

EXISTENCE OF DIFFERENT PROFILES IN LONG COVID PATIENTS WITH COGNITIVE COMPLAINTS

C.CABELLO FERNANDEZ (1), V. DIDONE (1), H. SLAMA (2), G. DUPUIS (3), F. COLLETTE* (1), S. WILLEMS* (1)

(1) Uliège ; (2) ERASME (ULB) ; (3) UQAM ; *Contributed equally as co-last author

BACKGROUND

- Difficulties in memory, attentional and executive functioning are observed in a large number of Long COVID patients (1)
- In addition, cognitive complaints are among the most reported symptoms(5) and persists even two-years after infection (6)
- Origin is likely multifactorial (e.g. direct viral infection of the CNS, hypoxia, hyperinflammation, vascular lesions, mitochondrial dysfunction, neuropsychiatric comorbidities, autonomic nervous system dysfunction or a combination) (2)
- Furthermore, different profiles of Long COVID patients have been observed for cognitive difficulties (3)

AIM

To characterise Long COVID patients according to their cognitive performance and perception of difficulties in daily life

METHODS

- Data are from an ongoing RCT funded by KCE (4)
- **Patients** : 123 (aged 47 ± 10 [21-66]; 39 males; 20 months ± 8 [4-39] since infection) with cognitive complaints following one or more Covid-19 infections
- **Neuropsychological assessment** : global cognitive performance (MOCA), verbal and visuo-spatial long-term memory (RBANS, BVMT-R), processing speed, selective attention (D2-R, TAP), divided attention (TAP), inhibition (STROOP), verbal fluidity, flexibility (TAP) and working memory (BROWN-PETERSON, TAP)
- **Psychological and somatic symptoms** : self-reported questionnaires for complaints with executive and attentional functioning (BRIEF-A), memory complaints (MMQ), fatigue (MFIS), quality of sleep (PSQI), psychological distress (OQ-45), quality of life (ISQV) and reduction in work and activity (WPAI))
- **Structured interview for complaints reporting**

RESULTS

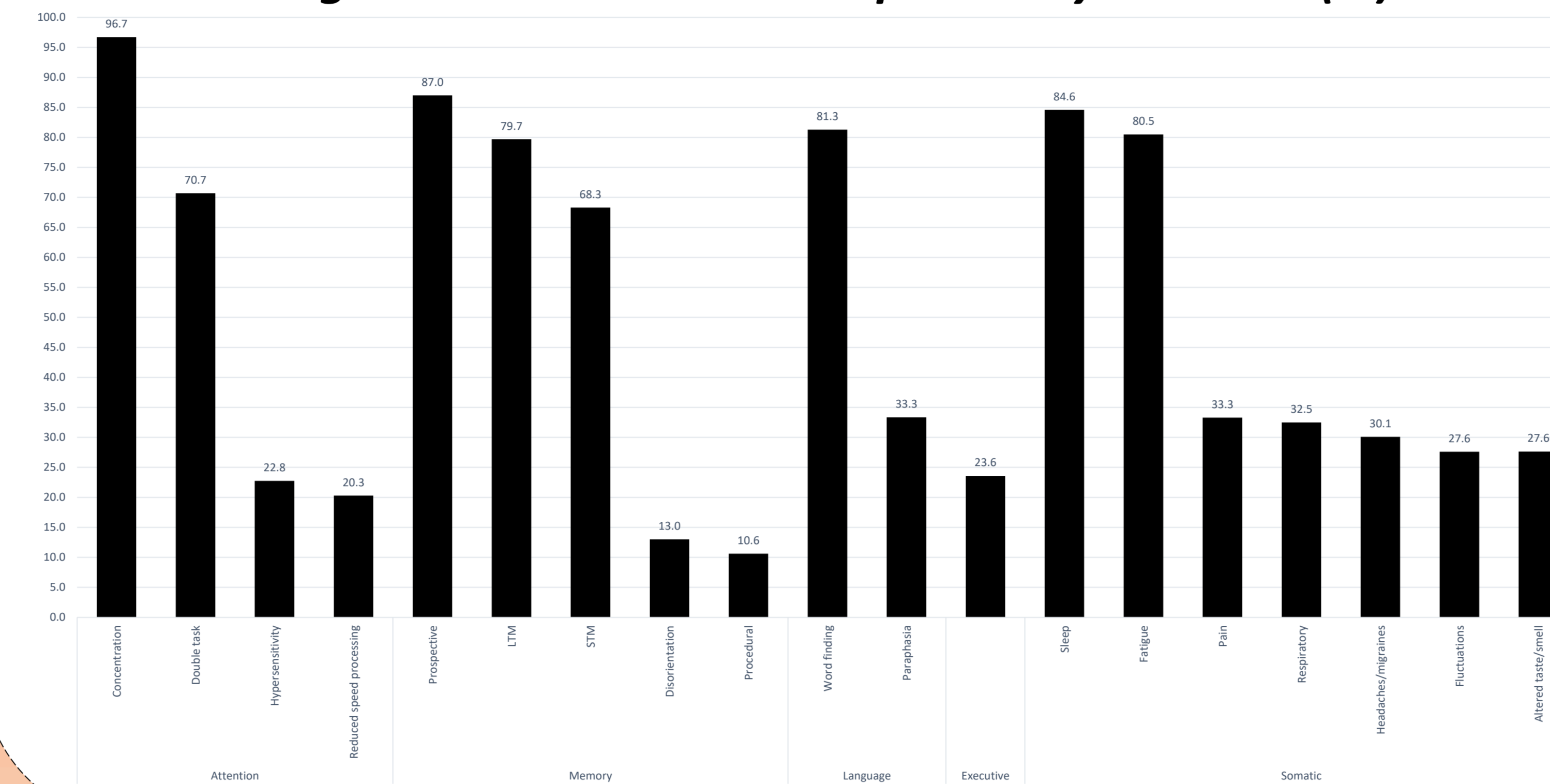
Exploratory Factorial Analysis : 2 composite factors (executive attentional and processing speed factor) + 3 simples variables (verbal long-term memory, update and interference management in working memory)

Latent Profile Analysis : 3 profiles based on cognitive performances (all $ps < 0,01$)

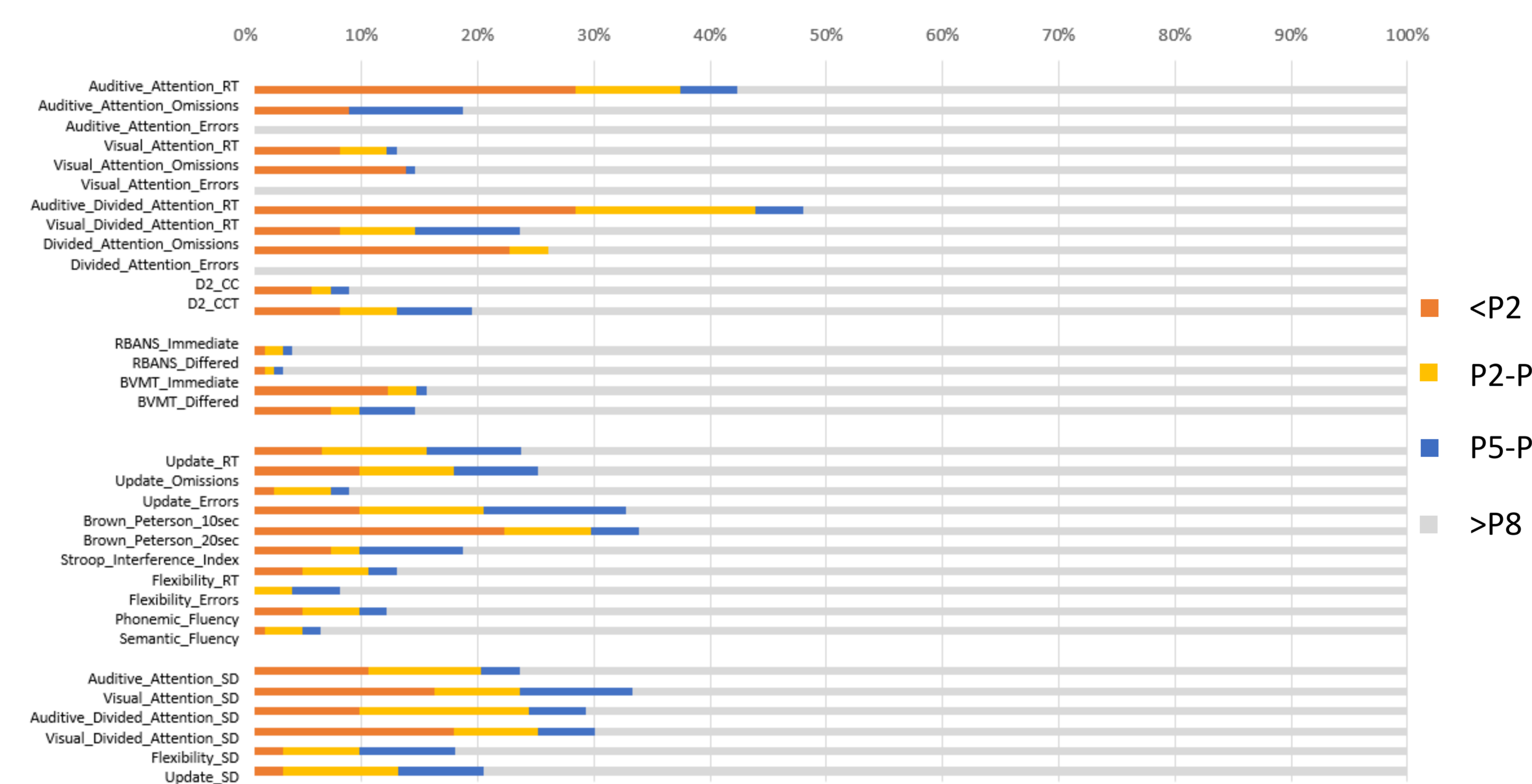
Neuropsychological Assessment outcomes :

- Profile 1 has the lowest performances with marked difficulties in selective auditory attention and strong attentional fluctuations
- Those difficulties are also presents but in a minor proportion in profiles 2 and 3
- Profile 3 is characterised by the added presence of long-term verbal memory difficulties

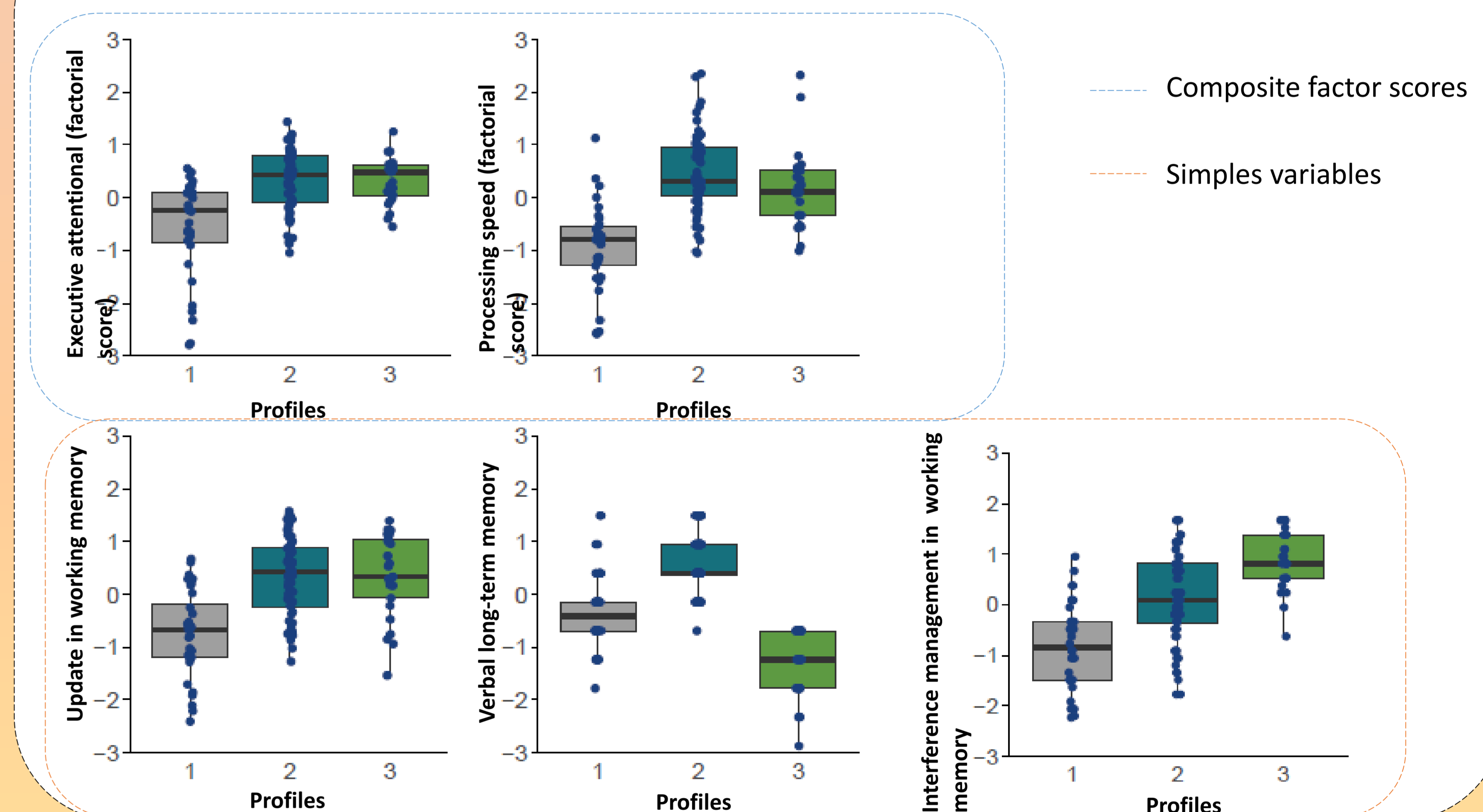
Cognitive and somatic complaints by domains (%)



Cognitive impairment by neuropsychological tasks (%)



Profiles based on cognitive performances



Robust ANOVAs :

- The severely impacted profile (profile 1) has higher complaints about their executive functioning and memory capacities + reports higher cognitive and physical fatigue (all $ps < 0,02$)
- The profile with specific memory impairment (profile 3) has the lowest complaints, including on the memory questionnaire (all $ps < 0,014$)
- All participants have a low self-reported quality of live, high psychological distress and a strong overall impact on their daily activities

CONCLUSIONS

- **Different profiles** of individuals reporting cognitive complaints after a Covid-19 infection can be identified based on their cognitive performance
- They also **differ in their cognitive complaints and in physical fatigue symptoms**
- As **decrease in well-being and quality of life** seems to affect all long COVID patients, an integrative approach that focuses on both **cognitive and affective aspects** should be favoured in rehabilitation programs

(1) Jaywant et al. 2021 *Neuropsychopharmacology* ; Diar Barkerly et al. 2024 *Int. J. Environ. Res. Public Health* ; (3) Voruz et al. 2022 *Brain Communications* ; (4) Willems et al. 2023 *BMC neurology* ; (5) Lambert et Corps 2020 *Symptoms Survey Report* ; (6) Fernández-de-Las-Peñas et al. 2023 *J. Infect.*

