

# THE TOWER OF LONDON TEST: GREEK NORMATIVE DATA FOR USE WITH URBAN POPULATION AND ANALYSIS OF THE INFLUENCE OF DEMOGRAPHIC VARIABLES

Kroupi C<sup>1</sup>, Zourna C<sup>1</sup>, Liozidou A<sup>2,3</sup>, Babili I<sup>1</sup>, Sirigonaki K<sup>4</sup>, Makropoulou A<sup>1</sup>, Etairidou G<sup>1</sup>, Pavlou I<sup>1</sup>, Anifantaki T<sup>1</sup>, Fioranti E<sup>1</sup>, Andreakos N<sup>1</sup>, Zalonis I<sup>1</sup>

<sup>1</sup>Neuropsychological Laboratory, 1st Neurology Department, Eginition Hospital, National and Kapodistrian University of Athens

<sup>2</sup>Neurology Department, Henry Dunant Hospital Center, Athens

<sup>3</sup>Psychology Department, Faculty of Human Sciences, Athens Metropolitan College

<sup>4</sup>Institute of Applied and Computational Mathematics, Foundation for Research and Technology, Iraklion, Crete

## Abstract

**OBJECTIVE:** The Tower of London Test (TOL) is a neuropsychological tool designed to evaluate executive functions (EF). The purpose of this study was to collect Greek normative data for the TOL and to explore potential influence of demographic variables on the TOL performance.

**MATERIAL - METHOD:** TOL was administered to 301 healthy individuals (132 men, 169 women; minimum-maximum age: 16-86 years old; mean age= 44.56 years (SD= 18.15); mean educational level= 13.15 years (SD= 3.37); handedness right= 93.9%) as part of a neuropsychological battery. Participants were classified into five age groups: 16-25, 26-39, 40-50, 51-59, 60-70 and 71-86 years. The sample was further classified into three educational levels: 0-6, 7-12 and 13-18 years. Several TOL variables were calculated and one-way analyses of variance were performed to explore the relationship between TOL performance and age, sex and educational level.

**RESULTS:** Significant differences on TOL performance were found among age groups. Overall, the 26-39 years group performed better as compared to the 60-70 and the 71-86 years groups. Elderly participants underperformed on Total Execution and Completion Time, as well as on Total Rule and Time Violations as compared to the younger age groups. Sex was not significantly related to TOL performance. Participants with 0-6 years of education underperformed as compared to the participants of the higher educational level group (13-18 years).

**CONCLUSIONS:** Our study presents TOL normative data for the Greek urban population and further confirms the relationship of age and education to the TOL performance.