

services throughout their lives, as well as intellectual challenges that constitute important stimuli for improving their cognitive capacity. The sample in the Aprahamian *et al.* (2011) study was made up of 321 community-dwelling outpatients from a private geriatric institution. Although lacking full data on the sample's socioeconomic status, patients assisted at private clinics in Brazil are people with better economic conditions, since they have the means either to afford such services or to contribute to private health insurance policies. Probably, the better than average socioeconomic status was the variable chiefly responsible for a sample bias that selects a specific group of people with lower schooling and a better cognitive performance. Incidentally, the authors have suggested that "previous discrepancies associated with education bias have been found between the current sample ... and a sample derived from a public primary care unit in Rio de Janeiro" (Lourenço *et al.*, 2008; Aprahamian *et al.*, 2011), further reinforcing the point of view that the matter is not related to the instrument but rather to the specific characteristics of their sample.

Bottom line: sample and classification bias have determined the results and conclusions reported by Aprahamian *et al.* (2011), with which we vehemently disagree, i.e. that "the CAMCOG retains high accuracy when used in samples of elderly with limited education". Notwithstanding, we have to consider that these data validate the association between cognition and several other socioeconomic and critical cultural factors, always a major consideration in neuroscience projects.

Conflict of interest

None.

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Reply

We thank you for the opportunity to respond to the letter written by Dr. Lourenço and Dr. Paradelo, our colleagues from Rio de Janeiro. We understand scientific progress relies on lively debate and exchange of experiences; therefore, we also thank our colleagues for the opportunity to reflect upon our previous findings.

We identified three major issues in their letter and we respond to them in the items below.

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1. CDR = 0.5 as Alzheimer's disease. It is well known that the Clinical Dementia Rating (CDR) was developed to stage cognitive impairment and that CDR = 0.5 may represent early stage AD or mild cognitive impairment (MCI). In our study, the 37 subjects with CDR = 0.5 presented with significant functional impairment and, therefore, were classified as early-stage AD (Mayeux, 2010).
2. We agree with our colleagues that the validation of cognitive instruments developed under different cultural backgrounds is a complex process which requires several steps. Nonetheless, when we

initiated data collection we used the only available version of the CAMCOG adapted and validated by Bottino *et al.* (2001), who presented data suggesting appropriate psychometric characteristics for the battery. Several other Brazilian studies have used this version (Nunes *et al.*, 2008).

3. We also agree with our colleagues that “participation in social, cultural and labor activities are fundamental experiences which determine the overall capacity of the brain.” One of the interesting points of our paper is showing that the CAMCOG depends upon aspects other than education. Our sample was recruited from a private clinic and most likely has a better socioeconomic profile than samples from public services. Our sample also had a monthly income of around US\$ 882 (equivalent to three minimum wages in Brazil), which does not equate to saying that our population was not poor. In Brazil, because of insufficient public health resources, people from various economic layers reach private services for better quality. In addition, Jundiaí is a city in São Paulo with high human development index. We understand our findings suggest that the impact of education on cognition may be mediated by cultural and socioeconomic factors which may come into play after formal schooling takes place. For further information on this topic, please refer to other papers from our group (Arahamian *et al.*, 2010; 2011)

In summing up, the authors do not agree that the presented findings were affected by “sample and classification bias.”

Conflict of interest

None.

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Complementary and alternative medicine usage among Alzheimer’s disease patients

Use of complementary and alternative medicine (CAM) is common in chronic diseases. To investigate its relevance in Alzheimer’s disease (AD), we interviewed 38 patients and an attempt was made to determine the type of CAM used and reasons for using it.

CAM generally refers to medicinal use other than contemporary or conventional medicine, though there is no uniform definition (Federspil and Vettor, 2000). CAM use is common in degenerative neurological disorders, especially in diseases with

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no known cure, such as AD. This is particularly so in countries like India where more than 100 systems of medicine are practiced and the use of drugs of limited or with no evidence of effectiveness is widespread.

Patients were asked to specify who suggested that they use CAM and whether they noticed any improvement following CAM use. Patients were randomly selected from a neurology outpatient department of a tertiary care hospital. All had mild to moderate AD. Eleven patients out of 38 studied (29%, M:F, 10:1) confirmed that they had used CAM over the last six months. Their pattern of CAM use was as follows: *Ayurvedic* = 8 (21%); *Homeopathy* = 2 (5.3%); *Accupuncture* = 1 (2.6%).