PART | ONE

Introduction to Evidence-Based Practices
SUMMARY POINTS

- “Evidence based” has been defined in many ways; however, most definitions include components that emphasize the importance of the scientific method and the cumulative evidence base derived from research. This chapter defines evidence-based treatment as a treatment that has been scientifically tested and subjected to clinical judgment and determined to be appropriate for the treatment of a given individual, population, or problem area.

- Methodological issues may arise when evaluating evidence. Several factors important to consider when evaluating methodological quality include group allocation (were subjects randomly assigned to conditions), inclusion of collaterals, objective verification, treatment completion rates, generalizability, and the fidelity of the intervention.

- Examples of evidence-based treatment interventions have been divided into different types and include randomized clinical trials, effectiveness trials, reviews, and National Registration of Effective Programs and Practices.
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- Specific interventions include cognitive behavioral therapy, motivational interviewing, brief interventions, relapse prevention, behavioral marital therapy, community reinforcement and contingency management, and adjunctive pharmacotherapy.

Imagine that you are approached by a close friend or family member who has developed an addiction to alcohol or another substance and wants to pursue treatment. This person asks you to visit a few treatment programs to help evaluate which offers the best treatment. What sort of questions would you want to ask the treatment program? What kind of answers would you find compelling? Would you be likely to choose a treatment option because the person explaining it to you had a salient and emotional story about how that treatment had helped a specific individual, perhaps even him or her, or would you want to know other things, such as how many people had been through the treatment program and what percentage have shown improvement? Perhaps you might even question how similar these people are to your loved one or how information on improvement rates was gathered and measured. This latter approach represents an evidence-based approach to treatment, and many of the questions that you may ask in this area are the same questions that scientists, policy makers, and treatment providers are beginning to ask regarding substance abuse interventions.

The substance abuse field is experiencing a transition from reliance on personal evidence and subjective testimony to a more objective, evidence-based approach. While testimony before public commissions about substance abuse treatment and policy has tended to use storytelling about the success or failure of a specific individual more than scientific evidence (Sorensen, Masson, Clark, & Morin, 1998), recent years have witnessed a growing emphasis on substance abuse treatments that have a strong scientific base. For example, the state of Oregon has implemented a policy requiring that 75% of state funds for substance abuse treatment go to support evidence-based practices by the 2009–2011 budget period (Oregon Department of Human Services, 2008). Across the country, there is increasing pressure for programs to justify their outcomes against competing approaches so that they can collect insurance reimbursement. Increasingly, treatment programs need hard scientific evidence to maintain their existence.

The emphasis on research is somewhat new to the field of substance abuse treatment. For a large part of the 20th century, treatment of addiction was conducted separately from mainstream medical or scientific establishments. Because of this, treatment grew from a movement
of dedicated nonprofessionals, whose personal experience led to their involvement in the field (Lamb, Greenlick, & McCarty, 1998). These compassionate peers built a system of care that was relatively independent of the medical and scientific communities. For these treatment staff, personal experiences were regarded as much more valuable evidence than the findings of science. Although substance abuse treatment is becoming increasingly integrated into scientific and medical communities, there is still an emphasis on personal experience and distrust of scientific evidence among many treatment providers. Yet there is increasing scrutiny of substance abuse treatment programs, which need data to justify their place in financially strapped health care systems. Fortunately, a set of treatments is emerging that is “evidence based.”

This chapter focuses on evidence-based interventions in the treatment of addiction. Several definitions of the term “evidence based” will be provided, and the readers will learn about the different types of evidence that are available when making treatment decisions. The chapter also focuses on the skills necessary to critically evaluate and weigh information regarding the effectiveness of a given intervention. Several key studies that have dramatically informed the field of substance abuse are highlighted. Finally, a list of widely accepted evidence-based practices is introduced, and the future of evidence-based practice is explored.

WHAT DOES “EVIDENCE BASED” MEAN?

While on the surface we may all agree about the importance of using evidence-based practice, defining the term “evidence based” is not a simple task. In fact, many different definitions have been put forward. Some definitions focus solely on the status of the intervention within the available scientific literature base. For example, Drake et al. define evidence-based practices as “interventions for which there is consistent scientific evidence showing that they improve client outcomes” (Drake et al., 2001, p. 180). Other definitions emphasize the important role the individual clinician plays in searching for, evaluating, and applying knowledge derived from the scientific evidence base. For example, the Center for Evidence Based Medicine points out that the literature base itself requires interpretation, which highlights the importance of clinical expertise when interpreting the findings of research (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). Finally, other definitions focus on the importance of patient values in determining what constitutes evidence-based practice. For example, the Institute of Medicine (2001, p. 147) calls attention to the importance of scientific evidence, clinical judgment, and “the unique preferences, concerns, and values that each patient brings to a clinical encounter.” Even more
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Clinical judgment is necessary to apply the literature base to a specific treatment-seeking individual with a unique background and characteristics. For the purposes of this chapter, all of these important factors are taken into consideration, and **evidence-based treatment** is defined as a treatment that has been scientifically tested and subjected to clinical judgment and determined to be appropriate for the treatment of a given individual, population, or problem area.

Future sections of the chapter emphasize the importance of the scientific method and cumulative evidence base, but also highlight that the interpretation of evidence is rarely a straightforward task and typically requires subjective decision-making. This chapter describes several methods for identifying and evaluating the evidence base, describes several landmark studies that have informed the field, and identifies treatments that are widely considered to be evidence based.

**Evaluating the Evidence**

A clinician interested in providing evidence-based treatment may turn to the literature in search of research articles that focus on the disorder, population, or intervention of interest. Some types of evidence, however, are more prone to bias than others, and several systems have been developed to help researchers and clinicians organize their thinking about types of research. Several important terms used when evaluating evidence-based treatments can be found in Table 1.1.

**Evaluating evidence through clinical trials**

In behavioral research, randomized controlled trials, or efficacy trials, have historically been the gold standards against which to evaluate interventions. As the name suggests, randomized controlled trials randomly allocate participants to treatment condition and control for extraneous factors that could confound interpretations of causality. However, recent critics have begun to question whether the findings achieved under such tightly controlled studies will translate into routine clinical practice. Instead, many researchers are suggesting effectiveness trials, which test interventions in real-world settings, with the patients and therapists likely to be using the intervention. This design choice consequently limits intervention studies to those that can be realistically administered given staff preferences, time, and resources (Hunsley & Lee, 2007).

In pharmacological research, clinical trials also vary in their applicability to real-world settings. The National Institute of Health identifies four types of research, each with their own methodological advantages and drawbacks (http://clinicalresearch.nih.gov/how.html). This type of research is typically conducted in phases and usually occurs only after
a particular intervention shows preclinical promise in laboratory or animal studies. Within this system, phase I research involves testing a novel drug with a small sample of the population. Due to the small number of participants, this type of research is not necessarily generalizable to the overall population, but can gather important preliminary information about the safety and/or side effects of an intervention. Phase II trials test the intervention with a larger sample of people and further monitor safety. In phase III, the drug is tested with an even larger population and is compared to another treatment or placebo control condition to determine its comparative efficacy. These first three phases of research are often conducted in research settings that maintain tight control over the type of participants allowed into the study and the way in which the treatment is administered. These methods help ensure that inferences about the causal effects of the treatment are accurate (internal validity), but decrease the applicability of the study findings to the general population (external validity). In phase IV research, a drug that is already being routinely administered is evaluated for effectiveness and safety in real-world settings and the long-term effects of the drug are determined. Here, less control over the administration of the intervention and those receiving it are possible, increasing

Table 1.1  Key terms for evaluating evidence

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<th>Term</th>
<th>Explanation</th>
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<tr>
<td>Internal validity</td>
<td>Internal validity is the degree to which research results are likely to be correct and free of bias. Bias can result from publication bias (file drawer problem), not having proper randomization, placebo effects, and many other factors.</td>
</tr>
<tr>
<td>External validity</td>
<td>External validity refers to the ability to generalize the results of one study to other settings and/or populations beyond those included in the study. This is also called generalizability, relevance, or transferability.</td>
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<td>Efficacy</td>
<td>Efficacy is concerned with the question: Can a treatment work under ideal circumstances? Studies that focus on efficacy do everything possible to maximize the chances of showing an effect in an even-handed experimental design. Efficacy research is more concerned with internal validity.</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Effectiveness relates to whether a treatment works in practice. Effectiveness issues center on external validity.</td>
</tr>
<tr>
<td>Fidelity</td>
<td>Fidelity refers to the degree to which an intervention was administered as intended.</td>
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the chance that confounding variables will bias research. However, the findings of such research may have more significance as they evaluate interventions as they are likely to be administered in the real world.

Evaluating evidence through scientific reviews

Early on in substance abuse treatment, groups of studies were reviewed and synthesized by interested researchers who read the available studies on a particular topic and made inferences regarding overall effectiveness using a narrative style. While such reviews could be helpful in seeing the big picture for a particular treatment, they often lacked scientific rigor and were highly prone to the biases and preconceptions of the people conducting them. Soon, methodologically driven reviews were conducted that provided more objective summaries of the literature base. One such strategy uses a “box tally” methodology in which the numbers of positive and negative findings for a particular intervention are tallied, producing a cumulative evidence score for an intervention of interest. This method can be further enhanced by differentially weighting studies based on important factors, such as their methodological quality or relevance to a population of interest.

Meta-analysis is another approach to synthesizing multiple studies, in which the different outcome variables of a group of studies are statistically combined to produce standard measures of effect. These effect sizes can allow researchers to make comparisons of different treatments, can be weighted by methodological quality, and are less influenced by the bias that can result from having an insufficient number of participants in significance testing. Meta-analysis can help summarize a research base by streamlining information and providing a common metric (i.e., effect size), that can be used as a standard to compare different interventions.

Meta-analysis, however, is also prone to some difficulties. For one, outcome studies in substance abuse research use a variety of outcome variables, including abstinence, quantity of use, frequency of use, and problems associated with use. Statistically combining these discrepant measures can be misleading. In addition, there is a bias in science, known as the “file drawer problem,” to publish only positive findings (leaving negative studies in the file drawer), resulting in misrepresentative pictures of the total evidence base. Nonetheless, meta-analyses are important tools that can be used for evaluating treatment effectiveness. Using meta-analysis and other methodologies, an international network of researchers known as the Cochrane Collaboration (www.cochrane.org) conducts reviews of substance use behavioral and pharmacological treatments and disseminates their findings on their Web site.
Evaluating evidence—Special considerations

Although a great deal of research has been conducted on substance abuse intervention, clear-cut evaluation of the quality and relevance of such research is not easy. There are many factors to consider when deciding how much weight to give a particular piece of evidence.

First, some providers assert that the scientific method may not be the best way to evaluate interventions. This idea has been somewhat popular in psychodynamic or Freudian psychology, with some interventionists claiming that, despite the fact that psychodynamic theory makes causal claims, it should not be evaluated using experimental testing. The argument is that subjective experience should be the basis for evaluating interventions. In substance abuse, this sentiment is also popular among treatment providers outside of the psychodynamic movement. In fact, many substance abuse counselors report learning about interventions and evaluating their effectiveness based on personal experiences rather than from educational programs (Miller, Sorensen, Selzer, & Brigham, 2006).

If one does accept that substance abuse interventions should be evaluated using scientific standards, interpretation of the evidence is still not a simple task and requires an evaluation of several important constructs. For one, the methodological quality of studies varies highly and consumers of research typically place more weight on studies conducted with high methodological quality. Consider two studies that have been conducted on treatment A. One study found favorable results and the other study found unfavorable results for the treatment. This is not an unusual situation and, when making decisions about whether to use the intervention, many people look to the methodological quality of the respective studies. Imagine that the first study only measured outcome at treatment completion, was only able to locate half of participants for follow-up assessment, and had follow-up assessors who knew which participants were in the intervention versus controlled conditions. All of these issues could bias the findings of the first study, and this poor methodological quality may lead clinicians and researchers to give less weight to the findings. The second study, however, may have assessed patients for a year following treatment completion, demonstrated a high follow-up rate, and kept assessors blind to treatment conditions. In this case, one places much more importance on the findings of the second study. In addition to follow-up length, follow-up rates, and the blinding of assessors, other factors important to consider when evaluating methodological quality include group allocation (were subjects randomly assigned to conditions), inclusion of collaterals (were significant others interviewed to confirm participants’
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self-report), objective verification (were biological specimen, records, or other objective means used to confirm participants’ self-report), and treatment completion rates (how many participants actually received the intervention of interest and how were those who did not statistically analyzed).

Another factor important to consider when evaluating evidence is the fidelity of the tested intervention. Fidelity refers to the degree to which an intervention was administered as intended. Borrelli et al. (2005) identified multiple fidelity factors that are important to consider when evaluating substance abuse research, including dose and content of treatment, characteristics and training of the interventionists, and procedures for monitoring adherence to the treatment model.

In addition, it is important to consider the generalizability of the research findings. Inclusion/exclusion criteria, severity of substance use, and demographic factors of the samples vary widely across studies, and some study samples may be more applicable to a given problem or question of interest than others. Some groups, including women, ethnic minorities, and those with comorbid disorders, have been historically underresearched in substance abuse research, often making generalizability of research findings to these populations difficult. Part IV of this book (Special Populations and Applications) describes treatment approaches for these populations in greater detail.

Finally, research should be evaluated in terms of its practicality or suitability for real-world adoptions. Some research methods designed to increase the internal validity of studies may interfere with the applicability of research findings to real-world settings. While aspects of methodological quality are important, they can also limit the generalizability of findings. When reflecting on the firewalls put in place to prevent bias and increase the ability to make causal attributions in a particular study, clinicians should also consider whether the intervention could be replicated in community-based treatment programs.

Evaluating evidence—The dodo bird effect

One common finding of many comparative clinical trials, reviews, and meta-analyses conducted in substance abuse research is that the evaluated treatments perform equally well. Some have drawn an analogy between treatment outcome research and the dodo bird’s race in Alice in Wonderland, in which he enthusiastically declares that “everyone’s won and all must have prizes” (Wampold, Mondin, Moody, Stich, Benson, & Ahn, 1997). Although some treatments, such as confrontational counseling, have been found to be ineffective in addiction treatment, most theoretically based or manualized behavioral treatments perform
equally well when tested in the field. This is especially surprising considering that most treatments have very different assumptions about the change and recovery process.

EXAMPLES OF KEY STUDIES AND FINDINGS

Randomized clinical trials

Now we will turn our attention to several key studies in the substance abuse treatment research field. First, several large, multisite, randomized clinical trials (RCTs) have revealed an abundance of treatment efficacy in the addictions field. These studies are typically of a high methodological quality and, consequently, demonstrate excellent internal validity. However, addiction specialists have suggested that this methodological rigor, combined with extensive inclusion/exclusion criteria, limits generalizability to real-world clinical settings. Several multisite clinical trials have been particularly informative to the field of substance use and dependence, including Project MATCH [Matching Alcoholism Treatments to Client Heterogeneity], the COMBINE study [Combining Medications and Behavioral Interventions], and the Cannabis Youth Treatment study. These interventions are described in more detail.

PROJECT MATCH

Project MATCH was a multisite, collaborative project supported by the National Institute on Alcohol Abuse and Alcoholism. The study was designed to test matching hypotheses, which predicted that clients with certain characteristics would fare better in one treatment versus another. Clients were assigned randomly to one of three treatments (cognitive behavioral treatment [CBT], motivational enhancement therapy [MET], or 12-step facilitation [TSF]) and their outcomes were compared based on 10 client variables, including psychiatric severity and level of motivation [Project MATCH Research Group, 1993]. At a 12-month follow-up, participants from all three treatments had more days abstinent and drank fewer drinks per episode when compared with baseline assessments. However, few of the matching hypotheses were supported. Findings indicated that CBT, MET, and TSF were equally effective in improving alcohol outcomes and that specific patient characteristics do not differentially influence the effectiveness of these interventions.

COMBINE

The COMBINE study expanded on the findings of Project MATCH to determine whether combining medications for alcohol dependence (naltrexone, acamprosate) could improve the effectiveness of behavioral interventions. In COMBINE, a combined behavioral intervention was
created that incorporated aspects of all three treatments from Project MATCH. In addition, COMBINE tested a medication management (MM) intervention, a less involved treatment focusing on providing support and medication compliance. To explore which medication and behavioral treatment combination led to better outcomes, participants in the study were randomly assigned to one of nine treatment combinations. Results from the COMBINE study showed that adding a brief intervention [MM] to naltrexone can be a cost-effective way of treating alcohol dependence and that a combination of medication and behavioral treatment was more effective than medications alone (Anton et al., 2006). The implication of these results is that, via the use of a variation of MM (i.e., more focused and fewer sessions) combined with naltrexone, it may be possible to treat alcohol dependence in primary care settings.

**CANNABIS YOUTH TREATMENT STUDY**

The Cannabis Youth Treatment study was designed to compare the effectiveness and cost-effectiveness of five treatment modalities in real-world settings (Dennis et al., 2002). Adolescents (ages 12–18) enrolled in the study were randomly assigned to one of five group therapies (Motivational Enhancement Therapy/Cognitive Behavioral Treatment [MET/CBT] 5 sessions, MET/CBT 12 sessions, the Adolescent Community Reinforcement Approach [ACRA], Multi-dimensional Family Therapy, and Family Support Network). Results showed that participants in all five treatments showed significant improvements but the most cost-effective approaches included MET/CBT5, MET/CBT12, and ACRA (Dennis et al., 2004).

**Effectiveness trials**

While multisite RCTs can be conducted with high internal validity, they are often low in external validity. Tight restrictions in participant inclusion criteria and administration of interventions by highly trained therapists (following standardized treatment protocols) improve our ability to make causal attributions, but decrease the generalizability of findings to community treatment centers in which clients often have multiple and more severe problems and are dissimilar to RCT participants. Recognizing this limitation, the National Institute on Drug Abuse established the Clinical Trials Network (CTN). The CTN provides a setting in which treatment providers and researchers exchange information and develop research protocols together. Research protocols are then tested in front-line clinics, making results more generalizable to community-based treatment centers. Since its inception, CTN has funded nearly 30 large clinical trials to determine the most effective treatments
for drug dependence through a variety of methods (behavioral treatments, medications, telephone support) and in different languages (e.g., Spanish). The dissemination of effective treatments is a principal goal, and the CTN dissemination library serves as a forum from which dissemination can occur. The library contains journal articles, presentations, reports, brochures, bibliographies, and descriptions of studies being conducted within the network. Researchers and clinicians can access this information at http://ctndisseminationlibrary.org. To facilitate dissemination, the CTN developed the Blending Initiative, which is designed to blend resources, information, and expertise in order to encourage the use of current evidence-based treatment interventions in the drug abuse treatment field.

### Reviews

**MESA GRANDE**

The Mesa Grande project (Miller & Wilbourne, 2002) is an influential review of 361 clinical trials of treatments for alcohol use disorders. Results showed that brief interventions, social skills training, community reinforcement approach, behavior contracting, behavioral marital therapy, and case management were all equally effective in treating alcohol use. Medications were also among the supported approaches, including opiate antagonists (naltrexone, nalmefene) and acamprosate. Ineffective interventions included confrontational counseling and mandated Alcoholics Anonymous.

**MARIJUANA DEPENDENCE**

In a review of marijuana-focused clinical trials, McRae, Budney, and Brady (2003) found that cognitive behavioral therapy/relapse prevention, motivational enhancement, and contingency management therapies were efficacious in the treatment of marijuana dependence and associated problems. The influence of treatment dose was also explored, and although few differences were found between brief interventions and more intensive CBT interventions, the most recent and largest controlled trial (the Marijuana Treatment Project) found an extended CBT intervention to be more effective than brief motivational therapy (Litt, Kadden, Stephens, & Marijuana Treatment Project Research Group, 2005). This review illustrated that the development of an evidence base for the treatment of marijuana dependence is still in its infancy. It should be noted that therapies for alcohol abuse/dependence and other drugs also proved to be efficacious for the treatment of marijuana dependence, but more research in treatment effectiveness (in real-world settings) is needed.
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NATIONAL REGISTRY OF EVIDENCE-BASED PROGRAMS AND PRACTICES (NREPP)

Based on the evidence available in the treatment of substance abuse, the Substance Abuse and Mental Health Services Administration has created the National Registration of Effective Programs and Practices. NREPP contains a searchable database of interventions for the prevention and treatment of mental and substance abuse disorders. The NREPP system reviews interventions systematically and categorizes approaches as promising, effective, or model programs according to the quality of research evidence about their effectiveness, as well as their readiness for dissemination, based on what materials and training are available. The NREPP system lists over a dozen categories of interventions, including alcohol and drug prevention and treatment.

EXAMPLES OF EVIDENCE-BASED TREATMENTS

So far, this chapter has introduced the concept of evidence-based treatment and discussed important considerations in evaluating research. Now, specific treatment methods are described briefly. Table 1.2 summarizes each of these treatment approaches, all of which have received strong consistent support in the literature and are described in greater detail in upcoming chapters of the book.

Cognitive behavioral therapy

Cognitive behavioral approaches are based on the theory that learning processes play a formative role in the development and maintenance of addictive behaviors. These treatments are among the most widely studied. Considering the extensive research that has been conducted in establishing cognitive behavioral therapy as an empirically supported treatment and that few differences are found when comparing cognitive behavioral treatments (see the Mesa Grande study described earlier), researchers have suggested that effective elements across cognitive behavioral approaches be combined [Kadden, 2001]. For more information on cognitive behavioral therapy as a treatment method, see Chapter 8.

Relapse prevention

Preventing a person from returning to substance use, or relapse prevention, has emerged as an important and effective treatment by taking into consideration the cognitive and behavioral components within the process of the relapse phenomenon. Paramount features of these interventions include the identification of high-risk situations and the provision of coping skills to manage them more effectively [Marlatt &
Effective use of new coping skills can help ward off relapse and increase self-efficacy, thereby making future relapse less likely. Relapse prevention has been shown to be effective in improving clinical outcomes for alcohol use, smoking, cocaine, and polysubstance use (Irvin, Bowers, Dunn, & Wang, 1999). Recent developments in the relapse prevention approach, including one that integrates meditation as a cognitive coping skill (Mindfulness-Based Relapse Prevention), are discussed in greater detail in Chapter 11.

Motivational interviewing

Motivational interviewing (MI) is a brief, client-centered, directive intervention that enables clients to explore and resolve ambivalence about change. Table 1.2 Examples of empirically supported treatments

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Cognitive behavioral therapy</td>
<td>Cognitive behavioral approaches are based on the theory that learning processes play a formative role in the development and maintenance of addictive behaviors.</td>
</tr>
<tr>
<td>Motivational interviewing</td>
<td>Motivational interviewing is a brief, client-centered, directive intervention that helps people explore and resolve ambivalence about change.</td>
</tr>
<tr>
<td>Brief intervention</td>
<td>Brief interventions with high levels of effectiveness tend to have certain characteristics, remembered by the acronym FRAMES: Feedback on personal risk, an emphasis on the Responsibility of the patient for changing his or her own behavior, Advice, providing a Menu of options, Expressing empathy through reflective listening techniques, and supporting Self-efficacy.</td>
</tr>
<tr>
<td>Relapse prevention</td>
<td>Interventions based on this model describe the identification of high-risk situations to reduce the risk of relapse and help people identify the types of coping skills that one can employ in these situations.</td>
</tr>
<tr>
<td>Behavioral marital therapy</td>
<td>Behavioral marital therapy can be used to rebuild trust, improve communication, reduce intimate partner violence, and help the substance-using partner sustain abstinence.</td>
</tr>
<tr>
<td>Community reinforcement and contingency management</td>
<td>Drug-free urine samples are used to monitor patient’s abstinence and are reinforced by providing contingent vouchers that patients can exchange for retail goods.</td>
</tr>
<tr>
<td>Adjunctive pharmacotherapy</td>
<td>In treating alcohol abuse/dependence, disulfiram, naltrexone (an opiate receptor antagonist), and acamprosate have all been shown to be effective. For opioid dependence, methadone and buprenorphine have been deemed effective treatments.</td>
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about change (Rollnick & Miller, 1995). In MI, therapists are encouraged to take a nonjudgmental stance and guide patients through the process of exploring their substance use in the context of personal goals and values. This intervention has been widely studied and shows moderate levels of efficacy in the treatment of alcohol and drug disorders, as well as in engaging people in other forms of addiction treatment (Hettema, Steele, & Miller, 2005). MI techniques are discussed further in Chapter 9.

Brief interventions

In addition to MI, other brief interventions have shown promise in the treatment of substance use disorders. Despite the common adage that “more is better,” the literature has shown that brief interventions can have dramatic and prolonged effects and that increasing the intensity of an intervention does not consistently result in improved effectiveness (Miller, 2000). Effective brief interventions share common characteristics (often referenced by the acronym, FRAMES), including objective Feedback on personal risk, an emphasis on the Responsibility of the patient for changing his or her own behavior, Advice, providing a Menu of options, Expressing empathy through reflective listening techniques, and supporting Self-efficacy (Miller & Sanchez, 1993). Brief interventions are promising because they are inexpensive to administer, allow more addicted individuals to receive treatment, and can be administered in medical settings, where providers have limited time and resources to commit to behavioral issues. Chapter 10 describes brief interventions in greater detail.

Behavioral marital therapy

The goal of behavioral marital therapy is to improve marital behaviors that may affect the substance use of one or both partners. Substance use can damage the trust and communication necessary for a fulfilling relationship. Behavioral marital therapy is used to rebuild trust, improve communication, reduce intimate partner violence, and help the substance-using partner sustain abstinence. This intervention has a long history of effectiveness (Hahlweg & Markman, 1988). Therapists typically work with couples both in tandem and individually in outpatient settings. Chapter 12 in this volume describes behavioral marital therapy in more detail.

Community reinforcement approach and contingency management

This intervention has been applied primarily with cocaine use and to reduce alcohol consumption in clients whose drinking is associated with drug use (Higgins et al., 1994). Therapists typically provide about
6 months of outpatient therapy in individual counseling sessions, refer alcohol-abusing patients for disulfiram (antabuse) therapy, monitor patients for continuing drug use through the collection of regular urine samples, and reinforce their abstinence by providing contingent vouchers that patients can exchange for retail goods that are consistent with a drug-free lifestyle. In this volume, Chapter 13 describes the community reinforcement and contingency management in more detail.

**Pharmacological treatments**

Pharmacological treatments are also available for the treatment of substance use disorders. Disulfiram, or antabuse, has been used in the treatment of alcohol disorders for several decades. One drawback of disulfiram is that it is effective only if taken daily and consistently. Because of this, meta-analyses have shown small effects from its use (Garbutt, West, Carey, Lohr, & Crews, 1999). Newer medications, including naltrexone, an opiate receptor antagonist, have been found to reduce the pleasurable effects of alcohol and, consequently, reduce alcohol cravings (Work Group on Substance Use Disorder, 2006). Finally, acamprosate has been shown to help maintain abstinence after detoxification from alcohol by normalizing metabolic processes that occur when heavy drinking is discontinued (Tempesta et al., 2000).

Several medications have also been developed to treat opioid dependence. Methadone is an opioid agonist that blocks the pleasurable effects of opiates, such as heroin, in the brain. This drug, which typically requires visiting a clinic for daily dosing, has been found to be effective and safe, particularly at higher doses (Gardner & Kosten, 2007). Buprenorphine has also been used in the treatment of opiate addiction. This drug is a partial opioid agonist that suppresses withdrawal, produces effects similar to other opiates at low doses, and blocks the effects of other opiates. Buprenorphine has shown promise in clinical trials (Johnson, Jaffe, & Fudala, 1992) and has had Food and Drug Administration approval for the treatment of opiate addiction since 2002. Unlike methadone, buprenorphine does not have to be dispensed in a specialized clinic, as physicians can prescribe buprenorphine directly. Further information on pharmacological treatments can be found in Chapter 15.

**CONCLUSIONS AND FUTURE DIRECTIONS**

This chapter focused on defining “evidence-based” interventions in the treatment of addiction. Evidence based refers to treatments that have been scientifically tested and subjected to clinical judgment and determined to be appropriate for the treatment of a given individual, population, or problem area.
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It is important to acknowledge that diverse types of evidence must be considered when evaluating substance abuse treatments; interpreting available data is not always a clear-cut process. Clinical trials, reviews, and meta-analyses are all useful sources but should be evaluated in terms of internal validity, external validity, and applicability to the patient populations and the clinical expertise of clinicians.

Several interventions that have a strong evidence base were introduced and described briefly in this chapter. In addition, resources were provided to help in the process of exploring and identifying evidence-based practices, such as the NREPP site (Substance Abuse and Mental Health Services Administration, 2008). Specific interventions are explained in more detail in later chapters of this volume. If readers are looking for immediate implications of this work, the resources provided in this chapter and in this volume should provide skills, information, and other resources helpful in identifying evidence-based treatments that work best for the population of interest. In addition, the evidence base for existing as well as newly developed treatments is developing rapidly.

Finally, when looking to the future of evidence-based practice, it is clear that the emphasis on objective, testable outcome trials will continue. It is hoped that the field will also increase its use of effectiveness trials conducted in real-world settings so that findings of research can be more generalizable to treatment populations. In addition, increased emphasis should be placed on the dissemination of research so that research findings can reach practitioners who must ultimately adopt them. There are certainly obstacles to adopting an evidence-based mentality, but choosing treatment modalities based exclusively on personal testimony and subjective criteria is no longer a viable option. Echoing the sentiment in the quotation that began this chapter, the point is to bring facts to people and then let them decide.

REFERENCES


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