

Handbook Of Clinical Neuro- psychology



Volume 2

**Edited by
Susan B. Filskov & Thomas J. Boll**

A volume in the Wiley Series on Personality Processes—Irving B. Weiner, Series Editor

HANDBOOK OF CLINICAL NEUROPSYCHOLOGY

Volume 2

Edited by

SUSAN B. FILSKOV

THOMAS J. BOLL

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To our parents and children,

**Harold and June Filskov
Steven and Laura Rifkin**

**Robert and Agnes Pittelkow
Jennifer, Alisa, and Jeffrey Boll**

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Series Preface

This series of books is addressed to behavioral scientists interested in the nature of human personality. Its scope should prove pertinent to personality theorists and researchers as well as to clinicians concerned with applying an understanding of personality processes to the amelioration of emotional difficulties in living. To this end, the series provides a scholarly integration of theoretical formulations, empirical data, and practical recommendations.

Six major aspects of studying and learning about human personality can be designated: personality theory, personality structure and dynamics, personality development, personality assessment, personality change, and personality adjustment. In exploring these aspects of personality, the books in the series discuss a number of distinct but related subject areas: the nature and implications of various theories of personality; personality characteristics that account for consistencies and variations in human behavior; the emergence of personality processes in children and adolescents; the use of interviewing and testing procedures to evaluate individual differences in personality; efforts to modify personality styles through psychotherapy, counseling, behavior therapy, and other methods of influence; and patterns of abnormal personality functioning that impair individual competence.

IRVING B. WEINER

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Preface

Since the first volume of the *Handbook of Clinical Neuropsychology* was published in 1981, the field of neuropsychological literature has changed significantly. Until that time, the field was notable for the dearth of hardcover books of almost any description. Since then, there has been a burgeoning of texts on broad as well as specific topics that has reflected not so much the growth of the field of neuropsychology as the significant increase in professional and popular awareness of this field that has occurred in the 1980s. The number of persons seeking training at all levels, the recognition of the need to provide neuropsychological training in doctoral-level programs and in internship programs, and the number of institutions capable of providing this training have risen startlingly since 1980. The use of neuropsychological knowledge, procedures, and techniques, not only by professionals formally trained in neuropsychology, but also by those providing general health services who have had some exposure to neuropsychological activities, has grown apace.

The present *Handbook* is not a recapitulation of the first, but, rather, an entirely new and independent volume that covers a broad range of topics, focusing on new areas of interest and issues likely to be important in the next five to ten years.

Like the earlier *Handbook*, this one is designed to serve a reference purpose. In Part One, professional scientific contact, conflict, and overlap in training, investigation, and patient care among professionals in neuropsychology, behavioral neurology, and health psychology are discussed. Part Two deals primarily with assessment-oriented issues. Assessment of language, children's abilities, general neurological functions, and nontraditional neuropsychological disorders is covered, as well as information about traditional approaches. Part Three encompasses conditions of medical and physical concern that also have neuropsychological implications. Careful evaluation of memory functions and two types of deteriorating neurological disorders are discussed in detail. Part Three also covers the role of personality and affective processes in conjunction with neurocognitive deficits. A general overview and conceptualization of neuroaffective processes is followed by a discussion of affective disruption and psychosocial consequences in specific neuropsychological disorders. The discussion of sleep disorders is the first formal coverage of this important topic in the neuropsychological literature. Part Four focuses on several issues of current and future significance for neuropsychology. Discussion of rehabilitation, unfortunately, continues to fall within the realm of needed future research. Research design, statistics, and computer technology are of current and future concern to those attempting to advance knowledge. The complexities of brain focalization and localization are covered in the penultimate chapter. As in the earlier volume, the last chapter of this volume discusses the training and preparation of

neuropsychologists and ties in with the issues raised in Part One. We are fortunate to have chapters of such breadth and depth, as well as chapters that complement the initial coverage provided in the first volume.

Much of the resolution of conflict predicted in the first *Handbook* appears to have come to pass. Largely, the battle of the batteries is losing whatever preeminence it once had, and instead, energies are being directed toward collaborative struggle for understanding of the broadest possible role for neuropsychology within a health care delivery and research system.

Professional progress in the field of neuropsychology has been almost as impressive as scientific progress. As already mentioned, the identification of neuropsychology as an area of psychological content and process that must be grasped, at least to a certain degree, by all practitioners appears safely established. The recognition, as well, that clinical neuropsychology is a specialty that can be understood completely and practiced fully only by persons having had extensive and time-consuming training represents a growth mark for all of psychology, which has struggled to distinguish generalist and specialist issues. The recognition of clinical neuropsychology by the American Board of Professional Psychology as a specialty area for the diplomate process is just such a landmark step. There is no question that neuropsychology has arrived as a mainstream area of knowledge and practice within the field of clinical health service provision. During the next two decades, the breadth and depth of the service provided by clinical neuropsychologists will expand, and the sophistication with which our current state of knowledge is applied will increase.

We want to express our thanks for the exceptionally diligent work of each of our authors, who have labored long and hard to provide the best possible type of scientific clinical coverage in their respective areas. Our thanks to the editors at John Wiley & Sons for their understanding, support, and technical aid in all aspects of this project.

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PART ONE

**Interfaces of Neuropsychology
with Medicine and Psychology**

CHAPTER 1

Clinical Neuropsychology and Behavioral Neurology: Similarities and Differences

Byron P. Rourke and Gregory G. Brown

The purpose of this chapter is to compare and contrast the two modes of approach to the clinical aspects of the study of brain-behavior relationships that characterize clinical neuropsychology and behavioral neurology. In light of the purposes of this book, emphasis is given to the similarities and differences of these two approaches to brain-behavior relationships in their impact on the diagnosis, assessment, and treatment of the brain-damaged individual.

Both clinical neuropsychology and behavioral neurology are relatively new disciplines that have their historical foundations rooted primarily in the latter half of the nineteenth century. At that time, the study of human psychology from an empirical or quasi-empirical viewpoint was undertaken primarily by persons with extensive training in human anatomy and physiology (Boring, 1950). These investigators came from a variety of philosophical traditions, but their common aim was essentially the elucidation of those conditions and parameters that affect human beings' psychophysical relationships with themselves and their world.

There were clearly differences in emphasis among these investigators: Some accentuated the physiological side of the psychophysical relationship, whereas others were more inclined to emphasize what we would refer to today as the "behavioral" aspects of the relationship. At that time, there was no hard and fast distinction between psychology and medicine, and hence there were no hard and fast distinctions between the harbingers of clinical neuropsychology (a specialty eventually to emerge within psychology) and behavioral neurology (a specialty that would emerge within medicine). Those who were interested in studying the relationships between physiology (including cerebral structures and functions) and behavior were inclined to view themselves as bound together by a common goal rather than individualized as a function of their various backgrounds in physiology and physics (e.g., Helmholtz), medicine (e.g., Broca), philosophy and psychology (e.g., Wundt), and so on.

For reasons too numerous and complex to elucidate here, psychology and medicine began to emerge as distinct specialties by the end of the nineteenth and the beginning of the twentieth centuries. In addition, within medicine there began to be a distinction evident between those who specialized in physiological-behavioral interactions (psy-

chiatrists) and those who studied diseases of the nervous system (neurologists). Although connected in name through their common fellowships in neurology and psychiatry, these two branches of medicine diverged rather dramatically in focus and methodology until well into the second half of the twentieth century. Thus, it was not until the 1960s that the term *behavioral neurology* as a specialty within neurology became at all well known. Indeed, it would seem appropriate to characterize the emergence of this specialty as a reemergence of an emphasis on behavior as a crucial element of the brain-behavior relationship.

Meanwhile, in psychology, the trend during the early part of the twentieth century was to relegate the study of psychophysiological relationships to physiological psychology and to emphasize purely behavioral considerations in virtually all other branches of “pure” psychology. Even within the applied areas of psychology, the trend was to emphasize behavior-behavior relationships rather than the interaction between human physiology (including brain structure and function) and behavior. As was the case for behavioral neurology, it was not until the latter half of the twentieth century that human neuropsychology began to emerge with an identifiable presence within psychology. Such scientists and practitioners as Donald Hebb, Ward Halstead, Brenda Milner, Ralph Reitan, Hans-Lukas Teuber, and Arthur Benton were primarily responsible for the emergence of human neuropsychology as an area of scientific endeavor and applied interest. Behavioral neurology during the same period would appear to owe much of its beginnings to the seminal contributions of Aleksandr Luria and Norman Geschwind.

GENERAL ISSUES

Definitions

Behavioral Neurology

No particular definition of *behavioral neurology* has gained wide acceptance, perhaps because no one has felt the need to define it more explicitly than as a subspecialty within neurology. As such, it would probably be characterized by most as that branch of medicine that focuses on the pathology of the nervous systems with special reference to the behavioral correlates of such pathology. In addition, it would appear that behavioral neurologists are concerned principally with the extent to which behavior can elucidate normal and disordered brain structure and function. In this sense, the diagnostic potential of behavior is the main focus. Continued study of the behavior of the well-diagnosed brain-lesioned patient by the behavioral neurologist would also seem to emphasize the role such behavior can play in the refinement of knowledge regarding structure-function interactions within the nervous system (e.g., Heilman & Valenstein, 1979).

Clinical Neuropsychology

Two widely acknowledged definitions of clinical neuropsychology are those of Manfred Meier and Les Davison. Meier defined *clinical neuropsychology* as “that component of the human neuropsychological enterprise which emphasizes the use of objective psychological methods in the assessment of higher cortical functions” (Meier, 1974, p. 289). Davison saw the various types of clinical neuropsychology as having in common