

# CRITICAL THINKING IN CLINICAL PRACTICE

Improving the Quality of  
Judgments and Decisions

**Third  
Edition**

**Eileen Gambrill**



# Critical Thinking in Clinical Practice





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Judgments and Decisions



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WILEY

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*In memory of all the Daisy Andersons*







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# Preface

*Critical Thinking in Clinical Practice* is for clinicians who want to think more clearly about the decisions they make and the context in which they make them. This third edition describes related developments in evidence-based practice (EBP) and policy, and updates content throughout while maintaining classic and still-relevant past contributions that illustrate the continuity of clinical concerns and research threads. This book will be of value to all professionals who offer services to clients, including psychologists, psychiatrists, social workers, nurses, and counselors. The emphasis is on offering readers tools that can improve the accuracy of clinical judgments and related decisions. Surprisingly little attention is devoted in professional training programs to many sources of error that can lead clinicians astray. For example, little attention is given to informal fallacies that may result in questionable decisions, such as relying on tradition or what is popular to select practices and policies.

Readers are encouraged to learn about and recognize errors and to acquire strategies for minimizing avoidable ones. Clinical decision making is approached as a challenging process that can be improved by acquiring skills integral to evidence-based practice, such as posing well-formed questions that guide an efficient, effective search for practice- and policy-related research. Beliefs, attitudes, and interpersonal skills that influence the effectiveness with which available knowledge is used are reviewed. Some clinicians view clinical practice as an art, rejecting as irrelevant related research. However, research findings are available in many areas that can be put to good use, both at the individual level of practice and when making policy decisions. Critical thinking and evidence-informed practice are closely related; both reject authority as a guide (such as someone's status), both emphasize the importance of honoring ethical obligations such as informed consent, and both involve a spirit of inquiry.

## DEVELOPMENT OF THIS BOOK

A number of influences led to the writing of the first edition of this book and remain pertinent today. One was the prevalence of common errors in thinking among clinicians.

Examples include making decisions based on small biased samples, not recognizing pseudo-explanations, and having a false sense of accuracy in predicting future events. Another was puzzlement about the success of colleagues who used weak rather than strong strategies when trying to influence others: Examples include using straw person arguments, misrepresenting positions, and begging the question. A third was the discovery of books such as *Straight and Crooked Thinking* (Thouless, 1974)—an engaging book describing a range of common errors as well as remedies. A fourth influence was research concerning problem solving, judgment, and decision making, including material describing decision making in case conferences as well as research and theory in the area of learning to be a critical thinker rather than a true believer.

### **What's New and What's Not Over the Past Years**

Clinical practice remains an uncertain enterprise. Much remains unknown about what works best with which client toward what aim. Wide variations continue in how clinicians carry out their practice. The criteria that should be used to evaluate outcomes are in dispute. Mistakes are inevitable, even in the best of circumstances. However, even in uncertain areas such as clinical practice, some decisions are better than others. The percentage of those that are better can be increased by avoiding common sources of error. This is one area in which research has blossomed, and this third edition illustrates the variety and frequency of errors as well as related factors and strategies for minimizing them. The years since the publication of the second edition are a mix of progress and challenges. The Internet is a source of both accurate information as well as bogus claims and quackery. Progress includes continuing growth of the Cochrane and Campbell databases of systematic reviews, development of user-friendly tools to facilitate critical appraisal of different kinds of research, and increasing research regarding the relative contributions of particular interventions compared to nonspecific factors as these are related to outcome. There has been greater attention to pseudoscience and fads in the helping professions, as well as to harming in the name of helping and to flaws in traditional sources of knowledge dissemination such as peer-reviewed publications. Increasing attention has been given to ethical obligations of professionals—for example, involving clients as informed participants. All of these developments promise to enhance the quality of services provided to clients.

### **What Is New in This Edition**

Additional attention is given in this new edition to developments over the past few years that highlight the importance of taking a broad view to understanding the helping professions and what can go wrong, and what remedies may contribute to enhancing

quality of care. Increased attention is given to propaganda in the helping professions and related venues and the role of the biomedical-industrial complex in distributing this, including conflicts of interest between academic researchers and Big Pharma. Propaganda has grown by leaps and bounds, including its distribution via advertisements on the Internet and on our television screens. Disease mongering continues to grow—the creation of bogus risks and alleged health problems that are indeed in the normal range of variability of bodies, behaviors, and/or thoughts. Attention to these saps life of its joy, creates needless worry, encourages unnecessary treatment, and gets in the way of attending to real concerns. It is perhaps the very growth and the absurdity of some of the claims, along with the revelations of fraud and the play of special interests, that have resulted in a vigorous counterreaction in terms of greater attention to propaganda, harm, and fraud in the helping professions and to related conflicts of interest—including the creation of ways to decrease them. When parents are threatened with being reported to child protection services because they refuse to place their child on Ritalin, counterpressure is bound to occur, including formation of advocacy groups. Readers are encouraged to become familiar with the players in the biomedical-industrial complex who forward disease mongering, including public relations agencies employed by pharmaceutical companies. This creation of bogus problems renders the need for critical thinking ever more important both on the part of helping professionals and on the part of clients. Toward this end, this new edition also devotes more attention to development of decisions aids that can be used by professionals as well as by clients.

Attention to ignorance as well as knowledge is highlighted in this new edition. Those who write in the field of agnotology argue that it is just as important to study ignorance (e.g., kinds and uses) as it is to study knowledge. Content regarding evidence-based practice has been updated, including the greater ease of searching for answers via Google. Recent research concerning the relative contribution of specific interventions compared to nonspecific factors in helping (e.g., empathy) is included in this new edition as well as recent research findings concerning influences on the effectiveness of decisions made in team meetings. This new edition also includes valuable new websites such as DUETS—database of uncertainties regarding the effectiveness of interventions. Also included are websites that provide an alternative view to mainstream framing of personal problems as psychiatric in nature, such as the Alliance for Human Research Protection (<http://www.ahrp.org>). Douglas Walton's pragmatic theory of fallacies has been integrated into the discussion of fallacies, allowing us to see the relationship between different contexts and the use of fallacies. Additional attention has been devoted to reliance on authority as a basis for making decisions, including "the authority of the citation." New developments regarding intuitive and analytic reasoning are described in more detail (e.g., fast and frugal decision making). Greater attention is

devoted to the influence of language on decisions in the helping professions—not only the labels we use, but what is not said.

## OVERVIEW OF THE CHAPTERS

Chapter 1 describes the vital role of decision making in clinical practice, kinds of errors that may occur and their sources, as well as the importance of thinking critically about decisions. Hallmarks of critical thinking are reviewed, including related values, attitudes, and styles, and its integral association with evidence-based practice is emphasized. Barriers to making sound decisions are discussed, including social, economic, and political influences on the helping professions. Finally, the costs and benefits of critical thinking are reviewed.

Chapter 2 describes sources of influence on clinical decisions. Readers are encouraged to take a broad view of such influences—to consider the influence of political, social, and economic factors on what is defined as a personal or social problem, and what are considered suitable intervention options in relation to different kinds of problems. The influence of agency variables is highlighted; many clinicians either work in an agency or have contacts with agencies—perhaps through services that are contracted out. In addition, the helper-client relationship is discussed, as this may influence decisions, as well as psychological factors such as confirmation biases that may result in misleading clients because of premature acceptance of faulty assumptions.

Reasoning is at the heart of clinical decision making—forming hypotheses about presenting concerns, gathering data to evaluate the accuracy of different views, offering arguments for assumptions, and evaluating the quality of these arguments. Chapter 3 provides an overview of different kinds of reasons (for example, hot and cold); suggests helpful distinctions (for example, between facts and beliefs); and describes different kinds of arguments and explanations.

Chapter 4 discusses different views of knowledge and how to get it. Questionable criteria on which to base decisions, such as testimonials and popularity, are reviewed and contrasted with scientific criteria. The difference between pseudoscience and science is discussed. Readers are invited to review their personal epistemology. If we rely on questionable criteria to accept knowledge claims, clients may be harmed rather than helped. Thus, it is vital to review personal beliefs about knowledge and how to get it.

Chapter 5 discusses the influence of language and social-psychological persuasion strategies. The interview is the context in which most helping efforts are carried out, and language plays a crucial part in what transpires there. Sources of error related to language are described in this chapter, including bafflegab, use of emotional words, and conviction through repetition.

Rarely are clinicians trained in the various kinds of formal and informal fallacies that may occur in clinical practice and may compromise the quality of decisions. Informal and formal fallacies may involve overlooking, evading, or distorting facts. Although most clinicians may be familiar with some fallacies described in Chapter 6, they may not be familiar with others that may result in avoidable errors, such as inappropriate use of analogies and circular reasoning. Chapter 6 suggests how learning to identify and remedy fallacies can improve the quality of decisions.

Chapter 7 discusses the topics of classification, authority, and a pathological focus. Classification is inevitable in clinical practice. This chapter describes sources of error that may result from it, such as an incorrect classification of clients and incorrect intervention methods. Authority is singled out for special focus, including the authority of the citation, because it represents a key source of potential error in clinical practice. For example, clinicians may accept knowledge based on appeals to consensus or tradition. A pathological set also is singled out for attention, because of tendencies to focus on pathology and to ignore positive attributes of clients.

Chapter 8 highlights the importance of content and procedural knowledge (data that decrease uncertainty). Differences between experts and novices are reviewed, and the importance of active learning is emphasized. Different approaches to reviewing competencies are discussed, and the kind of problem-based learning emphasized in evidence-based practice is described.

Chapter 9 provides an overview of research in the areas of judgment, problem solving, and decision making of value to clinicians, including developments in naturalistic decision making. Structuring problems is a critical phase. Research highlights the importance of situation awareness and development of expertise based on corrective feedback. The uncertainty of problem solving is emphasized, and tools of value are suggested for decreasing common biases based on research on judgment and decision making.

Chapter 10 describes the origins of and process and philosophy of evidence-based practice. Evidence-based practice and policy are designed to facilitate well-informed, ethical decisions in a context of transparency and accountability. They suggest a way to handle the uncertainty in making decisions in an informed, ethical manner. Attention is devoted to developing tools required to do so, such as high-quality systematic reviews of practice-related research related to specific life-affecting decisions. Controversies regarding “What is evidence?” are discussed.

Chapter 11, “Posing Questions and Searching for Answers,” offers detailed guidelines for preparing well-structured questions that guide an effective, efficient search for practice- and policy-related research findings. Questions that often arise, such as “What if the experts disagree?” and “Do research findings apply to my client?” are discussed, and common errors in each phase of the process of EBP are noted.

Chapter 12 offers guidelines for critically appraising different kinds of research, including qualitative reports. Common myths that hinder critical appraisal are discussed, such as “It is too difficult for me to learn” and “All research is equally sound.” Sources of bias are reviewed, and questions to raise about all research are suggested. Guidelines are offered for critically appraising research related to different kinds of questions, including effectiveness questions as well as those related to description and identification of causes. Readers are referred to additional sources for further reading.

Chapter 13 describes options for collecting data. Sources of assessment data are described, as well as their advantages and disadvantages. Kinds of reliability and validity of concern in evaluating assessment measures are reviewed. Decisions in this stage influence those in later phases of working with clients. This chapter also discusses factors that influence what clinicians see and report, such as vividness, motivation, and insensitivity to sample size.

Clinicians make decisions about causal factors related to clients’ concerns and desired outcomes. Chapter 14 reviews factors that influence selection of causes, such as similarity between effects and presumed causes and preferred practice theories, and offers guidelines to enhance the accuracy of causal assumptions. These include helpful rules of thumb, such as paying attention to sources of uncertainty and examining all four cells of a contingency table.

Clinical practice also involves making choices and predictions. Predictions are made about how clients will behave in the future and about the effectiveness of interventions. Chapter 15 reviews sources of error that may compromise accuracy of predictions and describes tools to increase accuracy, such as using natural frequencies rather than probabilities.

Interdisciplinary team meetings are another context in which life-affecting decisions are made. Tendencies that decrease the quality of decisions (such as the belief that all contributions are equally good, and confusion between the consistency and differential weight of signs) are noted in Chapter 16, and guidelines are provided for enhancing the quality of discussions. Reaching sound decisions in team meetings requires use of effective interpersonal skills for diplomatically raising vital questions.

Chapter 17 discusses personal obstacles that may get in the way of developing and using critical thinking skills. Examples include a disinterest in critical thinking, a preference for mystery over mastery, unrealistic expectations of success, failure to reflect on excuses used for lack of quality services, and a fear of discovering errors. Social anxiety may interfere with raising questions about dubious claims.

Guidelines for maintaining critical thinking skills and becoming a lifelong learner are suggested in Chapter 18. As in other areas, having a skill does not mean that it will be used; many influences may erode critical thinking skills.



## PURPOSE OF THE BOOK

This book is not meant to be read at one sitting but is designed to be sampled over many readings. This will provide the reader with leisurely opportunities to catch errors that I no doubt have made in my thinking. Writing a book about critical thinking is a daunting prospect, given the inevitability of revealing crooked thinking. However, this book is written in the spirit that we all make errors and that the task is to recognize and correct them. It is important to note what this book attempts to do as well as what it does not do. This book does attempt to draw on a range of areas that are pertinent to critical thinking and evidence-based practice and to draw these together in a format that makes sense to clinicians and that can be used to enhance the quality of practice. It does not attempt to offer incisive reviews of the many fields that are touched on here as they relate to clinical decision making. The teaching of thinking is as old as philosophy itself, and entire domains of inquiry have been concerned with this subject. Material related to the area of clinical decision making lies in sociology, anthropology, psychology, medicine, rhetoric, philosophy, education, and popularized presentations of formal and informal fallacies, such as *Straight and Crooked Thinking* (Thouless, 1974). The potential arenas of relevant sources have been a challenge of manageability. Entire books could be (and have been) written on most of the topics discussed in this book. References are provided throughout the book to sources that offer more detail.

Strong differences of opinion exist about many of the topics discussed in this book, such as statistical versus clinical prediction and the most useful way to pursue knowledge, or even whether it can be gained. The sources of error described here, especially those resulting in confirmation of favored views, will encourage biased misreadings of some of the content. There has been a historical reluctance to make clinical assumptions explicit so that their accuracy can be carefully examined. Efforts in this direction, even though described with the utmost tentativeness, often have been greeted with negative reactions based on misreadings of content. Consider, for example, the ongoing discussion concerning the use of actuarial methods for making clinical decisions. Even though the advantages of such methods may be described in measured terms, positions may be distorted.

## ACKNOWLEDGMENTS

I am indebted to the many authors of the excellent material from which I have drawn liberally. I thank Oxford University Press for its generosity in allowing me to reproduce material from my book *Social Work Practice: A Critical Thinker's Guide* (2006) that appears in Chapters 4, 10, 11, and 12. I wish to thank the participants of my workshops

on making clinical decisions in the United States, Canada, Taiwan, and Great Britain who greeted this material with such enthusiasm and inspired me to continue work in this area. These workshops supported my impression over the years that most clinicians are open to examining their reasoning processes in an atmosphere of constructive inquiry linked to concerns about helping clients. I extend my thanks to reviewers of drafts of the first edition of this book, including William E. Henry and Gracia A. Alkema of Jossey-Bass, who were supportive yet critical in nudging the manuscript toward clarity and in considering the topic important. Warm thanks also to Tracey Belmont and Isabel Pratt for their enthusiastic support and encouragement regarding the second edition. I also thank Lisa Gebo and Rachel Livsey for their support for this third edition. I would like to extend my gratitude to two colleagues who reviewed this book and provided valuable feedback: Elizabeth K. Anthony, an assistant professor at Arizona State University, and Professor Bruce A. Thyer of Florida State University.

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PART

I



# Lay of the Land



## CHAPTER

# 1

# The Need for Critical Thinking in Clinical Practice

Decision making is at the heart of clinical practice. You may have to decide how to assess a client's depression. What sources of information will you draw on and what criteria will you use to evaluate their accuracy? Will you rely on your intuition? Will you ask your client to complete the Beck Depression Inventory? Will you talk to family members and take a careful history? Will it help you to understand your client's depression if you provide a psychiatric diagnosis? Or you may have to decide how to help parents increase positive behaviors of their four-year-old child. What sources of information will you use? How can you locate valuable guidelines regarding the most effective methods? What criteria will you use to review the evidentiary status of a claim such as: "Attention-deficit/hyperactivity disorder is due to a biochemical imbalance"? Think back to a client with whom you have worked. Which of the following 10 criteria did you use to make decisions (Gambrill & Gibbs, 2009)?

1. Your intuition (gut feeling) about what will be effective.
2. What you have heard from other professionals in informal exchanges.
3. Your experience with a few cases.
4. Your demonstrated track record of success based on data you have gathered systematically and regularly.
5. What fits your personal style.
6. What is usually offered at your agency.
7. Self-reports of other clients about what is helpful.
8. Results of controlled experimental studies (data that show that a method is helpful).
9. What you are most familiar with.
10. What you know by critically reading the professional literature.

In addition to complex decisions that involve collecting and integrating diverse sources of data, scores of smaller decisions are made in the course of each interview, including moment-to-moment decisions about how to respond. Options include questions, advice, reflections, interpretations, self-disclosures, and silence. Decisions are made about what outcomes to focus on, what information to gather, what intervention methods to use, and how to evaluate progress. The risks of different options must be evaluated, and probabilities must be estimated. Judgmental tasks include deciding on causes and making predictions. You may have to decide whether a child's injuries are a result of parental abuse or were caused by a fall (as reported by the mother). You will have to decide what criteria to use to make this decision and when you have enough material at hand. If a decision is made that the injuries were caused by the parent, a prediction must be made as to whether the parent is likely to abuse the child again. Errors that may occur include:

- Errors in description. (Example: Mrs. V. was abused as a child when she was not.)
- Errors in detecting the extent of covariation. (Example: All people who are abused as children abuse their own children.)
- Errors in assuming causal relationships. (Example: Being abused as a child always leads to abuse of one's own children.)
- Errors in prediction. (Example: Insight therapy will prevent this woman from abusing her child again when this is not true.)

The events of the past few years continue to illustrate the need for critical thinking in clinical practice. During these years there has been a continuing parade of revelations, including hiding of negative trials, hiding adverse effects of medications, creating bogus categories of illness, overmedicating young children and the elderly with antipsychotics, and related conflicts of interest. (See Gambrill, 2012a.) Academic researchers, including some heads of psychiatry departments at prestigious universities, have been shown to be in the pay of pharmaceutical companies while underreporting this income to their universities, sometimes by millions of dollars. Ioannidis (2005) argues that most research findings reported in the biomedical literature are false. Hiding alternative views is common, such as failure to describe a view of anxiety in social situations as a learned reaction created by a unique learning history and/or arousal threshold (Gambrill & Reiman, 2011). Anxiety in social situations is typically proclaimed to be a psychiatric disorder. Did you know that this "disorder" was created by Cohn and Wolfe, a public relations firm hired by a pharmaceutical company (Moynihan & Cassels, 2005)?

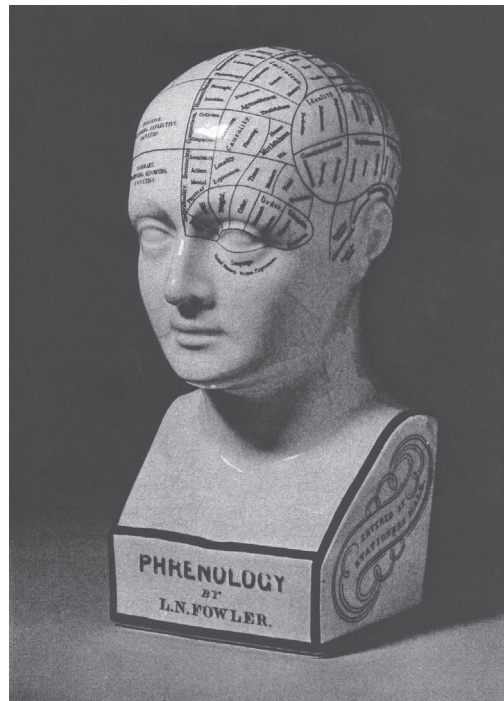
## THE IMPORTANCE OF THINKING CRITICALLY ABOUT DECISIONS

Clinical practice allows a wide range of individual discretion: how to frame problems, what outcomes to pursue, when to stop collecting information, what risks to take, what criteria to use to select practice methods, and how to evaluate progress. The privacy of clinical practice (rarely is it observed by other clinicians) allows unique styles, which may or may not enhance the accuracy of decisions. Use of vague evaluation procedures may maintain styles that are not optimal. Clients may be harmed rather than helped if we do not think critically about the decisions we make. Are they well-reasoned? Are they informed by related research? Have we avoided being bamboozled into accepting bogus claims about the effectiveness of a method? As Karl Popper (1994) points out, “There are always many different opinions and conventions concerning any one problem or subject-matter. . . . This shows that they are not all true. For if they conflict, then at best only one of them can be true” (p. 39). The following 13 findings suggest that clinical decisions can be improved:

1. There are wide variations in practices (e.g., see Goodman, Brownlee, Chang, & Fisher, 2010).
2. Most services provided are of unknown effectiveness. There has been little rigorous critical appraisal of most variations in practices and policies in relation to their outcomes (e.g., do they do more good than harm?).
3. Clients are harmed as well as helped. Consider, for example, the death of a child in “rebirthing therapy” (Janofsky, 2001; see also Diaz & de Leon, 2002; Goulding, 2004; Moncrieff & Leo, 2010; Ofshe & Watters, 1994; Sharpe & Faden, 1998; Whitaker, 2010).
4. Intervention methods found to be harmful continue to be used (e.g., Petrosino, Turpin-Petrosino, & Buehler, 2003).
5. Assessment methods shown to be invalid continue to be used (e.g., Hunsley, Lee, & Wood, 2003; Thyer & Pignotti, in press).
6. Methods that have been found to be effective are often not offered to clients (e.g., Jacobson, Foxx, & Mulick, 2005).
7. There are large gaps between claims of effectiveness and evidence for such claims (Greenberg, 2009; Ioannidis, 2005).
8. Good intentions are relied on as indicators of good outcomes.
9. Journalists’ exposés of avoidable harms are common.
10. Avoidable errors are common (e.g., DePanfilis, 2003; Kaufman, 2006).
11. Licensing and accreditation bodies such as the National Association of Social Workers (NASW) and the Council on Social Work Education rely on surrogates

- of competence and quality of professional education, such as the diversity of faculty and size of faculty, their degrees, and their experience (Gambrill, 2002; Stoetz, Karger, & Carrilio, 2010).
12. Clients are typically not informed regarding the evidentiary status of recommended services (e.g., that there is no evidence that these are effective or do more good than harm; Braddock, Edwards, Hasenberg, Laidley, & Levinson, 1999; Cohen & Jacobs, 1998; Gottlieb, 2003).
  13. There seems to be an inverse correlation between growth of the helping professions and problems solved.

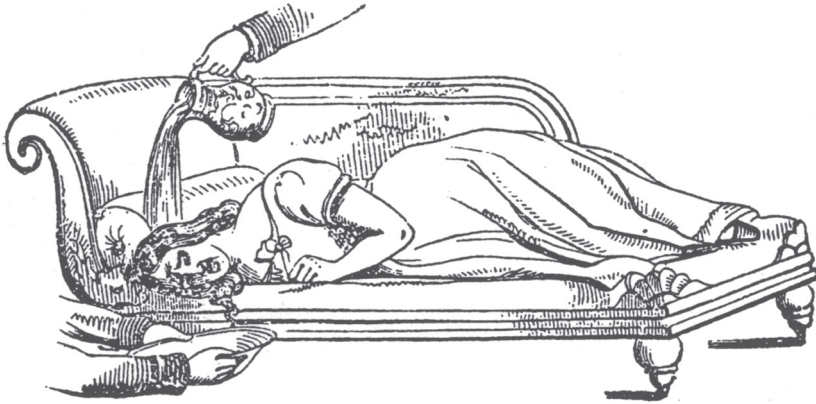
The history of the helping professions shows that decisions made may do more harm than good. Consider the blinding of 10,000 babies by the standard practice of giving them oxygen at birth (Silverman, 1980). Scared Straight programs designed to decrease delinquency have been found to increase it (Petrosino, Turpin-Petrosino, & Buehler, 2003). Many clinicians carry out their practice with little or no effort to take advantage of practice-related research describing the evidentiary status of different interventions. Gaps between knowledge available and what was used were a key reason for the development of evidence-based practice and care (Gray, 2001a). The histories of the mental health industry, psychiatry, psychology, and social work are replete with the identification of false causes for personal troubles and social problems. Complex classification systems with no empirical status such as those based on physiognomy (facial type) and phrenology (skull formation) were popular, including the creation of metal phrenological hats to aid in diagnosis (Gamwell & Tomes, 1995; McCoy, 2000). (See Exhibit 1.1.)



**Exhibit 1.1** Phrenological head, by L. N. Fowler, mid-19th century, porcelain, 11 in. high. Courtesy Mrs. Erick T. Carlson. Reprinted from *Madness in America* (p. 86), by L. Gamwell and N. Tomes, 1995, Ithaca, NY: Cornell University Press.

Reviews of the history of psychiatry reveal a long list of intrusive interventions that can best be described as torture (e.g., Scull, 2005; Valenstein, 1986). Consider Darwin's chair, in which a patient was spun until bleeding from his or her nose. Water-based interventions were a popular strategy (see Exhibit 1.2). A former patient, Ebenezer

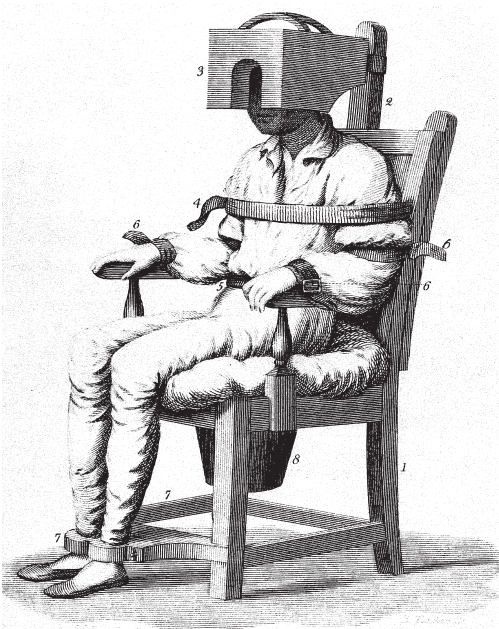




TREATMENT OF HYSTERIA

**Exhibit 1.2** “Treatment of Hysteria.” In Russell T. Trall, *Hydropathic Encyclopedia* (New York, NY: 1868). New York Academy of Medicine Library. Reprinted from *Madness in America* (p. 157), by L. Gamwell and N. Tomes, 1995, Ithaca, NY: Cornell University Press.

Haskell, said he witnessed the spread-eagle method while in Pennsylvania Hospital for the Insane. “A disorderly patient is stripped naked and thrown on his back, four men take hold of the limbs and stretch them out at right angles, then the doctor or some one of the attendants stands up on a chair or table and pours a number of buckets full of cold water on his face until life is nearly extinct, then the patient is removed to his dungeon cured of all diseases” (cited in Gamwell & Tomes, 1995, p. 63). The remedy of



**Exhibit 1.3** “The Tranquilizing Chair,” in Benjamin Rush, “Observations on the Tranquilizer,” The Philadelphia Medical Museum (1811). Archives of Pennsylvania Hospital, Philadelphia. Reprinted from *Madness in America* (p. 33), by L. Gamwell and N. Tomes, 1995, Ithaca, NY: Cornell University Press.

the tranquilizing chair is shown in Exhibit 1.3. Epidemiologists bring to our attention different rates of use of certain kinds of interventions, such as the higher number of hysterectomies in the United States as compared with Great Britain. Such differences may reflect actual need, or they may result from influences that conflict with client interests (such as an overabundance of surgeons or a tendency to think for clients rather than inform them fully and let them make their own decisions). Variations in services provided for the same concern were another reason for the development of evidence-based medicine and health care (Gray, 2001b; Wennberg, 2002).

The exposure of avoidable errors and harming in the name of helping is a topic of concern to journalists as well as investigators in a variety of fields, as illustrated by reports of children maltreated by their foster parents (e.g., DePanfilis, 2003; Pear, 2004); abuse of patients in facilities that purport to help them, such as group homes for the so-called mentally ill (e.g., Levy, 2003); and neglectful practices in hospitals and nursing homes (e.g., Delamothe, 2011; Mooney, 2011). Preventable medical error is responsible for 98,000 deaths per year and 99,000 deaths result from hospital-acquired infections per year. Exhibit 1.4 illustrates types of errors. What would be considered an error today might have been considered common (and good practice) years ago. For example, many people who entered a mental hospital in the 1950s and spent the rest of their lives there should not have been hospitalized in the first place. Many errors reflect a confirmatory bias (seeking only data that support favored views; Nickerson, 1998). Imagine that you are a community organizer in a low-income neighborhood and believe that new immigrants moving into the neighborhood are the least likely to

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**Exhibit 1.4** Examples of Errors in Medicine

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**Diagnostic**

- Error or delay in diagnosis
- Failure to use indicated tests (e.g., use of outmoded tests)
- Failure to act on results of monitoring or testing

**Treatment**

- Error in the performance of a procedure or test
- Error in the dose or administration of a drug
- Avoidable delay in treatment or in taking action in relation to an abnormal test
- Inappropriate (not indicated) care

**Preventive**

- Failure to provide preventative treatment
- Inadequate monitoring or follow-up

**Other**

- Failure of communication (e.g. with team members)
  - Equipment failure (e.g., not calibrated adequately)
  - Other system failure (e.g., in training)
- 

Source: From "Preventing Medical Injury," by L. Leape, A. G. Lawthers, T. A. Brennan, et al., 1993, *Qualitative Review Bulletin*, 19(5), pp. 144–149. Reprinted with permission.

become active in community advocacy efforts. Because of this belief, you may concentrate your attention on long-term residents. As a result, new resident immigrants are ignored, with the consequence that they are unlikely to become involved. This will strengthen your original belief.

The very nature of clinical practice leaves room for many sources of error. Decisions must be made in a context of uncertainty; the criteria on which decisions should be made are in dispute, and empirical data about the effectiveness of different intervention options are often lacking. Clients seek relief from suffering, and professionals hope to offer it; there is a pressure from both sides to view proposed options in a rosy light. Some errors result from a lack of information about how to help clients. Empirical knowledge related to clinical practice is fragmentary, and theory must be used to fill in the gaps. Other errors result from ignorance on the part of individual clinicians—that is, knowledge (defined here as information and procedural know-how that reduce or reveal uncertainty) is available but is not used. This lack of knowledge and skill may be due to inexperience or inadequate training. Errors also result from lack of familiarity with political, economic, and social influences on professions such as psychiatry, psychology, and social work (e.g., Cohen & Timimi, 2008). The interpersonal context within which counseling occurs offers many potential opportunities for mutual influence that may have beneficial or dysfunctional effects, as described in Chapter 2. Errors may occur because of personal characteristics of the clinician, such as excessive need for approval.

Avoidable errors may result in (1) failing to offer help that could be provided and is desired by clients, (2) forcing clients to accept practices they do not want, (3) offering help that is not needed, or (4) using procedures that aggravate rather than alleviate client concerns (that is, procedures that result in iatrogenic effects; e.g., Sharpe & Faden, 1998). Such errors may occur in all phases of clinical practice: assessment, intervention, and evaluation. Errors may occur during assessment by overlooking important data, using invalid measures, or attending to irrelevant data; during intervention by using ineffective methods; and during evaluation by using inaccurate indicators of progress. Reliance on irrelevant or inaccurate sources of data during assessment may result in incorrect and irrelevant accounts of client concerns and recommendation of ineffective or harmful methods. Important factors may not be noticed. For example, a clinician may overlook the role of physiological factors in depression. Depression is a common side effect of birth control pills and is also related to hormonal changes among middle-aged women. Failure to consider physical causes may result in inappropriate decisions. Failure to seek information about the evidentiary status of methods may result in use of an ineffective method. We may fail to recognize important cues or attend to irrelevant content. Errors may result from reliance on questionable criteria such as anecdotal experience to evaluate the accuracy of claims, as discussed in Chapter 4.

Given the role of decision making in clinical practice and the variety of factors that influence the quality of decisions, it is surprising that more attention is not devoted to this content in professional training. Meehl's book *Clinical Versus Statistical Prediction* appeared in 1954. The classic "Why I Do Not Attend Case Conferences" (Meehl, 1973) identifies errors and tendencies in groups that dilute the quality of decisions. The influence of illusory correlations on clinical observation was explored in the late 1960s (e.g., see Chapman, 1967; Chapman & Chapman, 1967, 1969). The tendency of clinicians to attribute problems to the person and overlook the role of environmental factors has been a topic of interest for some time (Rosenhan, 1973). Although students in professional education programs learn to attend to some sources of error (such as factors that influence reliability and validity) and are cautioned to avoid mistaking correlation for causation, they are not exposed to the range of formal and informal fallacies described in this book. Nor are they given information about conditions that encourage these fallacies and that increase the likelihood that their influence will slip by unnoticed. Students may not be exposed to the influential role of the biomedical industrial complex, including biological psychiatry, in framing problems and remedies (e.g., see Boyle, 2002; Brody, 2007; Carlat, 2010; Clarke, Mamo, Fosket, Fishman, & Shim, 2010; Szasz, 1994) or to critiques of psychological models (Illouz, 2008). Related literature shows that labeling attributes or actions as symptoms of psychopathology (deviations from the normal) is intimately associated with political and economic concerns and social conventions; therapists function as "moral managers" (Sedgwick, 1982, pp. 141, 147). They may not be exposed to critiques of prevalence rates such as the assertion that 46% of adults met criteria of the American Psychiatric Association (APA) for having had at least one mental illness in their lives.

Although the strategies we use to make decisions may often result in sound judgments, the task here is to identify ways in which they are not correctly used, so that errors can be minimized. Judgmental strategies are not necessarily used consciously, which is another reason it is helpful to be familiar with them. Indeed, two of the three routes to information lie outside of our awareness: perception and automatic associations. However, familiarity with sources of error is not enough. If this were true, certain kinds of errors would not recur in clinical practice. For example, many writers, both past and present, have argued that mental health professionals are too focused on pathology, that stereotypes interfere with making balanced decisions that reflect what a client can do as well as what the client cannot do (e.g., see Hobbs, 1975). However, some clinicians continue to focus on individual pathology, neglect client assets, and overlook environmental causes of personal troubles. Decreasing such errors requires a systemic approach, including attention to agency culture and climate as discussed in Chapter 9.

## HALLMARKS OF CRITICAL THINKING

The term *reflection* is popular. But as Steven Brookfield notes, “Reflection is not by definition critical” (1995, p. 8). Critical thinking is a unique kind of purposeful thinking in which we use standards such as clarity and fairness. It involves the careful examination and evaluation of beliefs and actions in order to arrive at well-reasoned decisions. It is:

- Clear versus unclear.
- Precise versus imprecise.
- Specific versus vague.
- Accurate versus inaccurate.
- Relevant versus irrelevant.
- Consistent versus inconsistent.
- Logical versus illogical.
- Deep versus shallow.
- Complete versus incomplete.
- Significant versus trivial.
- Adequate (for purpose) versus inadequate.
- Fair versus biased or one-sided. (Paul, 1993, p. 63)

Both critical thinking and evidence-based practice encourage asking questions designed to make the invisible visible. Problems may remain unsolved because we rely on questionable criteria to evaluate claims about what is accurate, such as tradition, popularity, or authority. Consider a claim that recovered memory therapy works. Too often, the questions that should be asked to reveal the evidentiary status of a claim are not asked, such as: “What is the source?” “The method works for what?” “What kind of research was conducted to test this claim?” “Could such research rigorously test the claim?” “Has anyone been harmed by this method?” This illustrates the difference between propaganda and critical thinking. In the former, strategies such as censoring (not mentioning) alternative well-argued views and contradictory evidence are used.

Critical thinking involves clearly describing and carefully evaluating claims and arguments, no matter how cherished, and considering alternative views. This means paying attention to the process of reasoning (how we think), not just the product. Critical thinking encourages us to examine the context in which personal and social problems occur (to connect private troubles with public issues; Mills, 1959; Prilleltensky, Prilleltensky, & Voorhees, 2008); to view questions from different points of view; to identify and question our assumptions; and to consider the possible consequences of different beliefs or actions. It requires clarity rather than vagueness. “One cannot tell truth from falsity, one cannot tell an adequate answer to a problem from an irrelevant one,

one cannot tell good ideas from trite ones—unless they are presented with sufficient clarity” (Popper, 1994, p. 71).

### Critical Thinking Is Integral to Evidence-Based Practice

Critical thinking knowledge, skills, and values are integral to evidence-based practice (EBP). Critical thinking, evidence-based practice, and scientific reasoning are closely related. All use reasoning for a purpose (i.e., to solve problems), relying on standards such as clarity, relevance, and accuracy. All regard criticism (self-correction) as essential to forward understanding; all encourage us to challenge our assumptions, consider well-argued opposing views, and check our reasoning for errors. All are antiauthoritarian. Critical appraisal skills are needed to accurately describe the extent to which a given research method can rigorously test a given practice or policy question, and many tools have been developed to facilitate this task, as described in Chapter 12. Critical thinking can protect us from being bamboozled and misled by deceptive descriptions of research and advertisements, for example for drugs. Consider the examples that follow. Each makes a claim concerning the effectiveness of a practice method. Are they true? What questions would you ask to evaluate the accuracy of these claims? How would you search for related research findings? Is there a high-quality review of research related to each claim?

- Eye movement desensitization is effective in decreasing anxiety. (Is it?)
- “Four hours a month can keep a kid off drugs forever. Be a mentor” (*New York Times*, December 31, 2002, p. A15; Partnership for a Drug-Free America, [www.drugfreedomamerica.org](http://www.drugfreedomamerica.org)). (Can it?)
- Anatomically detailed dolls can be used to accurately identify children who have been sexually abused. (Can they?)

Both critical thinking and EBP value clarity over obscurity, accuracy over inaccuracy, deep over superficial analysis, and fair-minded over deceptive practices. Both value transparency (honesty) concerning what is done to what effect, including candid description of lack of knowledge (uncertainty and ignorance). Consider the statement by the editor of *BMJ* (formerly the *British Medical Journal*):

The history of medicine is mostly a history of ineffective and often dangerous treatments. . . . Unfortunately there is still no evidence to support most diagnostic methods and treatments. Either the research hasn’t been done or it is of too poor a quality to be useful. (Smith, 2003, p. 1307)