

ANXIETY DISORDERS

Virtual Reality Therapy for Anxiety Disorders: Advances in Evaluation and Treatment, by Brenda K. Wiederhold, Ph.D., and Mark D. Wiederhold, Ph.D. Washington, D.C., American Psychological Association, 2004, 225 pp., \$39.95.

All of us have experienced virtual reality to one extent or another. When we become engrossed in a movie or a video game, we enter into a virtual world. For a brief period of time, we lose awareness of the world outside and our consciousness becomes focused on the sounds and images presented on the screen. The authors of this book suggest that virtual reality can be used effectively in the treatment of anxiety disorders. The book documents their efforts and the efforts of other investigators to do so.

Anxiety disorders are among the most common psychiatric disorders encountered in clinical practice, if not the most common. Standard treatment consists of psychotropic medication and psychotherapeutic interventions. A key psychotherapeutic intervention is exposure therapy. Exposure can be either imaginal, by having the patient imagine a particular scene (for instance, a traumatic war experience), or in vivo (for instance, having a patient who is afraid of flying go to an airport, watch planes take off, sit in an airplane seat, etc.). As the authors of this book point out, virtual exposure may have advantages over both imaginal and in vivo exposure. It may be superior to imaginal exposure in that it is much more life-like and therefore might be more effective. At the same time, it has many potential advantages over in vivo exposure. It is generally much less costly; it saves public embarrassment; it can be stopped if the symptoms get overwhelming. In addition, the key aspects can be repeated over and over; for instance, if someone has a fear of flying, and the therapist identifies that the take-off is the anxiety provoking aspect of flying, a virtual take-off can be replayed over and over again. Physiological monitoring of data such as heart or respiration rate is much easier to achieve during virtual than in vivo exposure. Finally, many situations that one would not replay, such as war trauma or sexual assault, can be addressed through the safety of virtual reality.

In this book, the authors present the results of numerous studies in which virtual reality proved effective for the treatment of anxiety disorders, including panic disorder, agoraphobia, obsessive-compulsive disorder, posttraumatic stress disorder, and phobias.

This book very much represents a work in progress. The use of virtual reality to treat anxiety disorders is only about a decade old. Most of the studies cited were conducted in the past 5–7 years. Part of the reason that the field is so new is that until recently the required technology was too expensive, or too primitive, for routine or even investigational use. Now, it has become much more affordable and sophisticated. In general, the more senses that are involved in a virtual reality treatment, the more expensive the technology and equipment. The least expensive treatments involve mainly sight, through video, and sound. The price increases significantly when other sensory modalities such as smell, touch, and movement are added. One of the encouraging findings from a number of

studies is that very positive results are obtained without necessarily employing all of these senses.

One of the drawbacks of this book is that it is very repetitive and in many places consists of a series of detailed descriptions of research studies. Furthermore, the book is not well organized. It begins with a number of chapters on general principles, then continues with 10 chapters on the treatment of individual anxiety disorders. Much of the information in the general section is repeated in the sections on individual disorders, and much of the information on individual disorders is repeated from one disorder to the next. On the other hand, there are numerous excellent case histories that give life to the rather dry repetition of one study after another.

Could virtual reality revolutionize the treatment of some anxiety disorders? If the early results reported in this book are replicated by further studies, it is quite possible that in the future virtual reality will become a standard component of the treatment of these disorders. The mental health community should eagerly await the results of future developments in the field, including the creation of even more sophisticated, true-to-life, and inexpensive virtual reality treatment tools.

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FORENSICS

Neuroscience and the Law: Brain, Mind, and the Scales of Justice, edited by Brent Garland. New York, Dana Press, 2004, 226 pp., \$8.95 (paper).

This volume is a report of a workshop sponsored by the American Association for the Advancement of Science and the Dana Foundation, which supports brain research. Part 1 distills the deliberations, and part 2 presents commissioned papers—two by neuroscientists and two by legal scholars.

The theme is the implications of neuroscientific developments for the legal system. The normative implications vary from important to minimal for law and society. The topics vary, including prediction of behavior, neuropsychiatric instruments that can be used for help in competency determinations, improvement in lie detection, informed consent, and brain death. Enhancing performance raises the possibility of mandated enhancement, such as requiring people to take an antidepressant drug to make them less angry, irritable, or impulsive. The paper by Dr. Tancredi raises many possibilities that may occur in the future and almost sound like science fiction, but they are not. Transcranial magnetic stimulation can create temporary “strokes” by inhibiting an area or, conversely, boost functioning temporarily in an area. Some of the procedures have potential for brain modification as part of treating addictions when addicted brains are different.

The potential for discrimination based on neuroscientific tests and procedures raises issues regarding “exceptionalism.” Questions of privacy and confidentiality are troublesome, such as the extensive information gathered in a single imaging procedure. Four questions are posed for the use of neuroscience in litigation: 1) Does the information meet legal admissibility standards (*Frye* [1] and *Daubert* [2] standards)?

2) If admissible, are there other reasons that should preclude courts from using the information? (Should a court allow testimony that a person has a superior memory? Those opposed argue this invades the province of the jury, and those in favor argue it is similar to testimony about a person's vision.) 3) Should the willingness or refusal to take neuroscientific tests be introduced? 4) Should a witness, or any person involved in the litigation process, be compelled to be tested and, if so, under what circumstances?

A recurrent question involves determinism and neuroscientific findings. If people's actions are caused by factors for which they are not responsible, how can they be held responsible for actions that occur as a result of these factors? This old issue obviously has implications for the legal system. To be responsible presumably means at the minimum that we are responsible for at least the majority (51%?) of what has caused the actions. Yet, experiments show that before a person is even consciously aware of a decision to perform an act, the brain was active with a "readiness potential." The brain, as a physical organ, is thus carrying on its work before conscious awareness, as an enabler for the mind. Similarly, positron emission tomography (PET) shows that individuals with antisocial personality disorders with impulsive aggression do not activate the anterior cingulate in response to a serotonergic stimulus (m-chlorophenylpiperazine) normally involved in inhibition. Yet, questions remain, such as whether the person simply chose not to inhibit the action.

Can there be free choice in a deterministic scientific world of explanation? When a violent act occurs, the quest is not simply to understand it as a pixel on a brain scan but to assess responsibility. However, the legal rules focus on not thinking clearly to the point that the ability to inhibit acts is impaired. Responsibility is a social construct and does not exist in the neuronal structure of the brain. Of course, social rules are not based on neuroscientific findings, but the findings raise issues for the legal system that cannot be ignored.

Professor Morse, while rightfully regarding these questions as "old problems" for the legal system, cites studies of biological cases that predispose people to behave in certain ways. Thus, maltreated children were likely to exhibit later antisocial behavior if they had an impairment in the enzyme monoamine oxidase A, which metabolizes neurotransmitters linked to violence. Although assessing responsibility is done by legal rules, should the rules take account of such scientific research in finding the person responsible or simply ignore the research?

Discussion of these issues leaves the impression of three disparate approaches with their own preconceptions and goals. First is the unresolved philosophical debates about "free will" in terms of determinism or its lack. These use a framework of compatibilism or incompatibilism regarding determinism and freedom. Second, the neuroscientific approach uses increasingly sophisticated technology that raises questions about the functioning of the brain and its mysterious relationship to the mind. Third, the legal system assesses responsibility of people as intentional agents governed by reason. Morse does not see neuroscientific work as having many normative implications for law, as many believe. This is because he does not see responsibility having anything to do with "free will" but, rather, the capacity for rationality. He does not ignore the increase in biological knowledge, but he

does not believe it negates a view of humans as causally efficacious. As he puts it, "If the realism constraint is true, all behavior is caused, but not all behavior is excused, because causation per se has nothing to do with responsibility. If causation negated responsibility, no one would be morally responsible, and holding people legally responsible would be extremely problematic" (p. 177). However, that is the problem, not a solution.

Have the workshop and the discussants resolved the problems of responsibility and new neuroscientific findings? Clearly not, but they have given a stimulating discussion of continuing issues.

References

1. Frye v United States, 293 F 1013 (DC Cir 1923)
2. Daubert v Merrill-Dow Pharmaceuticals, Inc, 509 US 579 (1993)

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Handbook of Forensic Psychology: Resource for Mental Health and Legal Professionals, edited by William T. O'Donohue and Eric R. Levensky. Burlington, Mass., Elsevier Science, 2004, 1,064 pp., \$149.95.

In this big book, the editors, both from the Department of Psychology, University of Nevada, have assembled 71 contributors, nearly all from university departments of psychology, to produce an encyclopedic handbook of forensic psychology. The volume is organized into four parts: 1) Basic Issues, 2) Assessment, 3) Mental Disorders and Forensic Psychology, and 4) Special Topics. Each part has several chapters, which, in turn, have several sections on different topics.

Part 1, Basic Issues, is designed to orient mental health professionals to the practice of law and orient legal professionals to the practice and limitations of psychology. Part 1 has four chapters. The first, "Psychology and the Law," has seven sections on different issues in psychology and law. Chapter 2 provides an introduction to psychology for attorneys, chapter 3 on ethical issues in forensic psychology, and chapter 4 on forensic report writing.

Part 2, Assessment, has the following chapters: "Assessment of Dangerousness and Criminal Responsibility," "Forensic and Ethical Issues in the Assessment and Treatment of the Suicidal Patient," "Assessing Intent and Criminal Responsibility," "Assessing Adjudicative Competency," "Assessing Mental Competency in the Elderly," "Child Custody Evaluations," "Forensic Interviewing of Children," "Evaluation of Psychological Damages," "Detecting Malingering," "Assessment of Substance Abuse," and "Assessment of Posttraumatic Stress Disorder."

Part 3, Mental Disorders and Forensic Psychology, has five chapters: "Conduct Disorders and Impulse Control in Children," "Psychopathic Personality," "Sexual Deviance," "Disorders of Impulse Control," and "Developmental Disabilities and Mental Retardation."

Part 4, Special Topics, has chapters covering issues in eyewitness testimony, recovered memories, *Daubert* testing (1) of hypnotically refreshed testimony, the polygraph, nonverbal detection of deception, sexual harassment, child abuse and neglect, partner violence, elder abuse, involuntary commitment, selection of jurors, issues of ethnicity, psychology in