Mini Mental Status Examination and the Addenbrooke’s Cognitive Examination: Effect of education and norms for a multicultural population

Since its initial publication in English in Neurology in 2000,[1] Addenbrooke’s cognitive examination (ACE)[2] has earned a respected place in behavioral neurology and cognitive neuropsychology. It has the considerable benefit of containing all items of the nearly-universally recognized Mini Mental State Exam, with a number of added items to increase sensitivity to specific dementing diseases such as Alzheimer’s disease and fronto-temporal dementia. Still, administration time is quite brief. French, German, Spanish and Hebrew adaptations have been published[3-5] and a revised English version in three parallel forms was recently published by the original authors.[6] Given the wide international acceptance of English and French as second languages, brief cognitive assessment to diagnose dementia is within reach of most physicians and their educated patients. However, at least two problems remain: not all patients throughout the world are educated and linguistic, ethnic, cultural and religious differences throughout the world make some items either inappropriate or impossible to translate literally. For example, use of a naming item such as a pig is inappropriate in Jewish and Muslim cultures, wherein pork is forbidden and therefore many people have never been exposed to a pig to know what one looks like. Additionally, the concept of ‘regular’ and ‘irregular’ words (words that are or are not pronounced as they are spelled) doesn’t exist in a language like Hebrew, which is entirely phonetic. Thus to be truly valid and reliable, test items must be adapted to the specific country and region in which they are employed and local norms must be gathered. Alas, limited resources in much of the non-Western world often make this an unattainable standard of clinical practice.

The authors of the present study expended considerable effort to adhere to the highest level of practice, both in adapting the ACE to Malayalam in a previous study and in carrying out a demographically representative norming study of elders with particular emphasis on stratification based upon education. Their results make clear the absolute necessity of taking this variable into account in interpreting test results and conducting epidemiological studies: subjects with greater than 12 years of formal education obtained average scores double those of subjects with no formal education. Even though low education is a risk factor for Alzheimer dementia, this is still an extraordinary difference. Interestingly, the average score of these highly-educated elders was nonetheless at the level of dementia according to the original ACE-English norms.[10] Clearly, the normal distribution of the Malayalam-speaking population on the ACE is offset to the left compared to the English population, suggesting residual cultural or linguistic effects. Even so, let us hope that the authors will in the future expand their norming study to younger subjects as well.

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References