

# Cognitive assessment in severe dementia and lower levels of education: reducing negligence

Avaliação cognitiva na demência grave e baixo nível educacional: reduzindo a negligência

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**D**ementia is a devastating age-associated syndrome which is highly prevalent among the elderly, and an increasing problem with regard to public health costs and the use of services. The prevalence of dementia was of 24.3 million in 2001, and the estimate for the worldwide increase of new dementia cases every year is 4.6 million<sup>1</sup>. Furthermore, two thirds of the dementia patients live in low- and middle-income countries placing South America and Brazil at the top of the problem.

Because a growing proportion of older adults with dementia (and particularly Alzheimer disease - AD) are surviving to more advanced stages of the illness it is estimated that one-third of dementia patients are in severe stages<sup>2</sup>. Evaluating from other sources of patients, almost half of community-dwelling patients and around 60% of institutionalized residents with dementia are in moderate or severe stages of the disease<sup>3</sup>. Additionally, severe dementia represents a major problem from the point of view of public health because it is always accompanied by marked functional impairment and frequent psychiatric and behavioral problems, often associated with marked loss of autonomy.

Despite all these facts much research attempts and clinical attention have been directed towards early diagnosis, mild and prodromal stages of this condition, leaving severe dementia relatively neglected. At any rate, the information on cognition of these patients is still based on a relatively small amount of data compared to those on earlier stages of dementia. A partial explanation of the paucity of data is the floor effect reached by most used tests. Few neuropsychological tests are currently available for this purpose, such as the Test for Severe Impairment<sup>4</sup>, the Severe Impairment Battery (SIB)<sup>5</sup> and the Severe Cognitive Impairment Profile<sup>6</sup>. Nonetheless, these instruments require a considerable amount of time and specialized training to administer, consequently they are not practical for brief assessment. The Mini-Mental State Examination (MMSE) is the most widely used tool for brief cognitive assessment, due to its simplicity and reliability<sup>7</sup>. However, this test shows a significant floor effect<sup>8</sup> for patients in more advanced stages of dementia, limiting its use in the evaluation of this specific sub-group. For this reason and based on the MMSE, Harrel and associates in 2000 developed the Severe Mini-Mental State Examination (SMMSE). The SMMSE is a brief assessment that requires minimal training and no special materials.

Other important aspect of the investigation of cognitive assessment in severe dementia is that most of the studies with these instruments were developed with patients of high educational level. Studies on impact of low levels of education in severe dementia patients and instruments for the assessment of cognitive abilities in these patients are even fewer. In Brazil, Wajman and Bertolucci<sup>9</sup> have compared the performance in the severe MMSE with a set of instruments as well as age, education, and disease duration in a sample of fifty moderate to severe probable AD patients in moderate. In conclusion, they found the severe MMSE and the SIB more sensitive for the evaluation of severe stage dementia patients than conventional screening scales like MMSE. The study of Sales and coworkers also in Brazil<sup>10</sup> demonstrated the utility and the reliability of the SMMSE for the brief cognitive assessment of patients with advanced dementia who pertained to low educational levels.

On this issue of the *Arquivos de Neuro-Psiquiatria* Wajman et al.<sup>11</sup> present the objective cognitive responses in moderate and severe Alzheimer's disease patients by way of the

Severe MMSE (SMMSE), correlating with performance in the MMSE, and providing cutoff ranges for accurate assessment and monitoring of these patients. They evaluated, in a cross-sectional design, four hundred outpatients (N=400) with moderate and severe probable Alzheimer's Disease patients consecutively recruited from the Behavioral Neurology Section of the *Universidade Federal de São Paulo*, in Sao Paulo, Brazil, between November 2008 and February

2013. The results showed that the SMMSE was strongly influenced by schooling (mean schooling was 4.4 with a range of 0 to 11 years) and significantly correlated with the MMSE, despite the observed floor effect. Wajman and colleagues considered the SMMSE to be an adequate alternative to assess moderate and severe Alzheimer's disease patients, despite the variations in their educational levels.

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