

Nelson, Nathan Fox, and Charles Zeanah began what has become the most important study of institutionalized care ever conducted.

In their book, *Romania's Abandoned Children: Deprivation, Brain Development, and the Struggle for Recovery*, Nelson, Fox, and Zeanah describe the Bucharest Early Intervention Project from its conception to current findings. They were part of a MacArthur working group that had been studying the effects of deprivation on various species. The work of another network member, Judy Cameron, on deprivation with rhesus macaques brought home the importance of the timing of deprivation, with rhesus infants separated at 1 week of age showing a qualitatively different constellation of behaviors than those separated at 1 month of age. Nelson, Fox, and Zeanah were struck with the parallels in behaviors described among infants and young children in the Romanian orphanages.

Gradually, the possibility of conducting a randomized clinical trial in the orphanages became a reality. Although experimental studies had been conducted among nonhuman species, such as the work of Cameron, the effects of institutional care had never been examined experimentally with humans. The Bucharest Early Intervention Project is exceptional for many reasons but most especially because it is the only randomized clinical trial of institutional care that has ever been conducted. The importance of a randomized clinical trial cannot be overstated. Without such a trial, differences between institutionalized children and children moved into the community could be the result of some confounding factor.

The book chronicles the issues faced, from political to ethical to scientific, in moving forward with this study. The investigative team was led by a cognitive neuroscientist (Nelson), a developmental psychologist (Fox), and a psychiatrist (Zeanah). The synergy developed among these three talented scientists and their larger team resulted in breakthrough findings.

Children who were in the Romanian orphanages were randomly assigned to care as usual (which typically meant continued institutional care at least in the short-term) or high-quality foster care. Additionally, a group of Romanian children who were living with their parents and who had no history of institutional care were included as a comparison. Strikingly, institutional care was found to have profound effects across virtually all domains. Children who were randomly assigned to foster care showed better outcomes in growth (height and weight but not head circumference), in various measures of attention, in attachment security, and in peer relations than children who were assigned to care as usual. Children who were placed into foster care at younger ages (especially before around age 2) typically showed better outcomes than children placed at older ages.

The work is described in ways that will be interesting to researchers and yet still accessible to the educated lay public. For example, EEG and event-related potential studies are presented such that the naive reader can understand both the methodology and the meaning of the findings fairly thoroughly. Unless a researcher has carefully followed all of the study reports over time, he or she will not be familiar with all of the constructs studied, and detail at this level will be invaluable.

The authors arrive at three key conclusions that have profound implications. First, the effects of institutional care are pervasive and pernicious. Second, timing is of the

essence: infants and young children cannot wait for systems to change, for parents to receive treatment, etc. Their brains develop, and remediation becomes more difficult the longer the adverse conditions last. Third, in moving from institutional care, it is critical that a system of high-quality foster care be developed.

Where then do the findings of *Romania's Abandoned Children* take us? Clearly, institutional care has devastating effects on nearly every domain of functioning, and yet children are in institutional settings all over the world. A number of groups are working to ensure that infants and young children in the United States do not enter institutional settings (e.g., emergency shelters) even for brief periods of time. Others are working to try to change the tide in other parts of the world. The Bucharest Early Intervention Project provides the incontrovertible evidence needed for the arguments mounted.

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Cognitive Impairment in Schizophrenia: Characteristics, Assessment, and Treatment, edited by Philip D. Harvey. New York, Cambridge University Press, 2013, 328 pp., \$95.00.

Cognitive deficits have been long regarded as core features of schizophrenia, but the scope and depth of research in this area has continued to expand at a rapid pace. This book presents recent advancements in the study of cognitive impairments in schizophrenia, with a particular emphasis on literature in the last 10 years. Central themes of the book include the relationship between cognitive deficits and functional capacity, social cognition as a core deficit in schizophrenia, heterogeneity in performance among schizophrenia patients, and cognitive deficits as targets for therapeutic interventions.

The book brings together an impressive group of leading researchers who present literature reviews highlighting recent developments in four primary areas: characteristics of cognitive impairment in schizophrenia (section 1), its functional implications and course (section 2), genetic and biological contributions (section 3), and assessment and treatment of cognitive impairments (section 4). In addition to describing recent progress in each of these areas, the authors suggest several key areas that are promising, or even necessary, areas of future research to continue the field moving forward. Research is needed on how neurocognitive symptoms and particular aspects of negative symptoms interact to determine functional outcome, as well as their relation to fundamental perceptual and motivational processes. The authors suggest that optimal approaches should be determined for combining cognitive remediation and vocational training to enhance occupational functioning and understanding regarding mechanisms of occupational functioning. In addition, future work should investigate interactions among normal age-related cognitive changes and existing deficits in older schizophrenia

patients and the functional significance of this cognitive functioning pattern at both the group and individual levels. It is suggested that future revisions of the diagnostic criteria should include consideration of cognitive impairments but also consider that relationships among symptom dimensions and cognitive domains have been more fully investigated for schizophrenia-related symptoms than for mood symptoms. Prospective studies of potential mechanisms underlying cognitive and social cognitive impairments and awareness of illness, as well as translational cognitive neuroscience approaches, are needed in order to develop targeted pharmacological and behavioral intervention strategies.

Consistent with the National Institute of Mental Health's Research Domain Criteria approach, which aims to generate classifications of mental disorders based on specified domains of brain-behavior constructs, one way the field may progress is through investigation of key cognitive processes, including their occurrence, underlying circuits, course, and associated features across diagnostic categories. The focus of this book is on neurocognition in established schizophrenia; thus, it only touches on schizophrenia-related impairments in groups that are symptomatically at-risk but without psychosis. The rapidly evolving literature on clinical high risk reflects neurodevelopmental and dimensional aspects of cognitive impairments in the psychosis spectrum that are relevant to understanding both the development of underlying circuits and potential for early intervention, amelioration, or perhaps even prevention of psychosis. As the number and type of psychosis risk programs continue to grow, a challenge for the field will be the integration and reconciliation of their findings with the schizophrenia literature reviewed here. Within the Research Domain Criteria framework, it will be important to conduct empirical investigations of the construct validity of impairments in cognitive domains as indices of psychosis risk in order to inform our knowledge of the early course of psychosis, its functional significance, and potential to intervene.

Throughout the book, methods of cognitive and functional assessment are highlighted as fundamental to interpretations of findings in this area, with a critical eye toward existing assessment tools and modifications that may be needed to further advance the field. The assessment section does not aim to comprehensively cover currently used neurocognitive batteries. However, it does provide a discussion of influential tools used in schizophrenia treatment studies, including the Measurement and Treatment Research to Improve Cognition in Schizophrenia battery, which seek to redress gaps in earlier assessment approaches.

Overall, this is an excellent and useful reference for researchers and clinicians seeking an up-to-date review of recent advances in several key areas of cognitive research in schizophrenia. Readers will be informed by consideration of a broader range of functional outcomes than have traditionally been considered and their relationships with cognitive function and remediation/enhancement intervention efforts. Researchers and clinicians alike will be informed by a review of the state-of-the art literature in the field and the many exciting future directions in which this field can grow.

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Frontotemporal Dementia, by Bruce L. Miller. New York, Oxford University Press, 2013, 200 pp., \$145.00.

I highly recommend Bruce Miller's extraordinary book, *Frontotemporal Dementia*, to all psychiatrists for two reasons: because it is a fun, interesting, and informative read and because it is important. Unlike most medical books, which are a compilation of chapters contributed by different authors, this book is written entirely by Dr. Miller, a behavioral neurologist who has done more than anyone to treat, study, and bring this fascinating disorder to international attention. Having a single author, the book has a cohesiveness and continuity that many multiauthor medical books lack. With his extensive expertise on the topic, the book is authoritative and current. One of my favorite things about this book is how Dr. Miller's clinical wisdom and expertise complement the discussions of research findings. There are many important issues in the field with a dearth of data, for example, the topic of slowly progressive frontotemporal dementia, and Dr. Miller supplements his discussion of the limited research on these topics with his own extensive clinical experience.

The book is an engaging and well-written overview of frontotemporal dementia and related disorders. It has something to offer for clinicians and researchers at any level, from beginner to experts on this topic. Readers will come away with a broad base of knowledge about the disorders that make up the frontotemporal dementia spectrum. Dr. Miller skillfully integrates important recent research findings with the background knowledge about these disorders to give a sense of where the field is going and why those with these disorders are such an interesting group of patients to care for and study. He covers frontotemporal dementia and related disorders, including language variants and the variants that present with prominent motor symptoms such as corticobasal syndrome, progressive supranuclear palsy, and frontotemporal dementia-amyotrophic lateral sclerosis, from the genetics and neuropathological findings to the imaging findings and clinical presentation.

Sections of particular interest to psychiatrists describe the insights to be gained from these patients on how emotion, empathy, the self, and social cognition are represented in the brain and what happens when these functions are disrupted. The frontal and anterior temporal lobes, more than any other part of the brain, make us "human," and the dysfunction of these systems can lead to fascinating symptoms. Dr. Miller describes a series of his patients with frontotemporal dementia with right frontal degeneration who had dramatic alterations of self, including changes in political views and religion, and patients with right anterior temporal damage who become rigid, unbending, and lost their empathy for others. He describes creative experiments, such as one in which frontotemporal dementia patients watched a videotape of themselves singing the song "My Girl" but did not show the signs of