
BOOK REVIEWS

The Other Side of Normal

DOI: 10.1017/S1355617707070956

Mild Cognitive Impairment: International Perspectives. Holly A. Tuokko and David F. Hultsch (Eds.). 2006. New York: Taylor & Francis, 319 pp., \$99.00 (HB).

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As neuropsychologists, it is our job to differentiate normal from abnormal. We act as arbiters of behavior, defining “impairments” and using normative data and estimates of premorbid functioning to delineate post-injury or post-disease decline. Although one is obviously inclined to steer the diagnostic process in such a way as to comply with the prevailing taxonomy, because of the categorical nature of our classification system, this task is most difficult at the border zones, those areas that lie somewhere between “normal” and “abnormal.” The categories applicable to “abnormal ageing” have varied greatly over the years and are still evolving. Mild cognitive impairment or MCI is one such border zone category, which is believed to be a precursor to dementia in some patients. As with most border zone diagnostic entities, those patients at the cusp of the border will always be most difficult to classify. There will be certain low functioning “normal” people who score marginally low on our tests. Likewise, there will be certain high functioning “abnormal” people who score similarly. Even when the line is drawn with confidence and the MCI diagnosis is rendered, what does one impart to the patient about prognosis given the lack of clear relationship between the diagnosis and conversion to dementia, as well as the lack of clear relationship between the diagnosis and underlying brain pathology? It is a difficult and uncomfortable label because we know that a certain percentage we assign this moniker will “get better” (or is it regression to the mean?), become demented (or do they have less cognitive reserve?), or stay the same (or do they have more cognitive reserve?). The research literature behind abnormal ageing is incredibly diverse with regard to populations studied, methods of assessment, cut-offs utilized, nature and number of cognitive domains considered, and the extent to which subjective patient complaints are considered. As the heterogeneity in this construct becomes more apparent, there is need to increase the number of available labels as evidenced by evolving concepts like “amnesic MCI.” Thus, from a historical and clinical perspective, applying the term “MCI” is a bit like throwing a rock at a moving target.

Mild Cognitive Impairment: International Perspectives, edited by Holly A. Tuokko and David F. Hultsch, is intended to embrace and examine these disparities, scrutinizing the concept of MCI from many different perspectives and methodologies and offering a composite of current thinking. The title describes the overall approach of the book, which is to include findings from various international groups working in this area. The 13 chapters within five sections are intended to provide the reader with a synthesis of various approaches to defining and characterizing MCI. Some authors advocate eliminating cognitive complaints from MCI criteria, some advocate for including executive functioning criteria, and others focus on the need to demonstrate “decline” rather than “impairment.” The chapters vary widely with regard to the breadth of information provided. Some present genetic, neuroimaging, and cognitive data, for example, whereas others primarily focus on cognitive data. Indeed, these different approaches parallel the different approaches taken to studying MCI. Some chapters presume familiarity with certain test batteries and/or provide references for more extensive details, whereas others are more self-contained. Overall, most neuropsychologists will find something of interest here, particularly researchers and those who want more context with regard to the concept of MCI.

The first section is a chapter written by the editors that provides a useful framework and conceptualization for the rest of the book. It includes discussion of the various definitions of “problematic aging” that have been proposed over the years, as well as the difficulty estimating prevalence rates, even when using a consistent definition. Some excellent tables detail terms, definitional criteria, and research. Table 1.3, for example, summarizes the prevalence and incidence research associated with the various definitions, as well as conversion to dementia, institutionalization, and mortality. The chapter ends with a thorough discussion of research design (e.g., selection bias, measurement issues, etc.), and how best to measure intervention effectiveness.

The book is further divided into four additional sections: population-based studies on MCI, specific sample-based

studies on MCI, interventions, and summary/future directions. Overall, this format is useful and facilitates comparison between similar studies. Nonetheless, as with most edited books, the sections are a bit disjointed. A consistent format would have been useful (e.g., introduction, methods, results, and a summary and critique of the section).

Chapter 2 presents an introduction and summary of the Paquid Study (France); Chapter 3 the Kungsholdmen Project (Sweden); Chapter 4 the rural East Cambridgeshire Study, the Cambridge City Over-75s Cohort Study, and the Medical Research Council Cognitive Function and Ageing Study (England, Wales); and Chapter 5 the Melbourne Aging Study (Australia). As one reads this section, the disparate taxonomy and assessment protocols across studies become apparent, making the cautionary remarks in the introduction salient. Because of the contexts within which these large-scale studies were designed and implemented, they were admittedly less-than-ideal for studying MCI, as currently conceptualized. For instance, the Paquid Study did not initially include a delayed recall measure. The novice reader may want more details about certain studies than is presented in these chapters in order to evaluate each study's relevance to current conceptualizations of MCI. For instance, the Kungsholmen Project's full battery is not described, nor are the CAMGOG subscales that reportedly declined most steeply for the MCI-like group in the Cambridge City Over-75s Cohort Study. Despite reference to manipulation of word list learning parameters, like slowly presented versus rapidly presented words and organizable *versus* random words, the chapter on the Kungsholmen Project did not present the relevant findings. This was disappointing after reading the Paquid Chapter, which portends the importance of executive functions (like processing speed, selective attention, and the controlled aspects of memory) in predicting conversion. Overall, the lack of detail provided in the first section is frustrating, but understandable, given the limited relevance to current conceptualizations of MCI. It was nonetheless a useful introduction to pertinent population-based studies.

The third section covers specific prospective studies. The Rush Religious Orders Study results are discussed in Chapter 6 (Wilson, Aggarwal & Bennett), a cohort with a relative homogenous lifestyle and high rate of cooperation and brain donation. MCI in this study is most similar conceptually to "cognitive impairment – no dementia" (CIND). The authors present data related to prevalence, increased mortality, conversion rate to AD at first follow-up, relative rates of cognitive decline in MCI *versus* non-MCI subjects, and the increased risk of AD for those with an $\epsilon 4$ allele. They also discuss methodological issues and the changing risk over time *vis-à-vis* specific cognitive impairments (i.e., those with episodic memory deficits have a persistent risk for developing AD compared to other domains). The final section discusses the intermediate level of AD pathology at autopsy in persons diagnosed with MCI, as well as intermediate levels of cerebral infarctions.

Chapter 7 (Smith, Machulda, and Kantarci) presents findings from the Mayo Group, and a table details the evolution

of their criteria. This is a useful chapter with regard to the data presented and the conceptual issues discussed, such as the individual being viewed cross-sectionally despite the longitudinal trajectory of pre-disease symptomatology, and Petersen et al.'s (2001) conceptualization wherein patients are categorized according to presumed etiology (e.g., amnesic MCI). The authors present a thorough yet succinct review of the correlates of MCI, including neuroimaging findings, genetic studies, and cognitive findings, associated conversion rates; and the risks of residential placement. They conclude with a reminder that the MCI diagnosis constitutes a boundary concept that does not equate with neuropathology but allows for assignment of relative risk.

Chapter 8 (Tierney) about the Sunnybrook Memory Study, a 2-year cohort study in the south of France, and 5- and 10-year cohort studies from the Canadian Study of Health and Aging (CSHA), is a useful chapter for clinicians. The author provides regression coefficients for predicting the likelihood of conversion to AD using age, education, the RAVLT delay recall score, and the WMS Mental Control score to calculate the "Alzheimer Predictive Index (API)." A website is provided where the clinician's entry of MMSE and Informant Rating Scale scores will give a predicted probability of progression to AD, with appropriate cautions. Chapter 9 (Wolf and Gertz) reports findings from the Leipzig Memory Clinic and is unique in its primary focus on biological parameters such as white matter lesions, medial temporal lobe atrophy, hippocampal volume, corpus callosum morphometry, EEG theta activity, ApoE, serum lipids, and mitogenic stimulation of peripheral blood lymphocytes. A table summarizes all the studies conducted in the Leipzig Memory Clinic. There is a good discussion of the changing definitions of MCI related to predictive power and how to define cognitive *decline*. The conundrum inherent in the complex relationship between pathological and clinical symptoms is discussed along with whether patients should be treated for "clinically silent AD" identified using neuroimaging markers. The chapter ends with an important discussion of "added value" and the importance of demonstrating the incremental validity of various biological markers of cognitive decline above and beyond the standard clinical evaluation.

The fourth section summarizes intervention research. Chapter 10 (Chertkow) begins with distinctions between primary and secondary prevention and the rationale behind treating MCI. The chapter reviews relevant pharmacological therapies, including those aimed at symptom reduction (e.g., cholinesterase inhibitors, ginkgo biloba, nootropics, and future "smart drugs") and prevention of AD (e.g., antioxidants, homocysteine, omega fatty acids, estrogen, cholinesterase inhibitors, statins, the "MCI diet," etc.). There is a good discussion of the risk for relying on epidemiological studies prior to controlled, randomized trials of substances, with Vitamin E being a case in point and the ensuing difficulty faced by the clinician about whether or not to encourage Vitamin E supplements. Chapter 11 (Woods and Clare) covers cognitive therapies. These authors begin by discussing the lack of evidence for positive outcomes with cogni-

tive training in early-stage dementia (Clare et al., 2003), but then proceed to discuss large-scale studies that suggest cognitive stimulation may reduce cognitive decline. These authors are appropriately cautious given limited empirical evidence and recommend clinicians consider normal aging and dementia research, as MCI research is still in its infancy. They conclude by presenting 3 case vignettes as examples of the application of an individualized approach. Finally, Chapter 12 (Peters and Winocur) covers the same general topic areas as the preceding two chapters but has an additional section on combined therapies. Pharmacological trials (exclusively cholinesterase inhibitors in this chapter) and different cognitive training approaches (e.g., cognitive retraining, compensatory approach, holistic approach, Rotman approach) are reviewed, as well as combined approaches used primarily with mild AD patients.

The editors conclude admirably, discussing the common theme of MCI as a heterogeneous construct, the implied notion of decline (*versus* impairment) despite the frequent absence of objective evidence, the sub-categorization of MCI (thereby increasing specificity at the cost of sensitivity), the demonstrated importance of memory measures in predicting conversion, ways to potentially improve prediction of conversion (e.g., by examining executive functioning, neuropsychiatric symptoms, decline on higher level IADLs, biological markers, etc.), and the difficulty inherent in studying therapeutic outcomes in a diagnostic entity that lacks a clear relationship

between underlying pathology and manifest behavioral symptoms. They draw a useful distinction for future research endeavors in which MCI can either be viewed as a behavioral descriptor or as a means to elucidate the natural history of degenerative brain disorders. Overall, this is a useful book with “something for everyone.” The clinician will find some chapters (e.g., Chapters 7 and 8) particularly useful in the second section, as well as the intervention section. These latter chapters provide useful summaries of intervention data that can be relayed to patients during feedback. However, the book will be of particular interest to researchers who may view the MCI concept from a variety of different perspectives and through a variety of different parameters. Because the concept of MCI is a moving target, I am saving a space on my bookshelf for the next edition.

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From the Amygdala to Aikido: Bridging World Views

DOI: 10.1017/S1355617707070968

The Neuroscience of Human Relationships: Attachment and the Developing Social Brain, by Louis Cozolino. 2006. New York: W.W. Norton & Co., 272 pp., \$35.00 (HB).

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It is not often that one picks up a book where the author illustrates points by using scientific data gathered through the use of the world's most sophisticated technologies, and experiences in a martial art founded on principles of harmonizing with energy fields. The discipline of psychology has developed over the decades into numerous branches (just see the list of divisions for the American Psychological Association), each of which has focused on exploring a topic deeply. The trade-off for this depth of knowledge or understanding, unfortunately, has often been a decided lack of cross-pollination from other branches. Louis Cozolino attempts to bring together two worlds, that of data-driven neuroscience and of subjective, introspective, relationship-oriented psychotherapy. And, whereas there are places where he may not be completely successful, it makes for a very interesting read.

A question that arose for me while reading the book was whether Cozolino could be successful in connecting with the neuroscientists as well as with the counselors and psychotherapists. Almost every chapter provides descriptions of neurological structures, their function and roles in social

behavior and adaptation, summaries of research findings, and then a clinical case example from a relationship-oriented psychotherapy, intended to integrate the neurological concepts. Readers with strong neuroscience backgrounds will probably find the science descriptions basic. The question is whether they will see the implications of the science in the case examples drawn from a clinical psychotherapy practice, especially since those examples never involve any neuropsychological data. The cases are all interesting and compelling, but in the end, the role of neurological substrate and the effects of personal histories on neurological functioning is speculation. It may be reasonable, but it is still only speculation. On the other hand, the descriptions of brain structures, systems, and functioning are very clearly written and easy to follow for readers with less exposure to neurology or neuropsychology.

A main theme that Cozolino weaves throughout *The Neuroscience of Human Relationships* is that the experiences people have throughout their lives, and particularly experiences involving relationships with other people, have