

## CHAPTER 12

# PSEUDOSCIENCE IN MENTAL HEALTH

Whether from insurance providers, governmental agencies, professional organizations, or clients themselves, today's mental health practitioners (MHPs) are finding themselves under increasing pressure to justify not only what they do (e.g., providing psychotherapy or some other service), but also how they do it. In particular, just as in medicine, there has been a growing trend toward MHPs using evidence-based practice (EBP) in psychological treatment and assessment. As discussed extensively in Chapter 11, EBP is defined as "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients" (Sackett et al., 1996). In the real world, this often translates into using therapies and assessment methods that have been demonstrated to be effective via valid and reliable clinical research.

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## EBP IN PSYCHOLOGY

Although interest in treatment efficacy has been present in applied psychology for decades, it wasn't until the mid-1990s that major movements toward EBP occurred in psychology as a whole. An American Psychological Association (APA) task force released a statement in 1995 detailing that the evidence for any psychological intervention should be based on two factors: efficacy (does research show it works?) and clinical utility (is it applicable in real-world settings?). Shortly thereafter, Diane Chambless and her associates (1996) thoroughly reviewed the literature and released the first list of empirically supported treatments (ESTs)—psychological treatments that had been found to have high levels of efficacy for specific disorders, generally comparable to or exceeding the effects of medication. Included were methods such as cognitive behavioral therapy (CBT) for panic disorder, exposure with response prevention (EX/RP) (a type of behavioral therapy) for obsessive-compulsive disorder, and interpersonal therapy for major depression. The response to this publication was varied, with some praising the effort as a bold move to raise public awareness of the efficacy of psychological treatment. Others, though, complained about the lack of

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focus on common, nonspecific therapeutic factors and the emphasis on treatment manuals and short-term therapy. Despite this criticism, the push to increase the use of EBP within the psychological community continued to grow.

In 2006, the APA's Presidential Task Force on EBP furthered its commitment to EBP in the field of psychology via integration of applied and basic research. In a resulting article (APA, 2006), EBP was defined as "the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences" and the purpose of EBP was "to promote effective psychological practice and enhance public health by applying empirically supported principles of psychological assessment, case formulation, therapeutic relationship, and intervention." There have been hundreds of clinical trials investigating the efficacy of particular forms of EBP, such as cognitive, behavioral, and interpersonal therapies, with more emerging all the time. In addition to clinical efficacy, research has shown time and time again that EBP is safe and effective for a wide range of ages and problems, is more enduring in symptom impact than medications, and pays for itself via medical cost offset and increased productivity, providing a huge support base for the clinical utility of such treatments (Lambert & Ogles, 2003).

Unfortunately, a large number of MHPs have little to no training in how to utilize evidence-based psychotherapies and assessments. Especially in low income and rural areas, there are few doctoral-level practitioners available, which means that the majority of services are being delivered via master's-level MHPs. Traditionally, clinical psychology doctoral programs and postdoctoral positions have been the primary place where practitioners received extensive training in CBT, interpersonal, and other evidence-based therapies. Although there are a growing number of master's-level programs that emphasize EBP, they are in the minority. This difference in training level is critical, as there are approximately 665,500 master's-level counselors and 642,000 social workers in the United States, compared with 152,000 doctoral-level clinical and counseling psychologists (U.S. Department of Labor, 2010). This means that a majority of MHPs are not well trained in EBP, which opens the door to providers plying pseudoscientific, non-evidence-based treatments (non-EBTs) and assessments for mental health problems. Likewise, many people seeking psychological services do not know the difference between EBP and non-EBP, making them vulnerable to receiving services that are not effective. The purpose of this chapter is to shine the light of critical inquiry onto some of the most commonly seen non-EBP in psychology and counseling, from treatments for specific disorders, such as autism, post traumatic stress disorder (PTSD), and substance abuse, to psychological assessment measures.

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## AUTISM SPECTRUM DISORDER

Autism spectrum disorder (ASD) is characterized by impairments in social interaction and communication (verbal and nonverbal), frequently accompanied by repetitive self-soothing behavior. Individuals with ASD experience difficulty connecting to others in social situations, have difficulty experiencing empathy, and often have issues with impulsive behavior and self-regulation, especially when confronted with novel stimuli. In the recent past, the disorder was seen as relatively rare, with only the most extreme cases of nonverbal autism attended to by the health care community. Over the course of the last 25 years, though, a far greater number of individuals are being diagnosed with ASD (caused in large part by the expansion of the official diagnostic criteria and increased screening and awareness). This has resulted in increased interest in treating the disorder through both medical and psychological methods, but has also resulted in an explosion of pseudoscientific and non-EBTs being offered to the public.

### Autism and Vaccines

As in many areas of psychology, there is a large gap between what we actually know about ASD via research and what a number of people believe. Probably the most dangerous myth surrounding autism is that childhood vaccinations can somehow cause ASD. This thoroughly discredited idea started largely on the basis of a single, poorly conducted study published in 1998 by Andrew Wakefield, a medical doctor in the United Kingdom. Wakefield, along with 12 coauthors, claimed that in a study of 12 children they observed a combination of gastrointestinal disease and developmental regression (both of which are often seen in children with ASD, but neither of which is a diagnostic indicator) that occurred within 2 weeks of receiving a measles, mumps, and rubella (MMR) vaccine. It is important to note that there was no causal explanation provided, even a hypothetical one, in the original work. For Wakefield, this was enough to call a press conference and to speculate to the media about the safety of the widely used MMR vaccine. Since that time, controversy has reigned within popular culture regarding the potential of vaccines to cause autism, among other disorders and ailments.

In 2004, when media scrutiny of the study first began to build, 10 of Wakefield's coauthors retracted their names from the interpretation in the work, and distanced themselves from any conclusions that they had initially approved. The scrutiny and disavowals largely came in response to a news story published in the *Sunday Times*, in which parents of the original 12 children in the study were found to have been recruited by a lawyer preparing a massive lawsuit against manufacturers of the MMR vaccine, and that this same lawyer had given over £400,000 to Andrew Wakefield. To think of this

as anything other than a quid pro quo deal would be naïve, at best. Without speculating on any prior arrangements, it is evident that Wakefield's clear conflict of interest prevented him from conducting the study in an unbiased and objective manner.

Within months, additional evidence was levied against Wakefield, namely, that he had applied for a patent prior to publishing this study in *The Lancet*. This patent was for a single-jab measles vaccine that would allegedly prevent autism "caused" by the currently used MMR vaccine. So, not only was Wakefield being paid to conduct the research by a lawyer preparing a lawsuit against vaccine manufacturers, using participants recruited by this same attorney, but he had also applied for a patent for the very vaccine that would be needed if his research was found to be accurate. Dr. Wakefield was severely compromised, something that the General Medical Council (the British medical regulatory board) took note of, conducting a "fitness to practice" trial from July 2007 to May 2010. In addition to the conflict-of-interest charges that were brought against him regarding his relationship with the lawyer, facts regarding the treatment of his original subjects came to light that cast further doubt on Wakefield's ability to practice medicine. The children had been subjected to a number of painful invasive tests without any medical cause, such as spinal taps, colonoscopies, and colon biopsies *without* first obtaining the approval of an ethics board. The board ruled against Wakefield on all charges (and several unlisted ones that seem relatively minor in comparison to the vaccine-panic issue) and removed him from the U.K. medical register, rendering him unable to practice medicine in the United Kingdom.

These investigations and facts led *The Lancet*, the scientific journal that originally published his study, to completely retract his work in 2010, stating that his conclusions were "fatally flawed." Despite this thorough discrediting, the damage had been done. Numerous celebrities, such as Jenny McCarthy, Jim Carrey, Mayim Bialik, Robert F. Kennedy, Jr., and Bill Maher, took up the antivaccination cause, resulting in significant drops in vaccine rates in the United Kingdom and United States. In 1996, 92% of all individuals 24-months old in the United Kingdom were vaccinated for MMR. By 2002 it was 84%, with some parts of London dropping all the way to 61% in late 2003. Although vaccination rates have rebounded since Wakefield's fall, measles is now endemic in the United Kingdom, meaning it survives within the population. Thousands of people have gotten sick, and dozens have died in the outbreaks that have occurred. In the United States, measles was declared eliminated in 2000, but by 2013 there were major outbreaks in three states as a result of nonvaccinated children, with increasing outbreaks in the years 2014 and 2015 in dozens of states. The first death as a result of measles in the United States in over a decade occurred in 2015 and can be directly attributed to the antivaccination movement.

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The worst part about the thousands of people who have been needlessly infected or killed by measles (not to mention the whooping cough and other preventable disease outbreaks that have occurred recently) is that they all sprang from a single shoddy study, while other, better controlled studies that showed no link between vaccines and ASD (and other health problems) were ignored. In fact, the largest ever study to examine the potential link between MMR vaccines and ASD used the health records of almost 96,000 children (compare that number to the 12 in Wakefield's discredited study). The researchers found that not only did the vaccine not increase the risk of a child developing ASD, but that this held true even when a child had an older sibling who was already diagnosed with ASD (Jain et al., 2015). This enforced findings from dozens of smaller studies over the past two decades, in sharp contrast to those studies that attempted to replicate Wakefield's results and found nothing similar to what he had.

## Evidence Based Versus Pseudoscientific Treatments for Autism

Given the rise in diagnoses of ASDs, there has been a corresponding increase in the numbers of parents seeking effective treatment for their child's condition. In terms of broad and replicated findings, research has repeatedly shown that early, intensive treatments using techniques of applied behavioral analysis (ABA) can help make substantial gains in measured intelligence, academic skills, language abilities, and adaptive functioning for children with ASD (Weitlauf et al., 2014). Despite this, ABA tends to be underutilized because of a lack of qualified practitioners and knowledge about the treatment on the part of parents and physicians. This has led to a proliferation of other therapeutic modalities to help those with ASD, despite not having the demonstrated effectiveness of ABA.

### Facilitated Communication

With communication so vastly impaired in people with autism, it comes as little surprise that many parents desperately seek a treatment to address that issue. In the early 1990s, many therapists and parents thought they had found an amazing therapy to help their severely impaired children talk to them, called facilitated communication (FC). The idea behind FC (sometimes called "supported typing") is that persons with autism or other severe developmental problems are not able to communicate effectively because of motor coordination issues, rather than some type of brain-based neurological problem (American Speech-Language-Hearing Association, 1994). Supporters of FC contend that these individuals need

specialized physical, communicative, and emotional support in order to communicate effectively.

To accomplish this, a trained facilitator supports the hand or wrist of the communicator (the person with ASD) while it hovers over a keyboard, allowing the person with ASD to overcome these motor issues and point to letters or words. This support can vary from just holding a single finger to holding the wrist, elbow, or shoulder (or a combination of those). The communicative support involved may be things like rephrasing questions to make them simpler or more predictable. The emotional support involves being encouraging and patient while assuming the communicator actually can communicate with the right help. For many parents who took their children for FC sessions, the results were astounding: children who had never spoken aloud were suddenly typing out phrases such as “I love you,” complex sentences, and even poetry. Parents were rejoicing at finally being able to interact on a more meaningful level with their children and facilitators could bask in knowing that they were making a huge impact on people’s lives.

FC provides a model case study for the use of critical-thinking skills when it comes to health claims. First, the idea that children could not communicate because of motor and coordination difficulties rather than speech and language problems is an extraordinary claim, which flies in the face of all available evidence about what causes communication problems in those with ASD. For instance, although a number of children with ASD have less developed motor skills than their same-age peers, many of these children who needed “help” to type would have had no problem with other relatively complex motor tasks, such as feeding themselves. Next, we can evaluate rival hypotheses for why FC “works.” One, held up by users of FC, is that the physical and emotional support offered allows the child or adult with ASD to communicate. A second (and more parsimonious) hypothesis is that the facilitators are actually the ones who are doing the communicating. In this case, relatively simple experiments can be performed to help determine which of these hypotheses is more plausible.

One way to rule out the influence of the facilitator is to make the facilitator blind to what the response should be. For example, one could put headphones on both the facilitator and communicator and then play questions and ask them to answer. But, you could also blind the test by making half of the questions the same (e.g., both hear “What color is the sky?”) and make the other half different questions (e.g., “What color is the sky?” to the facilitator and “What color is grass?” to the communicator). You would then take and compare the answers to see if what is typed out answers the question posed to the facilitator or communicator. In another simple blinded test you can substitute auditory questions for visual pictures, again to see if what is typed out is congruent with what

the communicator or the facilitator is shown. It turns out that when studies have used these and other control methods to rule out facilitator influence, they find time and again (consistent with the solid replication needed in science) that the answers typed out are inevitably those of the facilitator (Romanczyk, Turner, Seville, & Gillis, 2015).

These studies have led to FC being labeled pseudoscientific and harmful by organizations from the American Academy of Pediatrics to the APA. In a 1994 report, the American Speech–Language–Hearing Association said “Results of experimental investigations consistently fail to support the validity of FC, and provide repeated examples of facilitators unknowingly influencing the content of messages that they believed were conveyed by the FC user.” Unfortunately, this has not stopped people from using it and claiming massive success, despite the warnings of professional associations and a lack of an evidence base.

On the parents’ side, this may be in part because of the confusion between FC and what is called “augmented communication” (AC). In AC, the communicator always has *direct* voluntary control of the means of communication, such as having a tablet with symbols or words on it that he or she points to or using small hand/head movements to shift a cursor around a screen (not unlike what Stephen Hawking uses). The key difference is that the communicator is always in control with AC, which has been demonstrated repeatedly in well-controlled research. In FC, it is actually the facilitator who is in control, which is what our blinded trials reveal.

### Sensory Integration Therapy

Sensory integration therapy (SIT) is a treatment often employed by occupational therapists to help children with autism. It is intended to address higher level cognitive impairments in functioning by fixing what are called “sensory processing problems.” It reportedly does this by engaging in activities to stimulate the vestibular (movement), proprioceptive (motor), and tactile (touch) senses that will balance out these problems. Used since the 1970s, proponents of SIT often say that it is grounded in contemporary neuroscience’s understanding of how our brains process information. However, as with FC and many other non-EBP ideas, SIT’s core theories have no empirical support. Not only are the core ideas out of sync with our understanding of how sensory perception is related to higher cognitive functioning, the idea of a disorder of sensory processing is not accepted by the American Medical Association or the APA. The lack of evidence base is further compounded by positive results only coming from poorly designed and poorly controlled studies, with proper studies finding “no objective, scientific evidence to suggest that SIT is more effective than alternative treatments or even *no treatment at all*” (Polenick & Flora, 2012).

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## Biological Treatments

The final two alternative treatments we discuss for ASD are not only ineffective, but also potentially dangerous: chelation therapy and megadoses of vitamins. Chelation therapy is a procedure for removing toxic heavy metals such as mercury, arsenic, and lead from one's body. Typically used when someone accidentally ingests heavy metals, the process involves administration of a chelation agent (what kind depends on the type of metal that needs to be removed) that binds to the toxic metal and is then excreted by the body. This can be a very dangerous treatment, with side effects ranging from kidney damage to allergic, congestive heart failure, liver impairment, and even death via cardiac arrest (Atwood, Woeckner, Baratz, & Sampson, 2008).

Despite only being approved to treat acute heavy metal poisoning, some people have begun marketing it as a treatment for ASD, on the false assumption that autism symptoms are caused by mercury exposure from childhood vaccinations<sup>1</sup> and dental fillings. The evidence is clear that there is no actual link between vaccines and autism symptoms, but that has not stopped hundreds of practitioners from promoting chelation therapy as an ASD treatment. The tragic aspect here is that, unlike SIT, chelation can be deadly, and sadly has been. In 2005, a 5-year-old British boy named Abubakar Tariq Nadama died while receiving chelation in a Pennsylvania physician's office. Although the death was determined to be the result of a drug mix-up, Tariq had been brought to the United States by his mother specifically to get chelation therapy to help cure his autism (Kane, 2006). Despite the lack of a sound underlying theory for its use, no evidence that it can alleviate the symptoms of ASD, and the inherent danger in the treatment, chelation therapy is still heavily promoted and advertised as an "alternative" way to treat autism by many practitioners and websites.

Many children with ASD display very picky eating habits, and as a result over half of parents give them vitamin supplements either because they do not think their children are getting a well-rounded diet or because their pediatricians recommend it. Others give megadoses of vitamins like B<sub>6</sub> in the belief that it will help improve behavior and cognitive skills. Research has found that a significant number of children with ASD are deficient in certain micronutrients (particularly vitamin D, calcium, and potassium). However, supplement use often failed to correct those deficiencies and instead led to excesses of others, such as vitamins A and C, copper, zinc, and manganese (Stewart et al., 2015). Well-designed research trials that have examined B vitamin supplementation have not found any significant behavioral

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<sup>1</sup> Childhood vaccinations had contained thimerosal, a mercury-based preservative, since the 1930s. This practice was stopped in 1999 purely as a precautionary measure in response to a Food & Drug Administration review, which means that even if it had caused autism (which it didn't) that would have ended over 15 years ago. Also, the symptoms of mercury poisoning are well known, and are significantly different from those symptoms seen in ASD.



or cognitive impacts from taking the supplements (Romanczyk et al., 2015). Given the known negative side effects and toxicity from excess vitamins (including A, B<sub>6</sub>, and C), any vitamins that are given should be done under careful consultation with a physician and should only target existing, identified deficiencies so as to not lead to excess intake.

In conclusion, there is no cure or “magic bullet” for ASD, despite the claims of those who are willing to sell treatments shown to be ineffective and potentially dangerous. There is an EBT called ABA that can improve behavior, communication, and intelligence, but it relies on early, intensive behavioral interventions based on the known and well-studied principles of learning. Parents searching for help for their children with ASD need to carefully wade through the morass of non-evidence-based pseudoscience in order to gain the most benefits possible.

## TRAUMA-FOCUSED THERAPIES

Over the last 25 years, as news media outlets have proliferated and information takes less and less time to travel around the world, people have been bombarded with images and reports of traumatic events taking place all around the globe. Although most of our minds immediately turn to man-made traumas, such as the Columbine massacre, the “Dark Knight” shooting in Colorado, or the terrorist attacks of 9/11, natural disasters such as earthquakes, tornadoes, and hurricanes can cause reactions that are equally impairing for adults and children (Lack, 2008). In the media, however, the focus is almost exclusively on immediate, short-term reactions, with little reporting on the long-term impact of a disaster. Unfortunately, this is also the case in most interventions: a strong response immediately postdisaster is followed by a lack of preparation for or an inability to deal with the potential psychological, emotional, and behavioral disturbances seen in a number of children and adults after a traumatic event (Jaycox et al., 2007).

The most common difficulty experienced by people after a disaster or trauma is some form of anxiety, with posttraumatic stress symptoms being the most common type (Bland et al., 2005). Related impairments in social and academic functioning, as well as other mental health impairments such as depression and substance abuse are also frequently seen. In children, trauma exposure is related to cognitive impairments, lowered grades, increased school absences, and lowered graduation rates. In addition, post-traumatic stress symptoms include many school- and work-impairing difficulties, such as problems concentrating, sleep disturbance, and disorganized behavior (American Psychiatric Association [APA], 2013).

Although there is no shortage of well-intentioned practitioners willing to provide services for those struggling with ongoing post traumatic stress symptoms, it is crucial to deliver and receive evidence-based rather than

pseudoscientific interventions in the aftermath of trauma. Despite the enormously strong evidence base supporting the use of cognitive and behavioral techniques for treating posttraumatic stress (Amaya-Jackson et al., 2003), there are nonetheless many proponents of other, non-evidence-based therapies that either have no research support or evidence against their use. Four of the most widespread pseudoscientific treatments for trauma-related problems are critical incident stress management (CISM), eye movement desensitization and retraining (EMDR), emotional freedom technique (EFT), and thought field therapy (TFT).

### Critical Incident Stress Management

Widely known as “psychological debriefing,” CISM (Mitchell & Everly, 1998) developed in the early 1980s and, unlike the other interventions described in this section, was focused on the prevention of PTSD symptoms, rather than their treatment. CISM is based on assumptions that (a) trauma exposure alone is enough to cause a person to experience long-term psychological difficulties and (b) early interventions can prevent such problems from developing. However, carefully controlled studies have found that the vast majority of people recover without any interventions after a trauma, showing little to no distress at 3 months post trauma (e.g., Ehlers, Mayou, & Bryant, 1998). In addition, numerous scientific studies have found that receiving CISM appears to actually increase the chance someone will develop PTSD symptoms (for a review, see McNally, Bryant, & Ehlers [2003]). All evidence supporting the use of CISM is based on anecdotal reports and is primarily published by the originator of the method, J. T. Mitchell. Based on the, at best, inert effects and, at worst, harmful impact of CISM, numerous organizations, including the World Health Organization and British National Health Service, have actively implemented policies against its use. In short, “Although psychological debriefing is widely used throughout the world to prevent PTSD, there is no convincing evidence that it does so” (McNally et al., 2003, p. 72).

### Eye Movement Desensitization and Reprocessing

Eye movement desensitization and reprocessing (EMDR) is one of the most heavily promoted and commercialized pseudoscientific psychological treatments of the last 30 years (Lohr, Gist, Deacon, Devilly, & Varker, 2015). Developed in the late 1980s by Francine Shapiro, EMDR is a very structured intervention that huge numbers of clinicians have reportedly been trained to use. It starts with taking a detailed history of one’s traumatic event (or events) and the symptoms a person is currently experiencing. From there, the therapist instructs the client to vividly imagine the trauma, including how he or she physically felt. While holding those memories and feelings, the therapist then introduces “bilateral stimulation” (originally moving one’s

eyes from side to side, but now it's been expanded to physical tapping on both sides of the body or even having tones played first in one ear, then another). Doing so reportedly "unlocks" the brain through this "dual attention" procedure, resulting in a reduction of PTSD symptoms.

There have been a number of investigations and well-controlled research into the efficacy of EMDR. Large-scale analyses of these trials show that EMDR appears to work about as well as well-established cognitive behavioral therapies for PTSD that focus on the use of EX/RP. Based on this, the APA has stated, "EMDR appears to be effective in ameliorating symptoms of both acute and chronic PTSD" (Work Group on ASD and PTSD, 2004, p. 59). This statement is advertised prominently on the EMDR Institute's homepage, but the page omits the other, less favorable conclusions of the APA's review of research on EMDR, which states that "Despite the demonstrable efficacy of EMDR, these studies call into question EMDR's theoretical rationale" (Work Group on ASD and PTSD, 2004, p. 59).

Specifically, many researchers and theorists see EMDR as a prime example of a "purple hat therapy" (Rosen & Davison, 2003). Purple hat treatments take something that is known to work for a particular problem, such as EX/RP for PTSD symptoms, and then add on another element, such as making the client wear a purple hat during the treatment. Then, when the treatment works, they attribute the success not to the already known active change agent, but to the magical purple hat. In EMDR, the active ingredients causing change are use of CBT techniques, such as EX/RP, and not the use of bilateral eye or body movements, which are considered a "key" component of the treatment package (Shapiro, 1995). Dismantling research, which breaks treatments down into their component parts to see which of those pieces are actually causing change, has shown that removing the purple hat of bilateral movements makes the treatment no less effective at treating PTSD (Spates et al., 2009). In short, EMDR works, but it doesn't work because of why it purports to work. Instead, it works because of the EX/RP component. This is what led one author to write that "What is effective in EMDR is not new, and what is new is not effective" (McNally, 1999).

### "Energy" Trauma Therapies

TFT (sometimes called the Callahan Techniques) is a treatment based in part on traditional Chinese medicine, relying on the idea that invisible energy fields, or "thought fields," surround the body (Guadino & Herbert, 2000). By physically tapping on places in the body where these fields intersect one can supposedly modify these thought fields and cause a decrease in negative emotions, similar to how acupuncture supposedly relieves physical pain (Callahan & Callahan, 1996). The main TFT website touts it as highly effective, saying, "TFT often works when nothing else will. . . . It has

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been used for weight loss, stop smoking [*sic*], phobias, trauma relief, love pain, and much, much more" (rogercallahan.com, n.d.). It goes on to say that "When applied to problems TFT addresses their fundamental causes, providing information in the form of a healing code, balancing the body's energy system and allowing you to eliminate most negative emotions within minutes and promote the body's own healing ability."

But as we saw with acupuncture in the previous chapter, there is no scientific support for this theory of "energy" flowing through the body. Further, there is no sound outcome research supporting the efficacy of TFT for treating any emotional disorder, despite the claims of TFT's proponents (Guadino & Herbert, 2000). This goes doubly so for EFT (Craig, 1997), which evolved from TFT and presents itself as even more comprehensive, even with no research to support its claims (Waite & Holder, 2003). With the inability to falsify their claims, a reliance on anecdotal evidence, and claims of miraculous success (such as those on the websites of the World Center for EFT—"T<sup>h</sup>e surprising natural healing aid you can use for almost everything"—and Callahan Technique's "balancing the body's energy system and allowing you to eliminate most negative emotions within minutes"), there is no reason to believe these therapies are anything other than pseudoscience.

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## SUBSTANCE USE TREATMENT

The excessive use of substances, whether alcohol, nicotine, prescription painkillers, methamphetamine, or any other drug, gives rise to a booming industry in the United States and abroad. The National Institute on Drug Abuse reports that in the United States over \$600 billion is spent annually in drug-related crime, work loss, and health care costs. Alcohol and tobacco (at 85% and 81% lifetime use rates, respectively) are used more frequently than any other drugs, with annual costs related to their use at approximately \$428 billion dollars, of which \$126 billion are health-related costs, such as emergency room visits, treatment programs, and other various associated costs (National Institute on Drug Abuse [NIDA], 2015). Marijuana (39.1%) and cocaine (14.4%) are the most frequently used illicit drugs, whereas nonmedical use of psychotherapeutic drugs (19.1%) and pain relievers (15.4%) have high usage rates as well. Global estimates are that alcohol abuse results in around 2.5 million deaths annually, whereas tobacco use is responsible for over 5 million deaths each year (World Health Organization, 2014). Given these huge costs, it only makes sense to apply the most effective EBTs to these problems, rather than waste time and money on something either shown not to work or of unknown efficacy. Unfortunately, though, the most widespread and familiar substance use treatment is not actually an EBT.

~~Although~~ Alcoholics Anonymous (AA) groups are one of the oldest and most popular methods of rehabilitation for addiction problems, having

spawned a legion of similar “anonymous” groups (e.g., Narcotics Anonymous, Gamblers Anonymous). AA and its sister groups are based around a fellowship of individuals helping each other get through their substance use problems. Their self-help 12-step recovery method has become deeply ingrained in society as the key method for treating addiction since the program’s inception in 1935. The effectiveness of this program is so widely accepted that many courts will mandate that people with alcohol and other substance abuse disorders attend AA meetings. Unfortunately, these 12-step programs are founded on shaky science and anecdotal evidence, not a solid evidence base.

The founding principles of AA are religious in nature, derived from the teachings of the Oxford Group, a Christian sect (many would use the word *cult* in this case) started by the evangelical minister Frank Buchman in the 1920s. The Oxford Group’s main tenets are at the core of what Bill W. and Dr. Bob later developed into the 12 steps of AA. These included sharing one’s “sins and temptations,” giving one’s life over to God, attempting restitution to people you had wronged, and looking for guidance from God. In addition, one was directed to examine his or her own life closely and then proselytize to others about the Oxford Group.

The 12 steps of AA continued on this religious path, with 7 of the 12 steps referencing God or “Him.” So although AA today often claims to be agnostic, saying it does not require religious faith to “work,” this is in direct conflict with its founding principles, which frequently refer to God (or a “higher power”) and one’s relationship with God as central to recovery. Multiple steps tell the substance abuser to give himself over to God in order to be healed. There is no evidence-based scientific medical or psychological practice in the 21st century that says one needs to give oneself up to God for recovery to work. Yet, regularly, this is what people with substance use disorders are told to do if they want to get better. Recovery based on religious principles and prayer may be important for some, but it could simultaneously prove to be a detriment to a nonreligious person seeking support during recovery. In fact, one survey showed that 66% of former AA members disliked the religious aspects, and over half found it to be the least helpful aspect of the program (Connors & Dermen, 1996). Moreover, when research examined what parts of AA contribute the most effects, it showed that the religious and spiritual aspects of AA are not what cause change for the minority of people who do change. Instead, the reason why AA works for anyone is the development of a healthier social network (e.g., hanging out with fewer heavy drinkers), increased self-efficacy (confidence in one’s ability to exert control over themselves and their environment), and increased coping skills (Kelly, Magill, & Stout, 2009). These features are not unique to AA, and are consistently found in effective mutual self-help groups such as **SMART** Recovery, Secular Organizations for Sobriety, or Moderation Management.

Another, perhaps more damning flaw of these programs is that they do not seem to work for most people, based on all available data. According to the AA triennial survey, 76% of their membership has been sober for over a year (AA, 2014). However, research on AA from people outside of the organization shows a very different result, with success rates of between 5% and 20% (Ferri, Amato, & Davoli, 2006). For a hard-to-treat behavioral problem, this still sounds good, until you realize that spontaneous recovery (getting better with no intervention) happens in 26.2% of individuals with an alcohol abuse problem during any given year (Walters, 2000). This type of regression to the mean is rarely accounted for in the pro-AA literature but is crucial when examining whether a treatment is truly effective.

But even with such low success rates, 40% of AA members were referred by a health care professional and 12% were court mandated to attend. This illustrates, once again, how many MHPs, health care providers, and even our legal system fall prey to believing something works well when it does not. A final problem with the AA/12-step model is that it demands complete and total abstinence from drinking (or using any other drug) from its participants. This is in sharp contrast to decades of available research showing that substantial portions of once-problematic drinkers are actually able to consume alcohol in moderation with no resulting functional impairment (MacKillop & Gray, 2014).

One should note, though, that the takeaway from this section of the chapter should not be that “AA doesn’t work.” Although there are no clinical trials demonstrating that it is effective, the research does appear to show that AA-type groups work fairly well for a particular group of people—those who strongly identify with the spiritual concepts inherent in the program. The aspects of AA that appear to be helpful in reducing problematic drinking, such as improving coping skills; developing a supportive, non-drinking social network; and improving one’s self-efficacy, are common to many mutual self-help programs. Moreover, these types of mutual self-help groups seem to operate most effectively when paired with EBTs for substance abuse such as CBT, motivational interviewing, relapse prevention, and even some types of medications (or combinations of these; MacKillop & Gray, 2015). So, the takeaway should be that “AA can work for certain people (not everyone), but not because of something unique to it, and it should be combined with individualized, evidence-based treatment.”

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## PROJECTIVE TESTING

The assessment of an individual’s psychological state—thoughts, feelings, and behaviors—is an enormous part of a mental health clinician’s life. It helps guide treatment planning, decisions in court cases, and more. But, not all psychological assessments are created equal. Types of measures

used to assess for personality characteristics and psychopathology are often divided into two categories: objective and projective (Weiner & Greene, 2008). Objective tests make *direct* inferences about a person's psychological state based on his or her self-report (or in some cases, report from significant others such as parents) to very clear questions. Projective tests, in which instructions or stimuli are more ambiguous and less structured, make *indirect* inferences about a person's psychological state. The term "projective" itself comes from Frank (1939), who thought that using ambiguous stimuli would allow a person to project his or her "private world" onto such stimuli, and as such "interpret the material and react affectively to it" (p. 403). In this section, we discuss the origins of three common types of projective tests, focusing on their theoretical underpinnings<sup>2</sup> and the scientific evidence for such theories, and the support for their use in clinical settings.

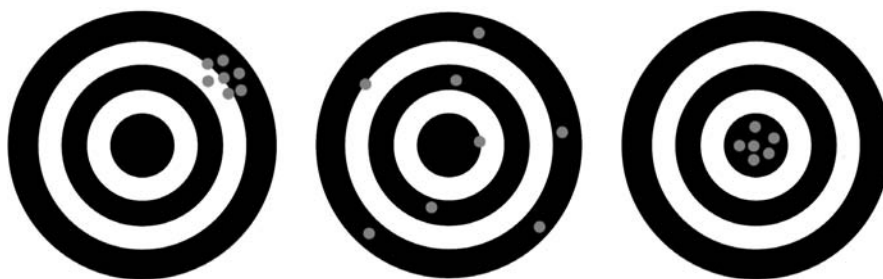
## Reliability and Validity

But before we move into that, it's important to define two terms that are integral to determining whether any type of diagnostic tool (medical or psychological) is useful. First is *reliability*, which refers to the consistency or stability of results. There are many different ways that reliability is determined. One example would be whether a test gives you the same result when administered to the same person at a different time (test-retest reliability, measuring temporal stability). Another is to have two people give the same test to the same individual, to see whether their interpretations of the tests match up (inter-rater reliability). The second term is *validity*, which refers to whether or not the test measures what it claims to measure. For example, if we were to give you a test that was supposed to measure the level of sodium in your blood, but instead measured the amount of potassium, it would not be a valid test.

A test must be reliable to be considered valid, but reliability alone does not determine validity. In other words, a test can be reliable without being valid, but it cannot be valid without being reliable. If you are shooting arrows at a target, you try to get as close to the middle (the bull's-eye) as you can. Similarly, in diagnostic work, we try to get as accurate a diagnosis as possible. Using the targets in Figure 12.1, we can see different types of tests illustrated. On the left we can see a test that has demonstrated reliability (meaning, the arrows all cluster together in roughly the same place), but not validity (they are far from the bull's-eye). In the middle, we have a test

<sup>2</sup> Many persons who are only superficially familiar with the development of the various measures to be discussed in the following (the Rorschach Inkblot Method, the Thematic Apperception Test, and figure drawings) have the idea that the usage and interpretation of these measures are all based on Sigmund Freud's theories of personality and psychoanalysis. This, however, is far from the truth. In fact, each measure described has its own unique development, sometimes directly related to Freudian theories, sometimes influenced by them, and sometimes largely independent of them.





**FIGURE 12.1** Demonstrations of validity and reliability.

with neither reliability (the arrows are all over the target) nor validity (only one is in the bull's-eye). On the right we see a test that demonstrates both reliability (the arrows are all close together) and validity (they are all within the bull's-eye). In order to be considered a good diagnostic test, It's only when you have a reliable and valid test that you get accurate diagnoses.

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## Rorschach Inkblot Method

To gain an understanding of the strength of beliefs for and against the use of our first test, the Rorschach (also called the Rorschach Inkblot Method), which has been described as being “the most cherished and the most reviled of all psychological assessment tools” (Hunsley & Bailey, 1999). It is often listed as one of the most commonly used psychological measures by clinical and school psychologists (Hojnoski, Morrison, Brown, & Matthews, 2006), although anecdotal experience suggests a decline in use across the past decade. The Rorschach also holds a grip on the public imagination, as evidenced by the use of similar inkblots in media from comic books (“Watchmen” by Alan Moore and Dave Gibbons) to music videos (“Crazy” by Gnarls Barkley).

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Hermann Rorschach's development of the test that would bear his name provides an interesting story. Rorschach created his blots and developed their usage in 1918, apparently inspired by a popular parlor game called *Klecksographie* (roughly “Blotto” in English), in which one would drip ink onto a piece of paper, fold it in half, and then compete to give the most numerous or interesting answers (Exner, 2003). Rorschach's inkblots were not what one would have seen in a game of Blotto, though, as he painstakingly constructed them using ink and watercolors, rather than relying purely on chance or random drips and patterns (Morganthaler, 1954). To gain an idea of what these inblots look like, we constructed Figure 12.2 using the same methods as Rorschach. Based on his only major work (he died at age 37, only 9 months after publication of it), Rorschach was particularly concerned with two factors in a person's response to the blots:





**FIGURE 12.2** Inkblot.

movement and color (Rorschach, 1921). He does not appear to have been influenced by Freudian theories in constructing the inkblots or their interpretation, and instead had his own theory that the perception of movement and color would give insight into personality. In particular, he thought movement responses were related to introversion, whereas color responses were related to extraversion.

This idea that perception of movement and introversion were related appears partly based on muscle movement and dream research by a philosopher in the 1800s named John Mourly Vold (Ellenberger, 1993). Rorschach took Mourly Vold's idea that inhibition of movement during sleep would cause more dream imagery involving movement and applied it to the responses generated by his inkblots. In other words, his theory was that introverts should see more images that are moving in the blots, as a result of their being psychologically inhibited. Rorschach also outlined a theory that the perception and use of color in descriptions of the inkblots was related to affect and extraversion. In particular, those who used more color responses were more extraverted and likely to show high levels of emotion. Unlike his ideas about movement, however, his theory about color seems to have been pulled from common vernacular (e.g., "black moods") and personal opinion rather than any research or previous theories (Rapaport, Gill, & Shafer, 1946). Rorschach also seemed particularly interested in the balance of introversion and extraversion, called "Experience Balance" in English. The ratio of movement to color responses, he believed, would reveal a person's "basic

experience and orientation toward reality” (Wood, Nezworski, Lilienfeld, & Garb, 2003).

Rorschach’s reasons for focusing on color and movement have not, though, been supported by the scientific evidence. Experience Balance, for example, has not consistently been demonstrated to be related to introversion or extraversion and color responses have not been consistently related to any particular diagnosis. It should be noted, however, that some of Rorschach’s hypotheses do have some consistent support. For example, that a more intelligent person would provide higher numbers of movement responses has been supported to a moderate degree (see Frank [1979] for a review), as have some indicators of psychotic disorders (Lilienfeld, Wood, & Garb, 2001).

So, was Rorschach right? The answer is “mostly not” with the occasional “yes.” Although his major hypotheses have not been shown to be correct, some minor ones have support. These inconsistencies and concerns led to numerous within-group conflicts during the 1930s and beyond, as different groups of researchers and clinicians developed further types of scores, or refined the meaning of certain scores. It was during these conflicts that some began to use the Rorschach as a more psychoanalytically oriented test, interpreting responses to blots as if they were dreams rather than relying on Rorschach’s methods. At the same time, well-conducted research in the 1950s showed that the Rorschach was not more useful (and was in fact slightly less useful) than objective measures of personality and tended to overpathologize normal individuals (i.e., make them appear less healthy than they actually are). Further research showed that it added little to nothing in the way of diagnostic use if one already had access to biographical information and a person’s history (see Garb [1998] for a review). By the beginning of the 1960s, most research-oriented and scientifically based psychologists thought the Rorschach was not a useful instrument.

However, a major reform attempt, one that likely saved the Rorschach from being consigned to the graveyard of psychological tests, was undertaken by John Exner, who developed his comprehensive system (CS; 1974, 2003). The CS included reviews of the literature, norms, and administration guidelines—all things that were lacking in manuals at the time. Exner also did both extensive research into reliability and validity of the traditional scores and developed new ones. At the same time, though, findings by researchers other than Exner or his associates began to appear, with results in sharp contrast to those reported in the CS’s manual. In fact, the vast majority of the supportive studies cited in the latest CS manual are *unpublished* studies conducted by Exner and his research team at Rorschach Workshops.<sup>3</sup> Studies

<sup>3</sup> Recently, the majority of supportive studies for the Rorschach have been published in the *Journal of Personality Assessment*, a well-respected journal that publishes large amounts of high-quality research. It also happens to be the official journal of the Society for Personality Assessment, which originated as the Rorschach Institute, and is almost exclusively staffed by editors who are very strong proponents of the Rorschach’s use.

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conducted by those without ties to Exner showed identical problems as those raised in the 1950s and 1960s: overpathologizing, low diagnostic accuracy outside of psychotic disorders, lack of relationship to objective measures of psychopathology and personality (Hunsley & Bailey, 2001).

In summary, then, the Rorschach began life in 1922 as a theoretically shaky, nonempirically supported test for the majority of psychopathology (psychotic disorders being the exception). Despite almost 90 years of research, use, and various iterations of scoring and administration criteria, the evidence today indicates that it has changed little over the years. There are other, better assessment tools that should be used instead.

### Thematic Apperception Test

The two major figures in the development of the thematic apperception test (TAT; Murray, 1943) were Henry Murray and Christina Morgan. Murray was a physician and biochemist before being hired to the faculty of the Harvard Psychological Clinic in 1926. Although largely unqualified for such a position initially, Murray underwent extensive training in psychoanalysis, including meeting with Carl Jung, and doing intensive reading in psychiatric and psychological literature (Robinson, 1992). Morgan was an artist and certified nurse's aide also highly influenced by Jung's theories on personality and psychopathology, having been analyzed by him personally (Douglas, 1993). Murray and Morgan may appear odd choices to develop a major psychological test, but the TAT ranks second only to the Rorschach as the most often used type of projective test by clinical psychologists (Camara, Nathan, & Puente, 2000).

Murray appears to have been the theoretical driving force behind the TAT, as it is based on his "needs-press" concepts of personality. For Murray, an individual's personality is the result of an interaction between one's needs (internal motivations) and presses (environmental or situational pressures that impact how one expresses those needs). Morgan assisted more in the preparation of the actual testing materials (the pictures on the test cards), some early administration of the measure, and writing the results for publication. The instrument itself has ~~black and white~~ cards ~~that have~~ pictures of various kinds. Examiners show the cards to the examinee and ask him or her to tell a story based on the picture. The stories told, according to Murray, reveal numerous aspects of personality and can be used to understand how someone thinks and feels. Murray (1943, p. 1) believed that these stimuli would also "expose the underlying tendencies which the subject . . . is not willing to admit, or cannot admit because he is unconscious of them."

The TAT manuals provide very clear and detailed procedures, but similar to what happened with the Rorschach, numerous other systems and methods of using the TAT developed. The majority of practitioners do not

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appear to use any of the available scoring systems, though, instead relying on “intuitive” interpretations of the stories (Groth-Marnat, 2003). So, just as with the Rorschach, most users of the TAT are not using it as intended by the developers or even from the same theoretical viewpoint. There have been several positive findings regarding scoring on the TAT and relationship to specific areas of psychological functioning (e.g., personality disorders), but they have all been found when using a particular scoring system. With the majority of those using the TAT not using either standardized administration or scoring procedures, this information is a moot point. Add in the TAT’s lack of incremental validity (Garb, 1998), the high potential for overpathologizing normal populations based on TAT responses (Lilienfeld, Wood, & Grab, 2000), and it can be seen why the TAT “rarely plays a prominent role in clinical diagnostic evaluations” (Weiner & Greene, 2008, p. 469).

So, in summary, the TAT has some limited empirical support in assessing for personality disorders and achievement motives when using particular scoring systems. It does not, though, seem to be useful for broad psychopathology or personality assessment. This is especially true given that few practitioners use the TAT in the standardized manner that it was intended to be used, instead relying on personal experience and judgment, with all the attendant biases and problems relying on such entails (Dawes, Faust, & Meehl, 1989).

## Figure Drawings

The final type of projective test to be discussed is not a specific measure, but instead a collection of measures. A number of methods to reportedly assess personality and psychopathology require that an individual draw pictures of a person, people, or objects. The three most widely used are the Draw-A-Person (DAP) test (Harris, 1963), the House–Tree–Person (HTP) test (Buck, 1948), and the Kinetic Family Drawing (KFD) test (Burns & Kaufman, 1970). They are in the top 15 most commonly used instruments by clinical and school psychologists, which is unsurprising given the speed and ease of their administration (many take fewer than 10 minutes).

Although each test has its own set of interpretation(s), there are two broad approaches to scoring figure drawings: the global approach and the sign approach (Lilienfeld et al., 2000; Weiner & Greene, 2008). In the global approach, interpretation is based on sets of indicators that are summed to yield a total score of adjustment (or lack thereof). The sign approach, in contrast, relies on identification of isolated features of the drawing (e.g., eye size, size of figure, placement of figure) that are supposedly related to specific pathology or personality problems. Constructing these drawings could purportedly bypass conscious efforts to hide or exaggerate symptoms and provide a more complete understanding of a person.

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Large amounts of research over the last 60 years have been conducted to examine the reliability and validity of figure drawings, with highly varied results. Reliability of ratings in both sign and global approaches is variable and generally low. Validity studies across different projective drawings have met with a number of difficulties, particularly in the sign approach. A primary problem is lack of consistency in operational definitions. For instance, different studies or scoring systems often have the same feature interpreted in a different way. Some guidelines for interpreting drawings seem to almost specialize in making nonfalsifiable predictions. Hammer (1959) said that pathology could be seen in drawings that were too large or too small, lines that were too heavy or too light, and ones that had either too few or too many eraser marks. Others stated that those same signs could either indicate high levels of anxiety or successful coping efforts against high anxiety (Handler & Reyher, 1965). Or, it might be that, as Waehler (1997) contends, lack of validity in a drawing may simply occur because that individual does not show his or her distress in a drawing. Making such nonfalsifiable predictions and explaining away negative findings are hallmarks of pseudoscientific thinking, as we learned earlier.

Specific research examining the validity of the sign approach for different psychological characteristics shows the problems one would expect based on the previous information. Reviews of the KFD concluded that individual signs showed little to no relation to actual psychopathology (Handler & Habenicht, 1994). A study examining depressive and anxious symptoms in children on an inpatient psychiatric ward used both projective measures and objective measures (Joiner, Schmidt, & Barnett, 1996). It is interesting to note that this study found that the differing projective measures not only did not relate to scores on the objective measures, but also did not have a relationship to scores from the different projective measures (even another drawing measure!).

Despite the lack of validity demonstrated by the sign approaches, however, there is a silver lining for projective drawings. In a study examining the KFD and DAP, Tharinger and Stark (1990) were able to accurately distinguish between children with and without mood disorders, whereas the DAP distinguished among children who had mood disorders and mixed mood/anxiety problems. Further, there has been some support for the use of another global scoring procedure for the DAP, the screening procedure for emotional disturbance, to differentiate between groups of children with and without disruptive behavior problems (Naglieri & Pfeffier, 1992). However, other researchers found much lower effect size differences and concluded that it was of limited utility in the schools (Wrightson & Saklofske, 2000).

Even these positive findings, though, must be interpreted cautiously at this point. One reason is that it is not known whether controlling for intelligence, which has been shown to be lower across many types of

psychopathology, would reduce or eliminate the positive findings reviewed previously. In other words, research needs to be done to rule out these rival hypotheses. The lone study that addressed that issue (Schneider, 1978) found that controlling for intelligence eliminated the possible incremental validity of drawings given to school-age children when assessing for behavior problems. The complex role of artistic ability in impacting scores and interpretations is also not well understood (Lilienfeld et al., 2000). Also problematic is the fact that it is unknown how many practicing clinicians use a sign versus a global approach, although a small study of active practitioners (Smith & Dumont, 1995) suggests that the vast majority of those who rely on drawings for clinical hypotheses use some combination of the approaches.<sup>4</sup>

In summary, it does appear that there may be limited uses for global scoring systems for projective drawings, in particular using the DAP and KFD for assessment of general behavioral and mood problems. There are not, however, any well-replicated lines of research that support the use of projective drawings and interpretation to differentiate children or adults for specific disorders. Further research on this issue, particularly as regards global scoring systems, should be conducted.

## Conclusions About Projectives

After looking at the actual evidence, several things have become apparent. First, not all projective tests or techniques were created, or have been researched, equally (not dissimilar to what we saw in the previous chapter regarding herbal medicines). In their theoretical constructs, intended uses, and research-supported uses, they differ greatly. Second, the use of projective methods is not an either-or proposition. In opposition to the beliefs of their staunchest supporters, they are not empirically supported to be equally adept at assessing all aspects of personality and psychopathology. And in opposition to the beliefs of their staunchest critics, the research evidence does support the use of projective measures for assessing specific psychological constructs. Although certain measures have been useful in measuring psychotic disorders (Rorschach), personality disorders (TAT), disruptive behavior and mood problems (global figure drawing scores), those are the extent of their evidence base and they shouldn't be used outside of those small areas. In contrast, objective measures (such as the Behavior Assessment System for Children, the Minnesota Multiphasic Personality Inventory, or the NEO Personality Inventory) measure such constructs and many, many more accurately, making them a much better bang for your assessment buck.

<sup>4</sup> The first author's (CWL) father uses a metaphor to describe what happens when mixing things that shouldn't go together. He says, "You know what you get when you mix a gallon of ice cream with a gallon of manure? Two gallons of manure!" (C. W. Lack, personal communication).

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## HOW TO CHOOSE A GOOD MENTAL HEALTH PROVIDER

Given the preponderance of non-EBT for psychological problems, one must often be careful in choosing a provider of mental health services, whether that person is a psychologist, psychiatrist, professional counselor, or other kind of therapist. The best advice we can give anyone when choosing a mental health professional is to see someone who practices evidence-based psychology. As discussed at the start of this chapter, EBP is a guiding principle that means a clinician is guided in the treatment and assessment methods he or she uses by current best practices, as defined by scientific evidence. It is unfortunate that many therapists have not been trained in these methods, and instead rely on intuition, what they think has worked well, or what they were trained in—regardless of the evidence or lack thereof for its effectiveness. Asking potential therapists what their primary therapeutic orientation is and how they know the type of therapy they do works, are great ways to find out whether therapists use EBP.

Our second piece of advice is that people need to be sure that the mental health provider does not attempt to push his or her own personal values system onto you, the client. Although this is both an unethical and inappropriate thing to do, from the first author's (CWL) own experience with clients and working with several national organizations, a large number of clients report this as happening to them. This does not mean that you need to find a therapist with your exact religious, political, ethnic, and cultural background, but it does mean that your therapist needs to respect what your beliefs and values are and recognize that his or her job as a therapist is not to convert you to a different belief system. If you find yourself in a situation in which this is occurring, we would recommend giving the therapist a warning that you are becoming offended by such actions. If he or she continues to push an agenda at the expense of your mental health, a report to the state licensing board would be appropriate.

## CONCLUSIONS

Psychological science has advanced immensely in the 130 years or so since its inception, both in terms of basic knowledge and applied aspects such as the assessment and treatment of mental health problems. Just as is the case when seeking out medical treatments, those who need mental health services should be able to have access to an evidence-based practitioner in order to maximize their chances for symptom reduction or an accurate diagnosis. Unfortunately, given the gap that exists between what we know actually works and what many practitioners use on a daily basis, a large amount of the onus for accessing such care still falls on the consumer. In this, as in



so many other areas of life, your ability to think critically and evaluate the evidence will be a major boon.

## QUESTIONS FOR REFLECTION

1. Given how thoroughly discredited Andrew Wakefield's research on vaccines and autism is, how might we explain the ongoing fascination with the notion that vaccines can cause autism? Do you know anyone who thinks there is a link? What reasons has this person given you?
2. Why is AC more respectable and evidence based than FC?
3. What does the idea of "purple hat therapy" tell us about how to interpret claims made in mental health treatment? What about for various forms of complementary and alternative medicine?
4. Does the popularity of AA do more harm than good in terms of getting in the way of secular, evidence-based therapy and treatment?
5. The Rorschach test is not only empirically shaky, but also lends itself to abuse. What sorts of harm can result from overconfidence in the usefulness of this and similar tests?

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