

## Guest Editorial

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# Neuropsychological and psychological applications in neurorehabilitation

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Clinical neuropsychology and psychology have evolved as diagnostic and treatment-oriented disciplines necessary for individuals with neurological, psychiatric, and medical conditions. Treatment effectiveness in neurorehabilitation is best predicated on an accurate assessment of residual and deficit functions, and an appreciation for the impact of the neurological injury on the individual and its interpersonal meaning. This thematic issue provides an opportunity to spotlight these disciplines and their respective utility as useful reservoirs of skill, knowledge, technique, and theory. The contributions showcased in this issue illustrate the synergistic benefits of neuropsychology and psychology when applied to individuals with suspected or known neurologic and neuropsychiatric conditions. It is with a keen interest in promoting the practice and continuous availability of neuropsychological and psychological services in neurorehabilitation that this endeavor is promulgated.

It is quite fitting that I begin this editorial with reference to an advisory article written almost twenty years ago by Ronald Ruff, *Clinical Neuropsychologist*, entitled “A friendly critique of neuropsychology: facing the challenges of our future” (volume 18, issue 8, December 2003 pp. 847–864). Dr. Ruff postulated that neuropsychological services and specifically, the neuropsychological evaluation, “must not remain an adjunct to the physician’s diagnostic screening as it is better perceived as an essential component of optimal patient care.” In the years since Ruff’s presentiment, the meaning remains apropos. Nevertheless, our modern healthcare system has since continued to impose ever-increasing hurdles in the

way of recommended services that impacts patient care in hospitals and medical specialty centers, residential, and private outpatient treatment programs. These obstacles have materialized in the forms of excessive documentation requirements imposed by third-party payors and external attempts to manage clinical decisions and service delivery by placing limits on the duration, type, and sometimes restrictions on specific treatment methodologies and diagnostic procedures. These limitations are, in no small part, compounded by stagnant reimbursement rates that make perseverance and affordability in inpatient and outpatient neurorehabilitation venues far from easy for the provider, and unnecessarily disruptive for the patient. Whether the intended consequence or not, these impediments remain a vexatious challenge to the provision of essential and comprehensive neuropsychological and psychological services to those with unique neurological profiles.

Typically, individuals with neurological impairment require more than the traditional or one-dimensional intervention. As Ruff also inferred years ago, and as it currently remains, the manner in which services are delivered and the degree to which neuropsychologists can control quality and guide service delivery in ways that are known to work (or likely to work) is not always upheld and certainly, not guaranteed. At a minimum, control over quality and method is best achieved through perseverance and with an eye for new, consumer-friendly, cost-effective, and empirically based, treatment options. Otherwise, creative and beneficial means and methods are at risk of capitation, curtailment or obsolescence due to disuse.

Despite the hinderances, over the past decades there has been an impressive increase in the number of newly published tests, books, and journals on neuropsychological and psychological topics that illustrate the fields' clinical relevance. Even more impressive is the growing array of publications devoted exclusively to 1) cognitive and emotional functioning following acquired brain injury, 2) various neurodegenerative diseases, 3) cognitive decline, 4) neuroanatomical localization of neurogenerative etiologies, 5) process-specific standardized tests, 6) revitalized methods of psychotherapy, and newer topics such as 7) neurogenetics, 8) robot-assisted therapy, and 9) forensic references on disability assessment, capacity evaluation, long-term care and roles for the expert witness in personal injury litigation.

The core principles of psychotherapy such as listening, reflection, support, empathy, confrontation, problem identification, solution orientation, integration, relationship building, awareness and insight, and the reduction of discomfort remain just as, if not more relevant following neurological injury. What is unique, however, is that the rate of individual change will likely be slower and the method more integrative and elaborate. And there will be other variables to consider following an acquired neurological injury or a neurodegenerative process. It will be necessary to consider the pattern and degree of neurocognitive, emotional and behavioral change; the influence of premorbid functioning, cognitive reserve, and capacity; the emotional consequences of a slower-than-desired rate of change or minimal change; and the impact of the injury or condition, and its related effects on family, occupational status, degree of dependency, and quality of life. Secondary problems exclusive to acquired and neurodegenerative conditions such as excessive impulsivity, restlessness, aggression, chronic pain, sensory deficits, vocational and forensic issues, and interpersonal relationship realignments warrant special consideration. Co-occurring psychological symptoms such as depression, anxiety, post-traumatic stress disorder, personality disorders, cognitive impairment, and attention and concentration deficits may be pre-existing and become exacerbated or may manifest because of the injury. Regardless, these problems carry the potential to complicate recovery and influence methods of treatment, goal prioritization, and outcomes. Neuropsychology and psychological applications in neurorehabilitation encompass a broad range of services to include direct clinical

work (e.g., assessment, psychotherapy, psychoeducation, behavioral management); medical, family and agency consultation; experimental and clinical research; community reintegration; vocational rehabilitation; forensic applications; and end of life planning.

Consistent with the principal goals of this international journal, the benefits of collective professional wisdom and experiences of specialists in neurorehabilitation, herein prevail. Those whose professional identities are linked to service delivery for individuals with neurological impairment and who practice neurorehabilitation share a common history. We have been influenced by the contributions of, to name a few, Erin Bigler, Rick Parente, Laurence Miller, Keith Cicerone, Jeffrey Kreutzer, Edith Kaplan, George Prigatano, Yehuda Ben-Yishay, Joel Morgan, Susan Weintraub, Nathan Zasler, Murial Lezak, Alexander Luria, Glen Smith, Barbara Wilson, Ward Halstead, and Daniel Marson.

This thematic issue on *Neuropsychological and Psychological Applications in Neurorehabilitation* aims to exemplify the advantages of neuropsychological and psychological principles and their influential role in rehabilitation. In the hands of nurses, therapists, psychologists, physicians, and researchers, the principles and practice of psychology and neuropsychology buttress the diagnostic process (test design, measurement and interpretation, norm referencing, progress monitoring), influence treatment delivery and methods, and help shape interventions and outcomes for patients with acquired, chronic and degenerative neuropsychiatric conditions. Neurorehabilitation is a multimodal and interdisciplinary process that involves the patient and family in addition to process investors such as specialists in physical medicine and rehabilitation, neurology, psychiatry, psychology, occupational therapy, social work, recreational therapy, physical therapy, nutrition, technology, and vocational rehabilitation. A comprehensive and collaborative approach to neurorehabilitation provides the advantage of symptom co-management and the increased likelihood of improving patient well-being and promoting optimal outcomes. Ultimately, the process of neurorehabilitation is a personalized, integrated transdisciplinary undertaking that helps ameliorate, modify and compensate for the effects of impairment caused by nervous system injury. Neuropsychological and psychological methods are essential components of the neuro-rehabilitative process for individuals with acquired central nervous system injury.

This thematic issue addresses multiple etiologies, recovery of function, brain plasticity, functional outcomes following neurological injury, method research, experimental methodologies, and includes illustrative case examples. Etiologies spotlighted in this issue are stroke, traumatic brain injury, persistent sport-related post-concussive syndrome, and the dementia spectrum (Robert Perna, Harik Lindsey; Jyoti Pundlik, Amma Arenivas, Pritesh Paraboo; Alana Conder, Robert Conder, Christopher Friesen; and Vivian Begali). Two innovative and provocative treatment methodologies are described: solution-

focused brief therapy (SFBT) (Caron Gan) and medical assessment counseling (MAC) (Robert Sica). Rounding out this issue are the findings of two original research studies, one on the predictors of depression trajectories following hospitalization for TBI in Latin America (Paul Perin) and the other on community reintegration outcomes at 30 years post discharge from holistic milieu-oriented neurorehabilitation (Kavitha Perumparaichallai, Rivian Lewin, Pamela Klonoff).

We hope you will find this issue of clinical and professional benefit.