

## ABSTRACT

**Objectives:** Scope of the present study was to compare objective measures of neuropsychological performance with the subjective evaluation of the corresponding performance as well as to investigate differences in the self-assessment profile of PD patients and cognitively intact individuals. **Methodology:** 28 participants diagnosed with PD (25 males, age=63.13±11.32 years) and 33 control subjects (30 males, age=59.82±10.27 years) were examined with an extended battery of neuropsychological tests. After every test they were asked to self-evaluate their performance by comparing it to what they considered as average for people of their age and educational level.

**Results:** Significant differences were found in the self-assessment patterns of the two groups in episodic memory measures as well as on tasks engaging executive and attentional resources. PD patients overestimated their performance on attentional and visuospatial tasks while control participants underestimated their performance on measures of episodic memory. **Conclusions:** The findings indicate a generalized difficulty of patients with PD in assessing their performance on neuropsychological measures that could reflect an impairment in monitoring mechanisms

## INTRODUCTION

- Current research regarding self-awareness of cognitive deficits in Parkinson's Disease is sparse (Koerts, 2011; Dujardin 2010)
- Most studies have focused on awareness of motor deficits in PD (Amanzio 2010). Patients with bilateral motor symptoms seemed to be less aware of their motor difficulties than those with unilateral symptoms (Prigatano, 2010)
- In comparison to Alzheimer's Disease (AD) patients, PD patients preserve greater levels of awareness of deficits, however those with greater cognitive deterioration show denial or underreport their impairments (Seltzer et al., 2001)
- Most of the current research agrees that the degree of impaired self-awareness about motor or functional abilities is generally mild but might increase on the presence of depressive, other neuropsychiatric or neurocognitive symptoms (Leritz, 2004; Amanzio, 2010)

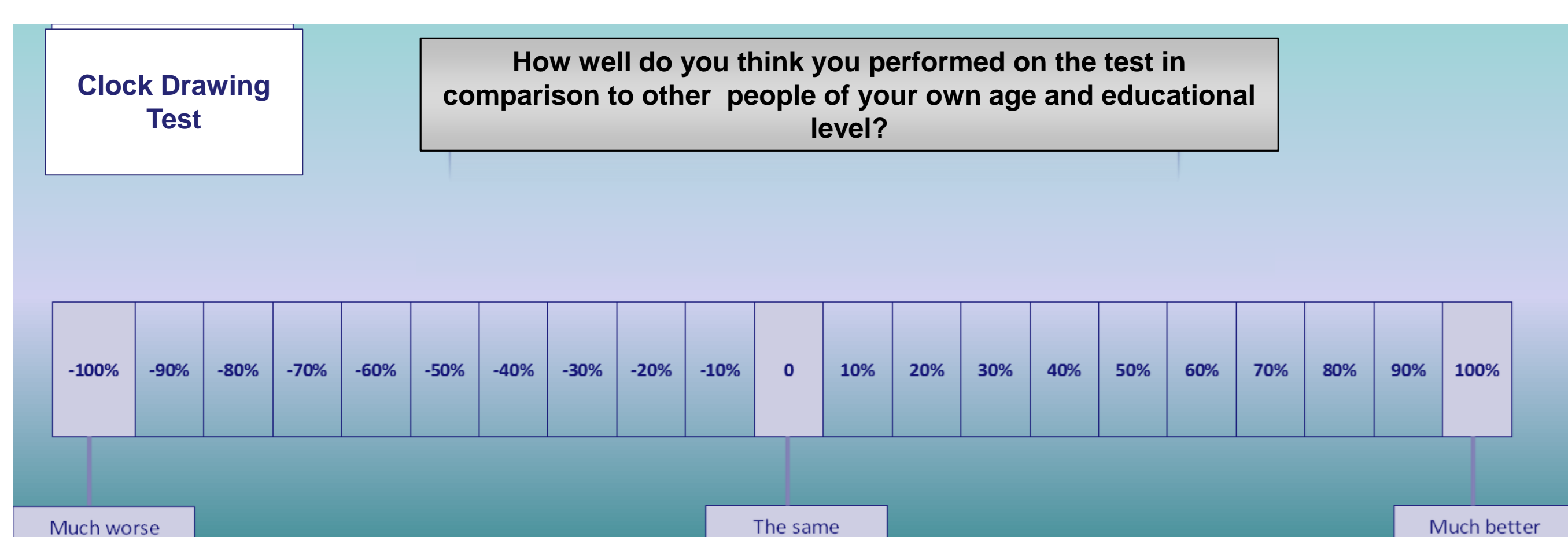
## OBJECTIVES

The purpose of this study is to compare neuropsychological performance of PD patients and healthy elderly and investigate the discrepancies between subjective and objective performance on the cognitive tests administered in both groups

## PATIENTS & METHODS

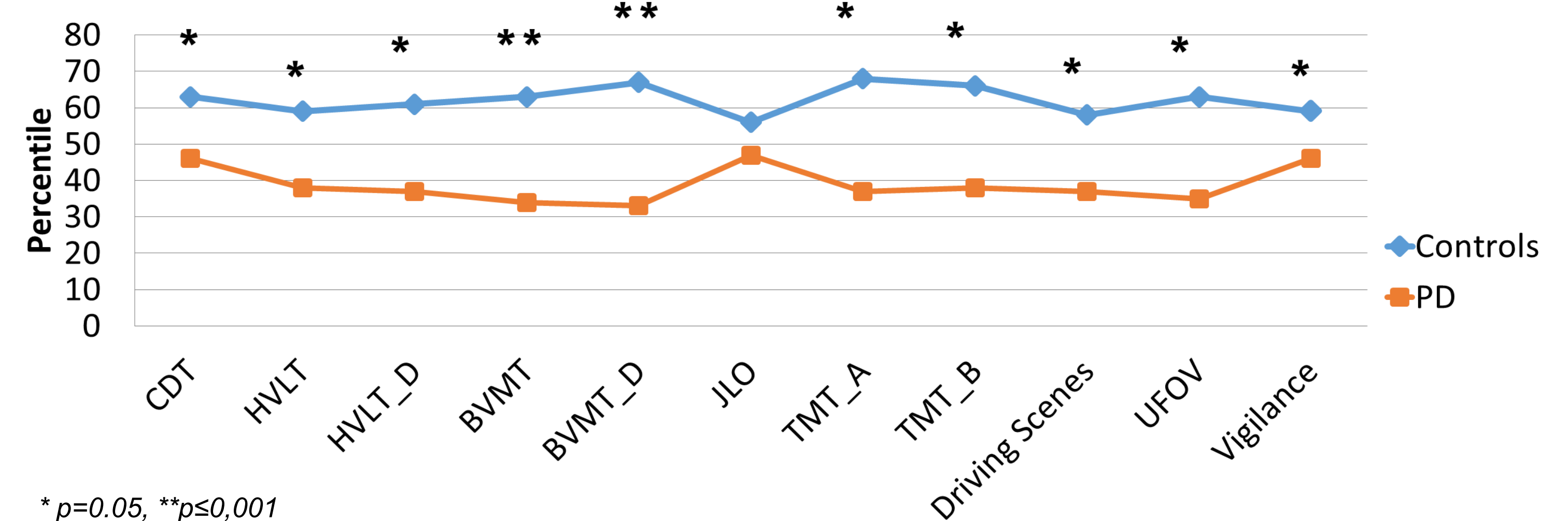
- Twenty-eight PD patients (mean age: 63.1 ±11.32 years, disease duration: 5.26 ± 4.1 years, mean Hoehn&Yarh=2±0.34) and 33 controls (mean age: 59.8 ±10.27 years) were currently included in the study.
- Each participant was examined by a neurologist to verify the diagnosis of PD.
- Patients with PD were all in the ON state.
- Neuropsychological assessment included cognitive abilities of memory and learning (verbal & visuospatial), visuospatial perception, attention, reaction time and executive functions through an extended battery of neuropsychological tests including Clock Drawing Test (CDT), Hopkins Verbal Learning Test – Revised (HVLTR), Brief Visuospatial Memory Test – Revised (BVMTR), Judgement of Line Orientation (JLO), Trail Making Test A & B (TMT A & B), Driving Scenes Test, Useful Field of View (UFOV) and Psychomotor Vigilance Test.
- After each test, participants were asked to estimate their performance on a scale ranging from -100 to +100 with 10-point intervals expressed as percentages in comparison to people of their own age and educational level. A score of -100 indicated that their performance was much worse from other peoples', a score of zero (0) that they performed on average and a score of +100 that they performed much better from the average mean.
- Independent samples t-tests were performed in order to investigate differences between the two groups regarding the self-assessment performance patterns (Chart 1) and the objective neuropsychological performance (Chart 2)

Figure 1. Example Of the self-assessment scale



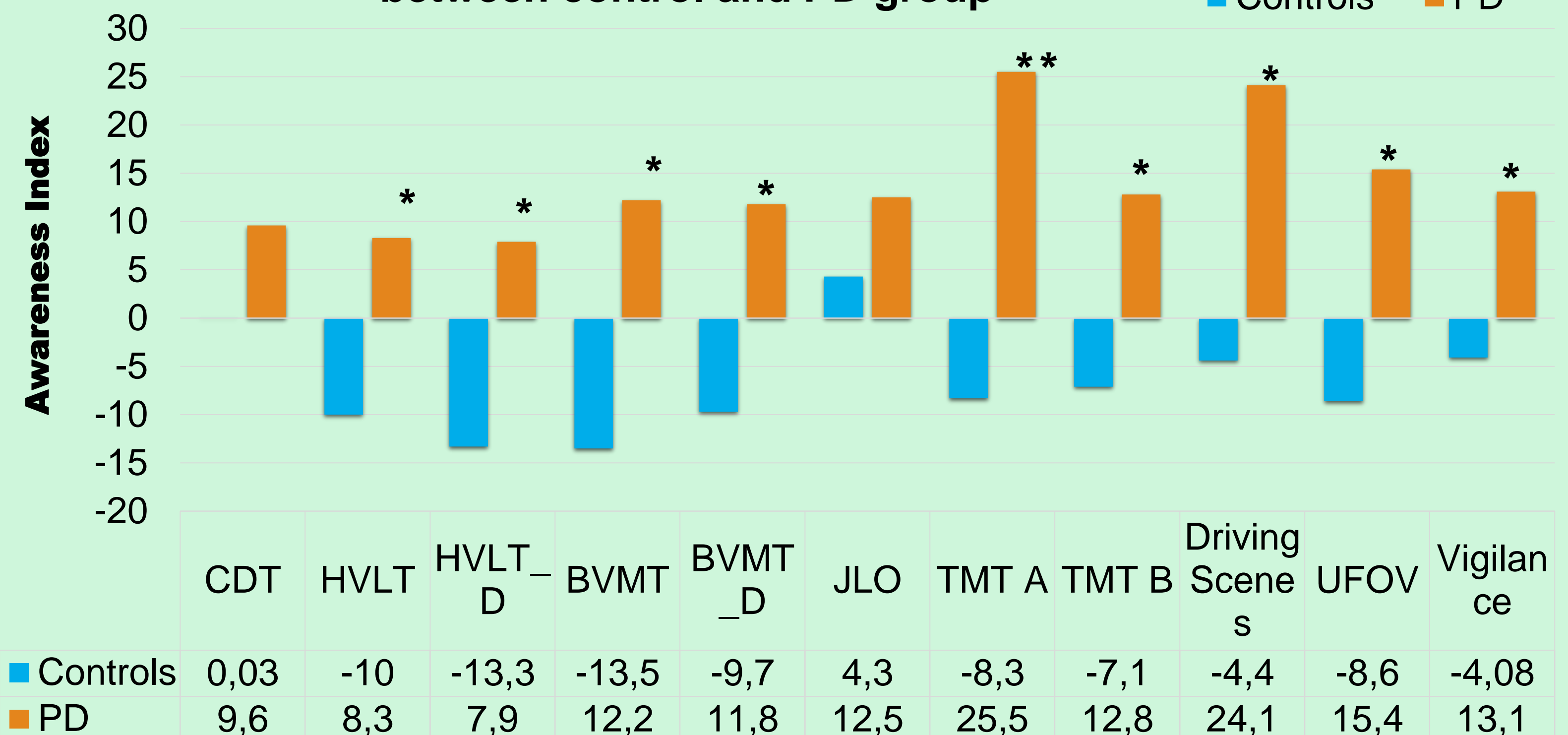
## RESULTS

Chart 2. Performance on neuropsychological tests between the two groups



\*p=0.05, \*\*p<0.001

Chart 1. Comparison of self-assessment discrepancies between control and PD group



\*p=0.05, \*\*p<0.001

## DISCUSSION / CONCLUSION

- The current results indicate that PD patients present difficulties assessing accurately their cognitive performance
- PD patients exhibited a significantly worse performance on objective neuropsychological testing with the exception of measures of visuospatial perception (JLO)
- Significant differences in the self-assessment of the two groups were found in every cognitive measure assessed with the exception of visuospatial perception (JLO). A pattern of overestimating performance was observed in the PD group up to the level of 25% and of underestimating performance in the control group up to the level of 15%
- Executive impairments that are commonly observed in PD patients could potentially explain their difficulty to evaluate accurately their performance
- To our knowledge, this is the first study that evaluated self-awareness in PD patients in multiple cognitive domains and compared it to their objective performance

## SUMMARY

- The relationship between self-awareness and cognitive performance in PD has not yet been adequately addressed.
- Comparing subjective evaluations with objective neuropsychological measures by taking into account differences in cognitive domains yields promising results.
- Overall, understanding the concept of self-awareness is of critical importance for proper support, care and treatment.

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