Chapter 1
Introduction

Differential diagnosis of conditions with overlapping symptoms is critical in identifying the likely course and treatment for a client. This book attempts to provide a review of the neuropsychological science and clinical implications of the relationship between traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD). Prior research has extensively explored the similarities between TBI and PTSD (Belanger et al. 2009; Bryant and Harvey 1998; Hoge et al. 2008; McMillan et al. 2003; Schneiderman et al. 2008; Warden 2006); however, there are still difficulties with the assessment, conceptualization, and treatment of the two disorders. This book was designed to offer those interested in TBI and PTSD a neuropsychological reference guide to aid in clinical decisions and supplement the current body of the literature on the respective disorders. To appeal to all audiences, first a brief review of the clinical neuropsychology profession is conducted.

The field of clinical neuropsychology is a specialty field that aims to develop a deeper understanding of the brain–behavior relationship, specifically for more accurate assessment, diagnoses of neurological and cognitive disorders, and treatment recommendations. In its very early years, the practice of clinical neuropsychology was composed of psychologists attempting to acquire what information they could from intelligence tests and possibly the Bender-Gestalt or Memory for Designs tests, in hopes of gaining insight into general brain dysfunction (Golden et al. 1992; Golden and Lashley 2014). It was not until Dr. Ward Halstead and one of his doctoral students, Ralph Reitan, developed and validated the Halstead-Reitan Battery (HRNB) that the purpose and results of neuropsychological assessment proved to be invaluable to the medical and psychological field.

The HRNB allowed neuropsychologist to evaluate a wide range of nervous system and brain functions, including verbal and auditory skills, spatial and sequential perception, motor skills, attention, concentration, expressive and receptive

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language, and executive functioning. During this time, the main purpose of neuropsychological assessment was to determine if there was brain damage, and if so, where it is located. From the information obtained by the assessment's results, one may postulate the cognitive and emotional ramifications of the specific neurologic injury. However, over time the theory and focus behind neuropsychological assessment shifted from localization and etiology to a more comprehensive evaluation that strongly incorporates factors such as psychological health and history, environmental and familial resources, cognitive strengths and weaknesses, and personality characteristics.

Now the practice of neuropsychology encompasses a wide range of applications ranging from assistance in diagnostic and treatment of known or suspected central nervous system dysfunctions, the evaluation of effectiveness of pharmacologic and surgical therapies, and the differentiation of cognitive, personality, and neurological causes of presenting problems. Moreover, recently, neuropsychological evaluations have become pivotal in the forensic realm, providing the court with a deeper understanding of the behavioral, emotional, and cognitive consequences of a known or suspected central nervous system dysfunction. Golden (1976) foresaw the necessity and advantages of focusing on understanding the client from a cognitive and personality perspective utilizing a brain-behavior framework, rather than as a possible conclusion to derive.

The focus in the field has been mostly pointed towards the understanding and differentiation of different neurological disorders, with less attention to psychiatric disorders. Early in the career of the senior author, one major question was whether a disorder was either organic or psychiatric, suggesting that these were mutually exclusive categories. This question was most often generated by individuals whose schizophrenia or major depression was refractive to treatment, raising the question of whether they really had these disorders. Primarily cognitive testing assisted by the Minnesota Multiphasic Personality Inventory (MMPI) was used to see if cognitive skills fell into a "brain injury range" as defined by the theoretical and psychometric approaches of the clinician. With the advent of CT scans and subsequent improvements in neuroradiological evidence, it became increasingly evident that many people with serious mental disorders had evidence of structural damage to the brain. If one includes the role of neurotransmitters (as opposed to structural damage), then the percentage of individuals with neuropsychological problems and psychiatric symptoms increases substantially.

One impediment in the full exploration of these issues has been the focus of neuropsychologists on the cognitive rather than the emotional and behavioral effects of disorders. While the Diagnostic and Statistical Manuals (over all editions) have provided categories for emotional disorders caused by medical conditions (including neurological disorders), but such categories were and remain poorly defined and used inconsistently. As will be seen later in this book, the issues of whether a disorder is emotional (PTSD) or neuropsychological (TBI) may be clear in some cases; however, in many cases we may be talking about a joint disorder which has both emotional (environmental or experiential) roots along with a clear structural neuropsychological component (brain damage) as

well as neurotransmission/neurotransmitter issues (brain dysfunction) may not fit either category clearly and may represent a new disorder or subtype not currently recognized or properly treated.

Cognitive capacity, personality, and brain functioning all play crucial roles in understanding the relationship between TBI and PTSD, as do the roles of the social and physical environment, personal history, and both emotional and physical trauma. The interplay of each of these will be addressed, beginning with a review of some of the relevant research in the next chapter.