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Advances in Methodology in Geriatric Mental Health: Application to Studies of Alzheimer Disease and Related Disorders

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Looking back to 1993, the articles published in the American Journal of Geriatric Psychiatry's inaugural issue focused on central questions in geriatric psychiatry – from how age-related changes in brain structure and function affect illness etiology, expression, course and outcomes (Hoch et al., 1993) to how best to identify and address the unmet mental health needs in different populations of older adult (Lehman et al. 1993). Today's journal reflects both an enduring commitment to these questions and the growth of the field itself, both in terms of scientific advancement and the breadth of research that is relevant. Thus questions with pressing clinical and public health significance continue to be addressed but with increasing sophistication in specificity to the questions and the availability of tools to investigate them.

Of particular note in this issue are three articles addressing widely different topics but similarly using new approaches to assessment and measurement that improve our understanding of clinically and social significant problems.

Shori and colleagues focus on the problem of delirium and the question of what makes some patients more vulnerable than others to this condition. Their work builds on previous research on delirium that has identified both predisposing and precipitating factors, the latter involving medical procedures and physiological conditions. Previous neuroimaging studies have identified aspects of brain abnormalities that are associated with the risk of delirium. The goal of this paper is to further clarify whether not any specific areas of the brain are involved in this predisposition. The authors are able to investigate this question by taking advantage of advanced methodology (e.g., MRI technology and analytic procedures) in a study of patients undergoing cardiac surgery. They report strong evidence that reduced volume of whole gray matter, but not whole white matter, is associated with an increased risk of delirium. They also report evidence specifically implicating decreased volume of the temporal gyri. This achievement was due, in large part, to enhancements in how researchers can measure the brain, thereby providing more nuanced understanding of what patients will be at risk for delirium and suggesting potential targets for prevention and intervention.

Fernández-Matarrubia and colleagues focus on the syndrome of apathy in neurological disease, a problem that is both highly prevalent and associated with poor clinical (e.g., faster cognitive decline) and social (e.g., institutionalization) outcomes. To date, research that advances our understanding of preventing, treating, managing, and moderating the impact of apathy on patients with dementia and their families is relatively limited. One reason is that although the diagnostic criteria differentiate three symptom-domains, apathy has mainly

been assessed using single-dimensional measures. One potentially useful multi-dimensional measure of apathy, the Lille's Apathy Scale (LARS), has been tested in patients with Parkinson's Disease but not dementia. The goal of this study was to use rigorous assessment and statistical procedures to test the psychometric properties of the LARS, in particular those of the different domains of apathy in patients with very mild to moderate dementia. The study assessed the measure's reliability (internal consistency, test-retest, inter-rater) and validity (concurrent and criterion validity). ROC (receiver operating curve) analysis identified optimal cutoff scores indicating mild, moderate or severe apathy. The data suggest that the LARS could be a useful and reliable instrument to identify and quantify different dimensions of apathy in persons with very mild to moderate dementia. By identifying a better measure, the results may both improve clinical care and enhance future research on apathy in dementia.

Rather than focusing on clinical conditions, Gleason and colleagues investigate psychological barriers to accessing health care services, specifically factors affecting the willingness of community-dwelling African American older adults to consult their healthcare provider on symptoms suggestive of mild cognitive impairment (MCI). This question is significant clinically given the growing recognition of the importance of timely diagnosis of dementia and mild symptoms. It is particularly relevant to African Americans as this population tends to be diagnosed later in the course of dementia than other racial or ethnic groups, thereby increasing their risk of poorer course and outcomes. Building on work that had been conducted with a sample of predominantly white older adults, the authors assessed psychological factors influencing a person's decision to seek medical attention. The investigators recruited community dwelling older African Americans and, within the framework of Leventhal's Common Sense Model of seeking medical attention, assessed their perceptions of causes, consequences and controllability of MCI as well as their willingness to discuss symptoms of MCI with their health care providers. Using structural equation modeling and other rigorous statistical strategies, the study identified a set of factors that could help improve the cultural relevance and effectiveness of outreach and educational efforts to African Americans, resulting in earlier detection of MCI in this population.

In many respects, assessment and measurement are the backbone of clinical research. The studies reported above used novel approaches to obtaining data and advanced statistical methodology to enhance the extent to which these data represented their targeted constructs (i.e., brain volume, apathy subtypes, psychological factors affecting decision making). While clinical research will continue to rely, at least in part, on structured clinical research interviews and self-report assessments to characterize psychiatric illnesses and symptoms in older adults, the ongoing development of assessment and measurement strategies will offer new windows into questions relevant to geriatric psychiatry, from pathophysiology to implementation of evidence-based practices.

At the same time, while assessment and measurement are critical, attention is equally needed to understand who becomes a study subject and how. The more we know about whom a study's subjects represent, the more we can identify the boundaries of knowledge gained from them. For example, do the brains of people who sign up for clinical research look and

function like the brains of people who decide not to seek attention from the medical profession? Are the attitudes and beliefs of people who attend health fairs the same as those who remain home? Arguably, to the extent we can identify a “sampling frame” that defines the underlying population that the study sample represents, the better we can specify the groups for whom the research findings are relevant. Research often starts with the people most easily found or recruited – those individuals who walk into a clinic or respond to advertisements or answer the phone or open their front door or attend community events. At the same time, think what we might learn from assessing the others – those individuals whom we do not reach through standard sampling or recruitment strategies.

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