

Poster presentation

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## Neuropsychological and pragmatical assessment of arithmetical cognition in illiterates

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from International Society on Brain and Behaviour: 1st International Congress on Brain and Behaviour Hyatt Regency Hotel, Thessaloniki, Greece, 20–23 November, 2003

Published: 23 December 2003

Received: 1 November 2003

*Annals of General Hospital Psychiatry* 2003, **2**(Suppl 1):S142

This article is available from: <http://www.general-hospital-psychiatry.com/content/2/S1/S142>

### Background

It is well known that illiterate people despite the lack of schooling develop numerical and arithmetical skills. The purpose of this study was to examine numerical abilities in a sample of 31 illiterate females mean age 61.96 years. All the subjects had never received any other form of formal education of reading or writing, due to historical and social reasons.

### Material and Method

Study I: Having excluded mental retardation and possible dementia, all the subjects were examined during study I with the "EC-301R" battery – version for illiterates (Deloche et al., 1999), which consists of 10 simple tasks. Study II: In order to investigate the above mentioned ability we introduced 3 new subtests. An approximation test and two transcoding tests from Arabic numerals and orally given numerals respectively to black and white photocopies of original banknotes.

### Results

Study I: Our main findings conclude that illiterates subjects are able to perform counting tasks, have knowledge of number sequencing, can compare magnitudes of numerals and can operate simple addition and subtraction. They are also able to recognise the Arabic numbers up to ten (100% of subjects) and to some extent up to twenty (80–90% of subjects), but this ability is not applicable for numbers larger than 100. Finally no correlation was noticed between any of the subtests and the age parameter. From our results we noticed an unexpected capacity of the illiterate subjects to handle money in a range of amounts which far exceed their numerical abili-

ties. They were able to give the correct answer from orally given numerals to original banknotes (95.66% accuracy).

Study II: All the subjects were able to give the correct approximate answer in original banknotes. In transcoding from orally given numerals to B/W photocopies of banknotes their performance dropped dramatically to 30.5% in comparison with the same subtest with original coloured banknotes (95.66% accuracy).

### Discussion

We hypothesise that the colour of the banknotes is a property "symbol" which can potentially mediate in illiterate subjects the transcoding of the verbal form of numerals into banknotes circumventing the Arabic code.