostility. The authors relied on self-reports of substance use at the 1-year assessment but confirmed self-reports at the 5-year assessment with urine toxicology screens. Logistic regression analyses were used to evaluate the ability of assessed depression and hostility to predict treatment outcomes.

Summary of Results: For clients who did not have any treatment in the year prior to the 1-year followup assessment, depressive symptoms were associated with lower rates of heroin use (the odds of weekly use were 38% lower for individuals who had depressive symptoms). At the 5-year assessment, depressive symptoms again only had a significant relationship to outcomes for individuals who had had no treatment in the prior year—for that group, depressive symptoms were associated with lower rates of arrest and less weekly cocaine use. There was also a strong, significant association between higher scores on the SCL-90 rating for depressive symptoms and lower rates of self-reported arrest during the prior year.

Reference: Rapaport, M. H., Judd, L. L., Schettler, P. J., Yonkers, K. A., Thase, M. E., Kupfer, D. J., et al. (2002). A descriptive analysis of minor depression. *American Journal of Psychiatry, 159*, 537–643.

Purpose: To describe minor depression in detail, including the symptoms, disability associated with it, stability, and relationship to other disorders.

Conclusions: Minor depression is a persistent problem characterized by its affective and cognitive symptoms, not by the neurovegetative symptoms seen in more severe types of depression. Minor depression can be independent of other depressive disorders, can be a less severe but stable episode in the course of a major depressive disorder, or can be a transitional state in people transitioning to or from major depression. Minor depression should be seen as part of a spectrum of depressive disorders, rather than seeing all depressive disorders as unique and discrete conditions.

Methodology: The researchers evaluated data from subjects in three diverse metropolitan areas. Data were gathered from 162 subjects (out of an initial 226) with minor depression who remained in the study for 4 weeks. Researchers defined rigorous and complex criteria for making a diagnosis of minor depression. They also excluded individuals with another current depressive disorder, individuals with a number of other mental disorders, and individuals using certain psychotropic medications. All individuals in the study were treated with a placebo and evaluated regularly during a 4-week period.

Summary of Results: In evaluating the persistence of minor depression, the researchers found that 2.2 percent of the initial 226 developed major depression over the course of the study, and 6.2 percent spontaneously recovered, suggesting that minor depression is not a transient disorder. The most common depressive symptom endorsed by individuals with minor depression was sad mood, followed by irritable mood, problems with concentration and decision-making, a pessimistic outlook toward the future, and anhedonia. Given the entire symptom profile, the authors conclude that minor depression is characterized by its affective and cognitive symptoms, not by the neurovegetative and reverse neurovegetative symptoms seen in more severe types of depression. Of the 162 subjects who completed the study, 32 percent ($n=52$) had a history of major depressive disorder, suggesting that a past diagnosis of major depressive disorder should not be used as exclusion criteria for minor depression. Those individuals who did have a past diagnosis of major depressive disorder did not dif-

fer in terms of depressive symptom severity or functional disability from those who did not have such a past diagnosis. For some clients, minor depression may be a transitional state in the development of major depression, and 2.2 percent of the subjects in the study developed major depression during the 4-week period.

Reference: Riehm, K. S., Iguchi, M. Y., & Anglin, M. D. (2002). Depressive symptoms among amphetamine and cocaine users before and after substance abuse treatment. *Psychology of Addictive Behaviors, 16*, 333–337.

Purpose: To determine whether methamphetamine users' reports of higher rates of depressive symptoms (in comparison with rates reported by cocaine users) result from the drug itself or other factors.

Conclusions: The high levels of depressive symptoms reported by methamphetamine users are in part the result of higher rates of polysubstance use and major depressive disorder among users. After controlling for those factors, rates of depressive disorders do not vary significantly between cocaine and methamphetamine users.

Methodology: The authors analyzed data from 2,176 participants in the National Institute on Drug Abuse's (NIDA) Drug Abuse Treatment Outcome Study. Depressive symptoms were measured using the Symptom Check List-90 (SCL-90) and initial interviews that asked about depressive symptoms in the year prior to treatment. Respondents were reassessed 1 year after treatment conclusion and only respondents for whom followup data were available were used in the study.

Summary of Results: Prior to treatment, respondents who reported regular methamphetamine use but not regular cocaine use and those who reported regular use of both drugs had significantly higher scores of depressive symptoms as measured by the SCL-90. They also reported significantly higher rates of lifetime diagnoses of major depressive disorder. Individuals who reported regular use of both cocaine and methamphetamine also had significantly higher rates of other types of substance use than did those who reported regular use of only cocaine or methamphetamine. After controlling for lifetime diagnoses of major depressive disorder and polysubstance use, rates of depressive symptoms did not differ significantly among regular users of cocaine, methamphetamine, or both drugs.

Reference: Sexton, H., Lipton, R. I., & Nilssen, O. (1999). Relating alcohol use and mood: Results from the Tromso study. *Journal of Studies on Alcohol, 60*, 111–119.

Purpose: To understand the relationship between alcohol use and depressed mood in a general population sample.

Conclusions: While the relationship between drinking and depressed mood is not strong in the general population, drinking appears to increase the chances of experiencing a depressed mood among both male and female immoderate drinkers and for moderately drinking men. However, moderate drinking by women did not predict depressed mood but instead depressed mood appeared to be predictive of later drinking.

Methodology: Researchers twice interviewed a general population sample of 8,260 (4,407 female) Swedish adults, with the second interview occurring 7 years after the first. Depressed mood was measured with a single question on the survey. Current ability to cope and sleep disturbance were also measured with other items. Drinking was measured by three questions addressing the frequency of beer, wine, and liquor consumption and a fourth addressing the frequency of inebriation. Individuals who reported drinking to inebriation at least once per month were classed as immoderate drinkers.

Summary of Results: In this sample, 329 women and 1076 men were considered immoderate drinkers and 4,078 women and 2,777 men were considered moderate drinkers. For male drinkers, whether or not they were assessed as moderate or immoderate drinkers at the initial interview, drinking was associated with increased reports of depressed mood at the second assessment. For women who were immoderate drinkers, this proved to be the case as well. However, for women who were moderate drinkers at the initial assessment, drinking was not associated with increased rates of depressed mood and depressed mood appeared to be predictive of less subsequent drinking.

Reference: Solomon, A., Haaga, D. A., & Arnow, B. A. (2001). Is clinical depression distinct from subthreshold depressive symptoms? A review of the continuity issue in depression research. *Journal of Nervous & Mental Disease, 189*, 498–506.

Purpose: To review existing literature in an attempt to determine if subdiagnostic depressive symptoms are part of a continuum of depressive disorders or represent a condition that must be considered distinct from depressive disorders.

Conclusions: While evidence is still inconclusive, the authors believe that the majority of studies support the idea that there is a manifest and latent continuum of depressive symptoms that includes both subdiagnostic levels of symptoms and diagnosable depressive disorders.

Methodology: The authors reviewed research on subclinical depressive symptoms, focusing almost entirely on studies that made use of clinical interviews rather than on studies that used self-report measures such as the Beck Depression Inventory.

Summary of Results: The authors note a number of problems with research to date on subclinical depressive symptoms (e.g., a lack of agreement on definitions) as well as some of the more interesting findings from that research. They also review some of the more important findings from the literature on subclinical depressive symptoms. They note that the research does suggest that the significance of subclinical depressive symptoms can be different for individuals who have had prior episodes of a depressive disorder than for those who have not. Also, two studies have found that people with subclinical depressive symptoms who have one or both of the two symptoms necessary for a diagnosis of major depression (i.e., anhedonia and pervasive depressed mood) are likely to have a clinically significant impairment as a result of their depressive symptoms, while those individuals with depressive symptoms who do not have those two specific symptoms are unlikely to have a significant impairment. Finally, a number of studies have found that people with depressive symptoms have many of the same problems correlated with their symptoms that people with depressive disorders have correlated with their disorders (e.g., an elevated risk for future episodes of major depression, a family history of major depression, co-occurring psychiatric and/or medical disorders).

Reference: Strowig, A. B. (2000). Relapse determinants reported by men treated for alcohol addiction: The prominence of depressed mood. *Journal of Substance Abuse Treatment, 19*, 469–474.

Purpose: To evaluate which relapse determinants are most associated with relapse to alcohol use among men with alcohol use disorders.

Conclusions: Depressed mood is the most common determinant for relapse among men with alcohol use disorders.

Methodology: The author evaluated relapse determinants in a group of 93 men who attended treatment for alcohol use and had relapsed during the year following treatment. He made use of categories derived from Marlatt's model of relapse, which were presented to study participants in the form of a questionnaire. Participants had a mean age of 47.8 and a mean of 15.6 years of education.

Summary of Results: The reason for relapse most often endorsed by participants was depressed mood (reported in 26.9% of cases), followed by weighing consequences (in 15.1%), impulsive action (in 9.7%), and social pressure (in 8.6%). These results are consistent with earlier research that also found "depressed mood" to be one of the most common relapse determinants.

Reference: Weaver, G. D., Turner, N. H., & O'Dell, K. J. (2000). Depressive symptoms, stress, and coping among women recovering from addiction. *Journal of Substance Abuse Treatment, 18*, 161–167.

Purpose: To determine what changes occur in terms of depressive symptoms, stress, and use of coping mechanisms among women in recovery from substance use disorders.

Conclusions: Among women with substance use disorders, depressive symptoms decrease significantly over the course of recovery, but can remain high for some individuals. The risk of continued depression is greatest for those who are married or living with a partner.

Methodology: The authors evaluated 102 women (age 18 or older) who had 1 to 5 years of recovery from substance use disorders. Participants were identified through the Community University Partnership Project II survey, which provided baseline data for participants prior to treatment and recovery. Participants were assessed through face-to-face interviews. Depressive symptoms were evaluated using the Center for Epidemiologic Studies Depression Scale (CES-D).

Summary of Results: More than half ($n=57$) of the women had a prior diagnosis of clinical depression. The mean score on the CES-D was 12.45, with approximately 33 percent scoring in the range indicating high risk for depression (i.e., scores of 16 or greater). However, 20 percent of the sample continued to have high (≥ 16) scores for depression after having been in recovery for at least a year. The only demographic factor that was found to be significantly related to depression scores was marriage or cohabitation, which were positively related to depression. Higher levels of depression were also significantly related to higher levels of certain types of perceived stress (i.e., financial, physical health related, and emotional health related). There were significant

decreases in stress between prerecovery and recovery for participants, with the mean stress score falling from 27.68 to 14.62. The study also found that significant changes in the coping strategies used by participants before entering recovery, during recovery, and in recovery were less likely to use passive or negative strategies (e.g., procrastinating, keeping feelings to oneself, blaming others) and more likely to use active or positive strategies (e.g., developing to plans to handle problems, expressing feelings, seeing humor in situations).

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Appendix A—Methodology

To find the literature to support the development of this TIP, two sets of searches were conducted: one for the treatment information of primary interest to clinicians and another to find literature of interest primarily to program administrators. While this conceptual difference governed the procedures developed for the review, in practice there was a great deal of duplication in the literature found from the two searches and it was often the case that a citation found during one search would be of interest to both clinicians and administrators.

The clinical literature search began with the question, “How can providers most effectively treat symptoms of depression that do not rise to the level of a diagnosis of a mood disorder in substance abuse treatment clients in early recovery?” For this review, the following terms were used to search the National Library of Medicine’s (NLM) PubMed database, the American Psychological Association’s PsychINFO database, the National Institute on Alcohol Abuse and Alcoholism’s Alcohol and Alcohol Problems Science Database (ETOH), and the Project Cork database:

- “Mild depression”
- “Minor depression”
- “Subclinical depression”
- “Depressed mood”
- “Depressive symptoms”
- “Depression” + “elevated symptoms”

The search was conducted for literature published between 1995 and 2005 that was written in English. All fields (including title, abstract, and key terms) were searched.

Because the initial number of references retrieved in the PubMed and PsychINFO searches was too large for effective review (5,286 and 5,503 items, respectively), these searches were performed a second time limiting the literature to references that also addressed substance use disorders. To do this a string of substance abuse-related terms was created that were added to the initial list of search terms; these were “drug abuse,” “drug dependence,” “substance abuse,” “substance dependence,” “addiction,” and “alcoholism.” Figure 1 shows the number of items found (or “hits”) for each search term in each database.

For each of the citations found, reference information and abstracts were printed and then reviewed by two reviewers (two reviewers were used to reduce any potential bias in the selection process). Reviewers eliminated any citations that focused on children, adolescents, or older adults specifically; any research concerning individuals with mental disorders that were not substance related; and any concerning individuals with co-occurring medical conditions that might affect mood or psychological functioning (e.g., HIV/AIDS).

In addition to the database search for journal articles, a search of books and monographs was also conducted in the NLM and Library of Congress catalogs using the search term “depression.” This list of publications was also reviewed by two reviewers, who used information from the catalogs, publishers’ Web sites, and the Amazon.com store catalog to determine if the publications located would be potentially useful for this TIP. These potentially useful books were then reviewed to determine whether they would be appropriate for the TIP.

After references were selected using these search procedures, the bibliographies or citation lists from those references were reviewed in order to find older, seminal literature appropriate for this topic. Additionally, members of the TIP development panel were asked to suggest literature that might be pertinent to the topic at hand.

A second series of searches was conducted to find references of interest to program administrators on this topic (i.e., information to help implement practices to treat depressive symptoms in substance abuse treatment settings and understand the value of implementing such procedures). This search only used the PubMed and PsychINFO databases (the two larger databases) because it was determined in the previous search that almost all of the citations found in the ETOH and Project Cork databases were also found in these two, and it was expected that information of an administrative nature would be less likely to be recorded in the latter databas-

Figure A.1 Citations Found in Treatment Search				
Search Term	PubMED	PsychINFO	ETOH	Project Cork
<i>Mild depression</i>	101	88	2	6
<i>Minor depression</i>	227	207	7	10
<i>Subclinical depression</i>	14	16	0	2
<i>Depressed mood</i>	788	884	49	47
<i>Depressive symptoms</i>	4,156	4,297	227	90
<i>Depression + Elevated symptoms</i>	9	11	1	5
<i>Mild depression with substance abuse string</i>	7	0	NA	NA
<i>Minor depression with substance abuse string</i>	1	0	NA	NA
<i>Subclinical depression with substance abuse string</i>	2	16	NA	NA
<i>Depressed mood with substance abuse string</i>	32	7	NA	NA
<i>Depressive symptoms with substance abuse string</i>	207	89	NA	NA
<i>Depression + elevated symptoms with substance abuse string</i>	1	0	NA	NA

es. In this second series of searches, the substance abuse-related search string was combined with the term “depression” and one of the following terms:

- “Outcomes”
- “Retention”
- “Program” + “administration”
- “Staff effectiveness”
- “Staff burnout”
- “Cost” + “benefit”
- “Policies” + “program”

This search only found citations written in English between 1998 and 2005; all fields were searched. As before, reviewers eliminated anything that focused specifically on children, adolescents, or older adults; individuals with mental disorders that were not substance related; and individuals with co-occurring medical conditions that might affect mood or psychological functioning. See Figure 2 for the list of the number of hits found in each database for each term.

Because books relevant to program administration were identified in the first search, a second search of library catalogs was not conducted. However, an Internet search (using the Google search engine) was conducted to locate substance abuse treatment program materials (e.g., policies and procedures) to determine how programs were treating individuals with depressive symptoms. The list of terms used in the administrative literature search were also used to conduct this search, but no appropriate program Web sites were located. Reviewers also looked specifically at Web sites of programs that were known for working with clients with co-occurring disorders, as identified in TIP 42, *Substance Abuse Treatment for Persons With Co-Occurring Disorders* (CSAT, 2005), and through lists of SAMHSA grantees.

These searches were performed again prior to submitting the TIP for clearance, and will be performed every 6 months for a 5-year period after clearance has been received.

Figure A.2 Citations Found in Administration Search		
Search Term	PubMed	PsychINFO
<i>Outcomes + depression + substance abuse string</i>	107	155
<i>Retention + depression + substance abuse string</i>	23	21
<i>Program + administration + depression + substance abuse string</i>	0	0
<i>“Staff effectiveness” + depression + substance abuse string</i>	0	17
<i>“Staff burnout” + depression + substance abuse string</i>	0	1
<i>Cost + benefit + depression + substance abuse string</i>	2	0
<i>Policies + program + depression + substance abuse string</i>	3	0

The final list of references selected by both reviewers as the most relevant and useful (from both treatment and administrative searches) appears as an annotated bibliography at the end of this literature review. A complete bibliography of all relevant literature located during the search appears after the annotated bibliography. Not all references that appear in the TIP are abstracted in the annotated bibliography but all do appear in the complete bibliography.