

# EFFECTS OF TWO INTERVENTION PROGRAMS IN COVID-LONG PATIENTS WITH COGNITIVE COMPLAINTS : MULTIPLE CASE STUDIES

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INTRODUCTION

- **Long-term cognitive sequelae** have been reported following infection with COVID-19, even in the milder forms of the disease.
- In addition to **subjective complaints**, objective difficulties are observed in the domains of **attention, executive functions, working memory** and **long-term memory** [1]
- The origin of cognitive difficulties is likely multifactorial :
  - indirect effect on the central nervous system (CNS) (e.g. autoimmune response) [2]
  - direct effect in the CNS (e.g. virus itself, proinflammatory cytokines) [1]
  - (exacerbation by) psychological factor and fatigue [3]
- **Psychoeducational interventions** are very effective in managing cognitive difficulties in some neurological conditions (e.g. TBI) [4].

OBJECTIF

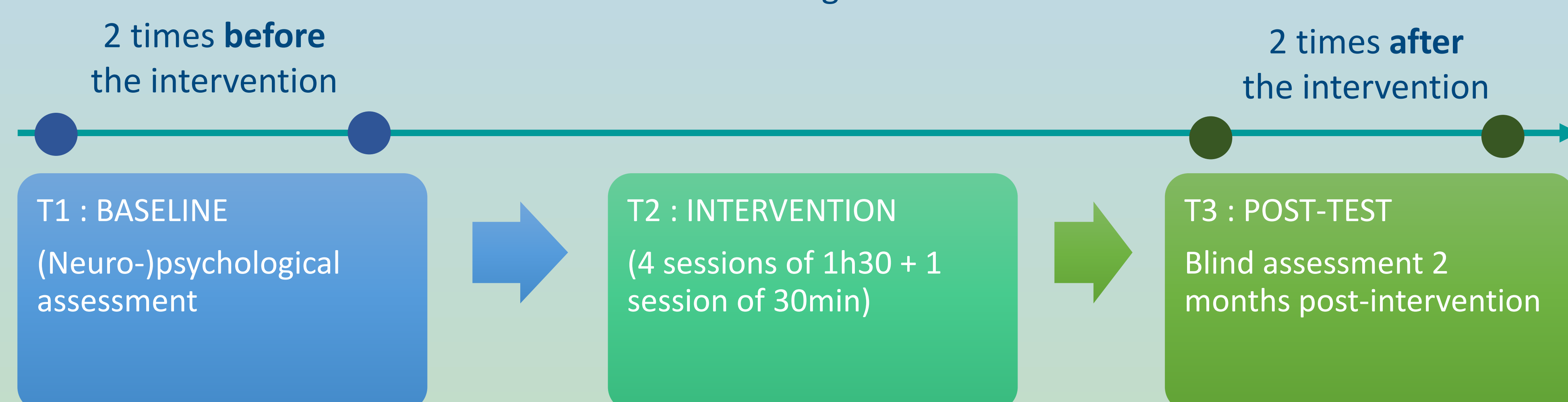
To evaluate the effectiveness of two different psychoeducational interventions, targeting Cognitive or Affective management, respectively, on self-reported goals at the Goal Attainment Scaling in patients with long-term COVID.

PARTICIPANTS

- 18 patients (Cognitive: 9 ; Affective: 9)
- Age: 45,8 ± 9,1 [range: 33-64]; Sex ratio: 3 Male/15 Females
  - Inclusion criteria :
    - > 3 months after Covid infection
    - Cognitive complaint objectified by BRIEF or MMQ questionnaires (scores < 20<sup>th</sup> percentile)
    - Poor objective performance supported by a score below the 20<sup>th</sup> percentile on one task of the cognitive battery

DESIGN

Primary outcome was measured with **Goal Attainment Scaling (GAS)** [5] with **three therapeutic goals**. For each goal, patients are asked to place on a VAS where they are at the moment and where they would like to be. Each goal was assessed :



### NEUROPSYCHOLOGICAL ASSESSMENT

- **Objective tests** assessing global cognitive performance (MOCA), verbal and visuo-spatial memory (RBANS, BVMT-R), attentional functioning (D2-R, selective and divided attention), executive functioning (verbal fluidity, STROOP, flexibility) and working memory (BROWN-PETERSON, updating)
- **Subjective evaluation** of executive functioning (BRIEF), memory (MMQ), quality of live (ISQV and EQ-5ED), fatigue (M-FIS), quality of sleep (PSQI), psychological distress (OQ-45) and work and activity (WPAI)

**COGNITIVE INTERVENTION**

→ A metacognition approach was adopted. The aim was to learn appropriate strategies to prevent the impact of cognitive difficulties on daily living

The following topics were addressed :

- Fatigue and sleep
- Working memory
- Executive functions and attention
- Long term memory

**AFFECTIVE INTERVENTION**

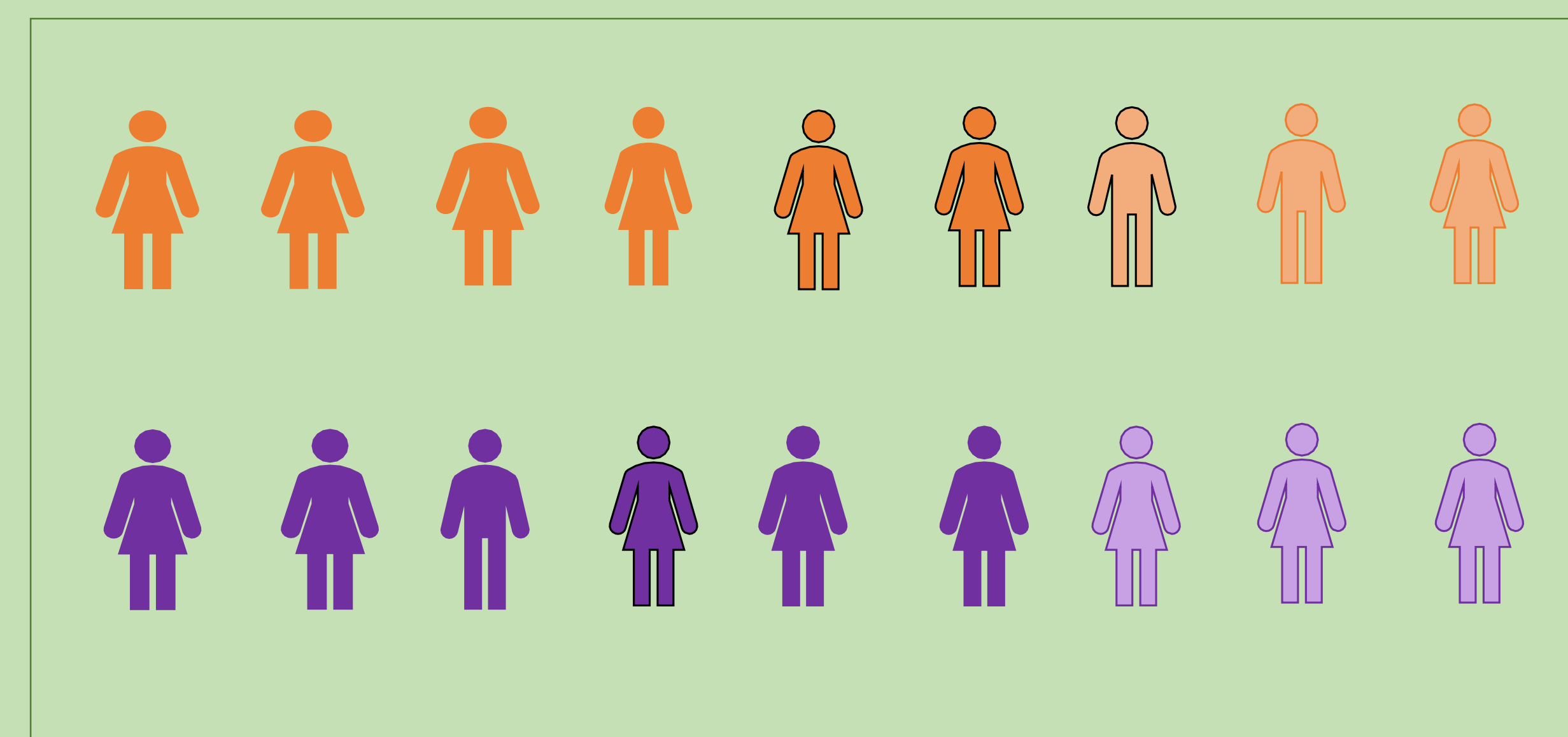
→ A Cognitive Behavioural Therapy (CBT) approach was adopted to target the affective reaction that may aggravate the difficulties

The following topics were addressed:

- Recognition of difficulties and associated emotions
- Tolerating uncertainty and managing anxiety
- Accepting difficulties and communicating emotions
- Reconnecting to one's own values and reactivating

RESULTS

- Attainment of objectives at the GAS (gap between current and desired situation) for the **Cognitive intervention** showed improvement for six of the nine patients with medium to large effect size (TAUs= -.61 ; -.83 ; -.94 and -.1).
- An improvement was also found for six of the nine patients allocated in the **Affective intervention** with medium to large effect size (TAUs = -1 and -.66).
- No deterioration was observed for any of the participants.
- 3 patients allocated in the cognitive intervention and 1 patient allocated in the CBT intervention have statistically more ambitious goals after the intervention, with a medium to large effect size (TAUs= -.86 ; -.77 ; -.66 ; -.83).



**COGNITIVE INTERVENTION**

- Improvement observed after the intervention (Solid Orange)
- No Improvement (Light Orange)

**AFFECTIVE INTERVENTION**

- Improvement observed after the intervention (Solid Purple)
- No Improvement (Light Purple)

More ambitious goals after the intervention (White box)

DISCUSSION

Results obtained with GAS suggest that both cognitive and CBT psycho-educational programs reduce the impact of cognitive difficulties in daily life for some patients. These results are preliminary findings from an ongoing randomized controlled trial involving 130 patients.



More info about the trial !

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