

# Clinical Intuition and Scientific Evidence: What is Their Role in Treating Eating Disorders

James D. Herbert, PhD, Amy M. Neeren, PhD and Michael R. Lowe, PhD

The practice of psychotherapy is not for the faint of heart. In addition to myriad bureaucratic, legal, and ethical issues, there is the ongoing challenge of determining the best treatment plan for each individual patient. Even when working in a setting that serves those suffering from a particular spectrum of psychopathology such as eating disorders, each patient presents a unique challenge. The specific symptoms, interpersonal dynamics, co-morbid conditions and a host of other issues vary widely across individual cases. Working within the constraints imposed by third-party payers and institutional regulations, therapists must somehow choose from among a dizzying array of treatment options those that are most likely to be helpful for each individual patient.

This raises the question of how such clinical decisions are made. That is, how do practicing clinicians decide what is most likely to work for their patients? When posed this question, most psychotherapists reply that they rely primarily on an intuitive sense of what is most likely to be helpful, based on their clinical experience with similar patients. This seems like a reasonable strategy. Over the course of years of experience, one gradually accumulates knowledge of what tends to work and what does not. Astute clinicians come to observe patterns across patients. In addition, knowledge imparted by recognized authorities through books and workshops can also be helpful. Not surprisingly, most clinicians describe their theoretical orientation as eclectic. Based largely on their clinical experience, they use whatever they feel will work best with each patient.

A movement that has gradually been gaining steam among many therapists emphasizes a different criterion for making decisions about how best to intervene with clients. Advocates of an approach called "evidence-based practice" suggest that scientific studies provide a more reliable and effective means of determining what treatments are most likely to work, and are critical of over-reliance on clinical intuition and experience. Practicing psychotherapists retort that although research has its place, it is naïve to believe that it can guide clinical

practice in any significant way. First, the methods of research studies, especially randomized clinical trials, render them too far removed from actual practice to be of much value. In such trials, relatively "pure" groups of homogenous patients are selected for study, and are offered standardized treatments based on structured manuals. Everyone knows that therapy in the real world is far messier. Besides, research reports tend to be published in scientific journals using obscure jargon and sophisticated statistical analyses that are not readily accessible to busy clinicians. Moreover, conclusions drawn from scientific research change over time, illustrating that they themselves are unreliable. Given this state of affairs, reliance on one's own personal experience as the primary guide for clinical decision making seems immanently reasonable.

## The Problem

There is a serious problem, however. Despite their apparently obvious appeal, there is a great deal of evidence that intuition and personal experience are not optimal guides to effective clinical decision-making. The experiential approach described above assumes that the clinicians are able to mentally tabulate and store in memory the approaches that did and did not work with different clients and then use this knowledge base to determine what approach is most likely to work with each new client. This information processing may take place largely outside of awareness, resulting in an intuitive sense of what works and what does not. Yet the process is assumed to be reasonably objective, as if the clinician's mind makes a kind of recording of psychotherapy sessions, and then acts like a sophisticated computer to correlate interventions with outcomes.

In spite of the popularity of computer analogies to describe human information processing, human cognition does not work like a computer. Rather, it is subject to a range of nonconscious biases and distortions that often lead to erroneous conclusions, even while giving the subjective sense of accuracy and certainty (Tversky &

Kahneman, 2004). Human cognition relies heavily on heuristics, or information processing shortcuts. Computers, in contrast, solve problems by means of algorithms, or complicated formulae. Heuristics tend to be more efficient – that is, they permit us to quickly draw conclusions from complex patterns (which most likely explains why they evolved in the first place) – but are also more prone to error.

Consider the case of Benjamin Rush, as described by Stanovich (2007). Rush was a leading physician in colonial Philadelphia and a signer of the US Declaration of Independence. In 1793, there was an outbreak of yellow fever in Philadelphia. Following the accepted conventional wisdom of the time for treating conditions associated with a high fever, Rush believed that bloodletting was an effective treatment for this condition. Of course we now know that bloodletting is completely ineffective for yellow fever, and in fact almost certainly contributed the demise of many of his patients. Nevertheless, as the epidemic began to wane, Rush was more convinced than ever of the effectiveness of bloodletting, based on his clinical experience with his patients. How could this intelligent and observant physician fail to recognize the futility of his treatment? The answer lies in a phenomenon known as the confirmation bias. The confirmation bias occurs when one selectively processes information that is consistent with an existing belief (Nickerson, 1998). Rush already believed in the healing power of bloodletting. He therefore attributed the recovery of any patients who got well to his treatment. Those who died were dismissed as too ill to be helped by any treatment.

Unfortunately, the confirmation bias is not simply a historical artifact of a prescientific era. Rather, there is a great deal of evidence that the bias is alive and well in modern clinical decision making. For example, in a recent study, we provided clinicians with case vignettes and asked that they make a diagnosis (Parmely & Herbert, 2006). A week later, they were provided with the same vignette and the diagnosis

they had made, along with new information about the case. They were asked to consider the new information, and either confirm their original diagnosis or to change their diagnosis based on the new information. In one condition, the new information was consistent with that they were originally given. In another condition, the information was inconsistent, and should have resulted in a new diagnosis. In fact, 33 percent of the clinicians in the latter condition kept their original diagnosis, even though it was clearly no longer appropriate given the new facts of the case. Even more disturbing is what happened when some of the clinicians were explicitly reminded of the confirmation bias, and told that they should be careful to consider carefully the new information and to change their diagnosis if indicated. In fact, this warning had no impact; the clinicians continued to stick with their original diagnosis at roughly the same rate as before, even in the face of contradictory information. The most obvious explanation is that the clinicians were filtering the new information through the lens of their preexisting beliefs about the case, highlighting any consistent facts while dismissing inconsistent ones.

Some scholars have suggested that the educational level may actually be positively correlated with the tendency to stick to one's beliefs even in the face of disconfirming data (Shermer, 2002). That is, highly educated individuals appear to be especially prone to the confirmation bias in certain situations, perhaps because they are better able to defend their beliefs through sophisticated verbal reasoning, even when these beliefs are challenged by the facts.

The confirmation bias is only one of many such common problems in human reasoning that psychologists have identified. Humans also have difficulty estimating probabilities, especially of relatively infrequent events. For example, Wolpert (2006) describes the following problem. Suppose a disease occurs at the rate of one in 1000 in the population. Now suppose a new diagnostic test accurately detects the disease 80 percent of the time in those who have it. Suppose further that the false positive rate of the test is ten percent; that is, ten percent of those who obtain a positive reading on the test will in fact not have the disease. Now, here is the question: What is the likelihood, given a positive test result, that one actually has the disease? Most people, even highly educated physicians, estimate some-

where around 75 percent. In fact, the correct answer is approximately 7 percent. This dramatic error occurs because most people tend to focus on the 80 percent positive hit rate, and fail to consider that, whereas only one in 1000 people will get the disease, the test will falsely identify 100 out of 1000 (or 10 percent) as having the disease.

It is easy to see how cognitive biases can inadvertently impact the clinical decision making of psychotherapists. Like Benjamin Rush, clinicians may find that they automatically tend to remember their treatment successes and forget those clients who did not fare as well. They may attribute those successes to the most salient features of treatment. Consider a patient who improves following Eye Movement Desensitization and Reprocessing, a technique in which the patient recalls traumatic memories while tracking a therapist's finger back-and-forth across her field of vision (Shapiro, 1995). The improvement is likely to be attributed to the most unique and salient treatment component – the eye movements – rather than the less vivid aspects of treatment (e.g., habituation of the emotional response to the memory due to repeated imaginal exposure). In fact, controlled studies reveal that the eye movements have nothing whatsoever to do with any benefits produced by the technique (Devilly, 2002; Herbert et al., 2000). Yet many clinicians continue to maintain the importance of eye movements, based on their personal experience. Similarly, clinicians may overestimate the importance of salient diagnostic signs, failing to appreciate the base rates at which they occur in the general population. For example, many women diagnosed with Borderline Personality Disorder report a history of childhood sexual abuse, leading some clinicians to conclude that such abuse causes the condition (e.g., Lieb, Zanarini, Schmahl, Linehan and Bohus, 2004; Wilkins and Warner, 2000). Such conclusions, however, generally fail to consider base rate information about childhood sexual abuse in the larger population; that is, the large number of children who were abused but who do not develop Borderline Personality Disorder.

Clinical experience, as noted above, was not associated with the confirmation bias. In fact, age was actually found to be correlated with a greater tendency toward the bias, such that older therapists were

more likely to stick to their diagnoses even when the data no longer fit. Furthermore, if clinical experience yielded more accurate clinical judgments, we would expect experienced clinicians to come to increased consensus. Yet, as any psychotherapist who attends case conferences can attest, experienced clinicians often disagree vehemently with one another. In fact, studies of the inter-assessor reliability of clinical case formulations reveal very low agreement among independent assessors (Garb, 1998).

It is important to note that empirical studies are not just used to study particular approaches to eating disorders treatment (e.g., cognitive-behavior therapy) but to study and improve the process of psychotherapy itself. For example, such research has supported therapists' assumption that the therapeutic relationship is one of the most powerful sources of change. For example, such research has shown that factors such as positive regard, competence/experience, activity/guidance, self-disclosure and cooperation/goal-orientation (Bennun & Schindler, 1988) can improve treatment outcome. Research has suggested that these specific therapist effects account for improvements in psychotherapy that are separate from the effects of particular treatments. For example, Ilardi and Craighead (1994) examined several studies of cognitive-behavioral therapy (CBT) for depression. These authors found that patients had a rapid response early on in treatment, before the specific components of CBT were introduced.

### A Way Forward

So, given of the aforementioned problems with clinical decision-making that is based on personal experience and intuition, how do we ensure that our diagnoses and assessment formulations are accurate and valid, and that our treatment decisions are most likely to yield beneficial results? If clinical experience is not the answer, then what is?

The solution lies in learning how we can best combine what we know from the science of clinical decision-making with the therapist's unique knowledge of each client. At its most essential, science is fundamentally a way of knowing – what philosophers refer to as an "epistemology." A popular misconception is that science is basically

a collection of facts, like those found in a high school biology text. In fact, science is more properly understood as an approach to inquiry, consisting of certain philosophical assumptions and methodological tools, designed to yield reliable and valid knowledge about the natural world. In the case of psychotherapy, science provides a lens through which we can see beyond the distorting effects of our cognitive biases that otherwise obscure our view of clinical phenomena. In this way, science has the potential to illuminate our work in a way that intuition and clinical experience alone never can.

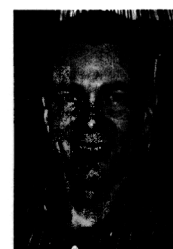
This is not to suggest that science is a perfect approach to knowledge, yielding flawless guides to clinical practice. Quite the contrary; science yields imperfect, tentative, provisional conclusions that are continuously evolving as new research is conducted. However, a scientific approach is an important advance over raw clinical experience because it addresses the limitations imposed by human cognition. Science allows us to come closest to evaluating our treatments as they really are, rather than as we want them to be.

There are three additional points that need to be acknowledged. First, neither scientists, cognitive-behavior therapists, nor anyone else are immune from the distorting effects of cognitive heuristics like the confirmation bias. Scientists are human, and sometimes cling tightly to cherished theories despite disconfirming data. However, the process of science should not be confused with the behavior of individual scientists. Science is characterized by features such as peer review and replication that serve a self-correcting function, so that sooner or later errors are brought to light and corrected. Second, scientifically-minded psychotherapists share some of the blame for the failure of many clinicians to recognize the limitations of clinical experience and the benefits of a data-based approach to clinical decision-making. Due to the peculiarities of the academic culture, they tend to publish their findings in highly technical formats in obscure journals that are not readily accessible to busy practicing professionals. Although this is beginning to change as a growing body of more accessible scientifically-grounded material is becoming available, the scientific community needs to do much more along these

lines. Finally, clinicians need not feel threatened by recognizing the limitations of their own clinical intuition and by adopting an orientation toward a research-based perspective. Clinical research can yield practice guidelines, but the clinician must always adapt these general principles to the specific features and unique circumstances of each case. This adaptation is the "artistic" heart of psychotherapy.

## References

- Devilly, G.J. (2002). Eye Movement Desensitization and Reprocessing: A chronology of its development and scientific standing. *Scientific Review of Mental Health Practice*, 1, 113-138.
- Garb, H.N. (1998). *Studying the clinician: Judgment research and psychological assessment*. Washington, DC: American Psychological Association.
- Herbert, J.D., Lilienfeld, S.O., Lohr, J.M., Montgomery, R.W., O'Donohue, W.T., Rosen, G.M. & Tolin, D.F. (2000). Science and pseudoscience in the development of Eye Movement Desensitization and Reprocessing: Implications for clinical psychology. *Clinical Psychology Review*, 20, 945-971.
- Lieb, K., Zannarini, M.C., Schmahl, C., Linehan, M.M. & Bohus, M. (2004). Borderline personality disorder. *Lancet*, 364.
- Nickerson, R. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, 2, 175-220.
- Parmley, M.C. & Herbert, J.D. (2006). *The effects of the confirmation bias on diagnostic decision making*. Manuscript in preparation.
- Shapiro, F. (1995). *Eye movement desensitization and reprocessing: Basic principles, protocols, and procedures*. New York: Guilford.
- Shermer, M. (2002). *Why people believe weird things*. New York: A.W. H. Freeman/Owl Books.
- Stanovich, K.E. (2007). *How to think straight about psychology* (8th ed.). Boston: Pearson/Allyn & Bacon.
- Tversky, A. & Kahneman, D. (2004). Judgment under uncertainty: Heuristics and biases. *Science*, 185, 1124-1131.
- Wilkins, T. & Warner, S. Understanding the therapeutic relationship: women diagnosed as borderline personality disorder. *British Journal of Forensic Practice*, 2, 30-37.
- Wolpert, L. (2006). *Six impossible things before breakfast: The evolutionary origins of belief*. London: Faber & Faber.



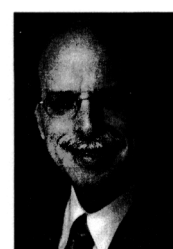
**James D. Herbert, PhD** is Professor of Psychology at Drexel University, where he serves as Associate Dean of the College of Arts and Sciences, Director of Clinical Training of the PhD Program in Clinical

Psychology, and Director of the Anxiety Treatment and Research Program. He has an active research program on the assessment and treatment of social anxiety disorder.



**Amy Neeren, PhD** is Post-Doctoral Research Fellow at Drexel University and The Renfrew Center of Philadelphia. Her research interests include the efficacy of specific elements of CBT associated with treatment outcome in

eating disorders.



**Michael R. Lowe, PhD** is Professor of Clinical Psychology at Drexel University and Senior Research Consultant at The Renfrew Center. He specializes in bio-behavioral research on dieting,

obesity, and eating disorders. His eating disorders research examines the role of dieting and long-term weight suppression in the pathogenesis of bulimia.