2024 Consortium Satellite Meeting, Pavia

Monday April 8th, 2024

Cognitive exercises of semantic differentiation (Co.Di.S.) as a potentiating strategy in the rehabilitation of psychosis: the role of multidimensional language assessment

Giorgio Di Lorenzo

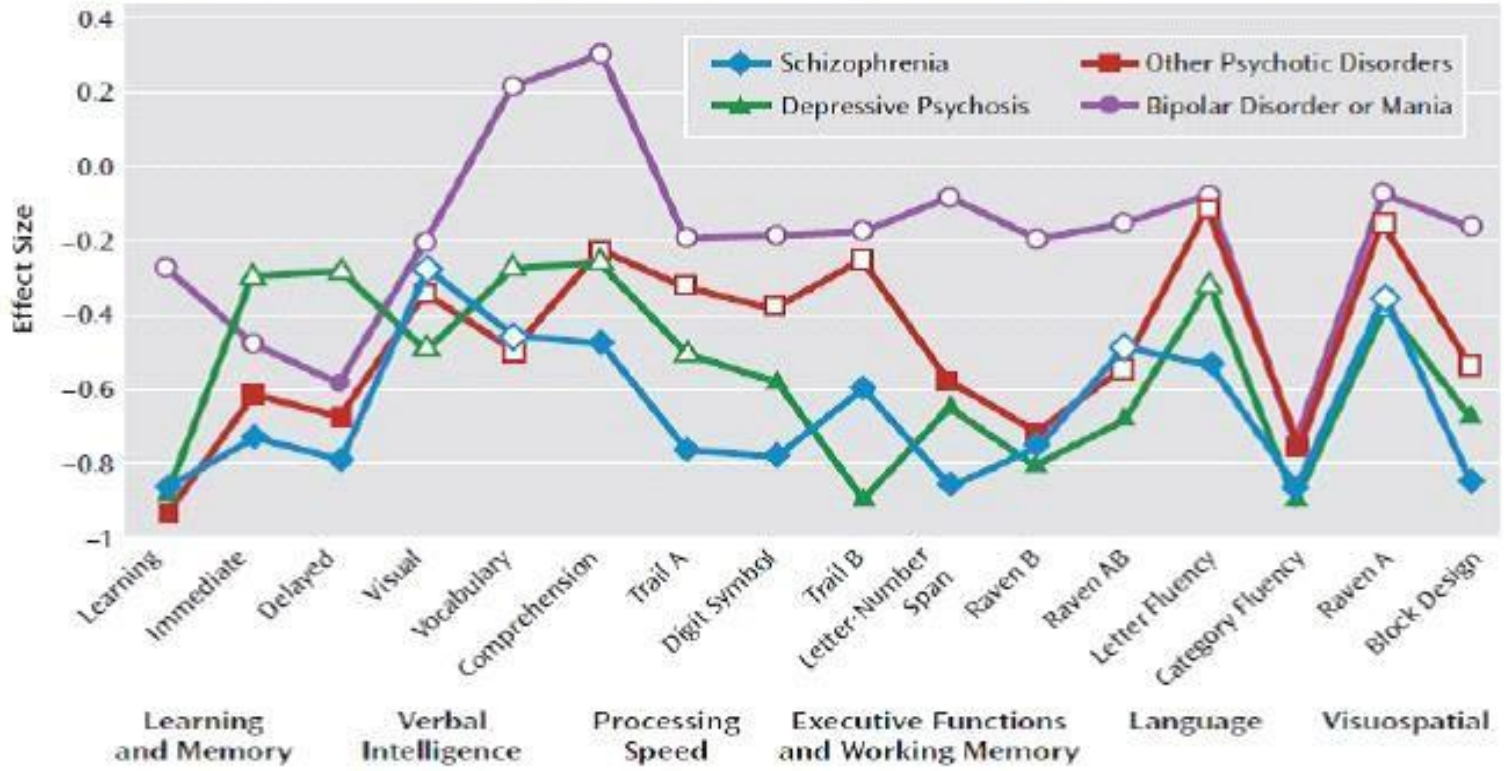
Department of Systems Medicine

Tor Vergata University of Rome

di.lorenzo@med.uniroma2.it

Specific and Generalized Neuropsychological Deficits: A Comparison of Patients With Various First-Episode Psychosis Presentations

FIGURE 2. Neuropsychological Performance Among Patients With Various First-Episode Psychosis Presentations[a]



[a]Filled symbols represent a statistically significant difference between the diagnostic group and healthy comparison group at a Bonferroni-corrected level ($p \leq 0.007$). Mean scores (comparison subjects set to zero) were calculated using all available diagnostic subjects per test (expressed in standardized [z] scores). Trail A=Trail Making Test, Part A; Trail B=Trail Making Test, Part B; Raven B=Raven's Colored Progressive Matrices set B; Raven AB=Raven's Colored Progressive Matrices set AB; Raven A=Raven's Colored Progressive Matrices set A.

Am J Psychiatry 167:1, January 2010

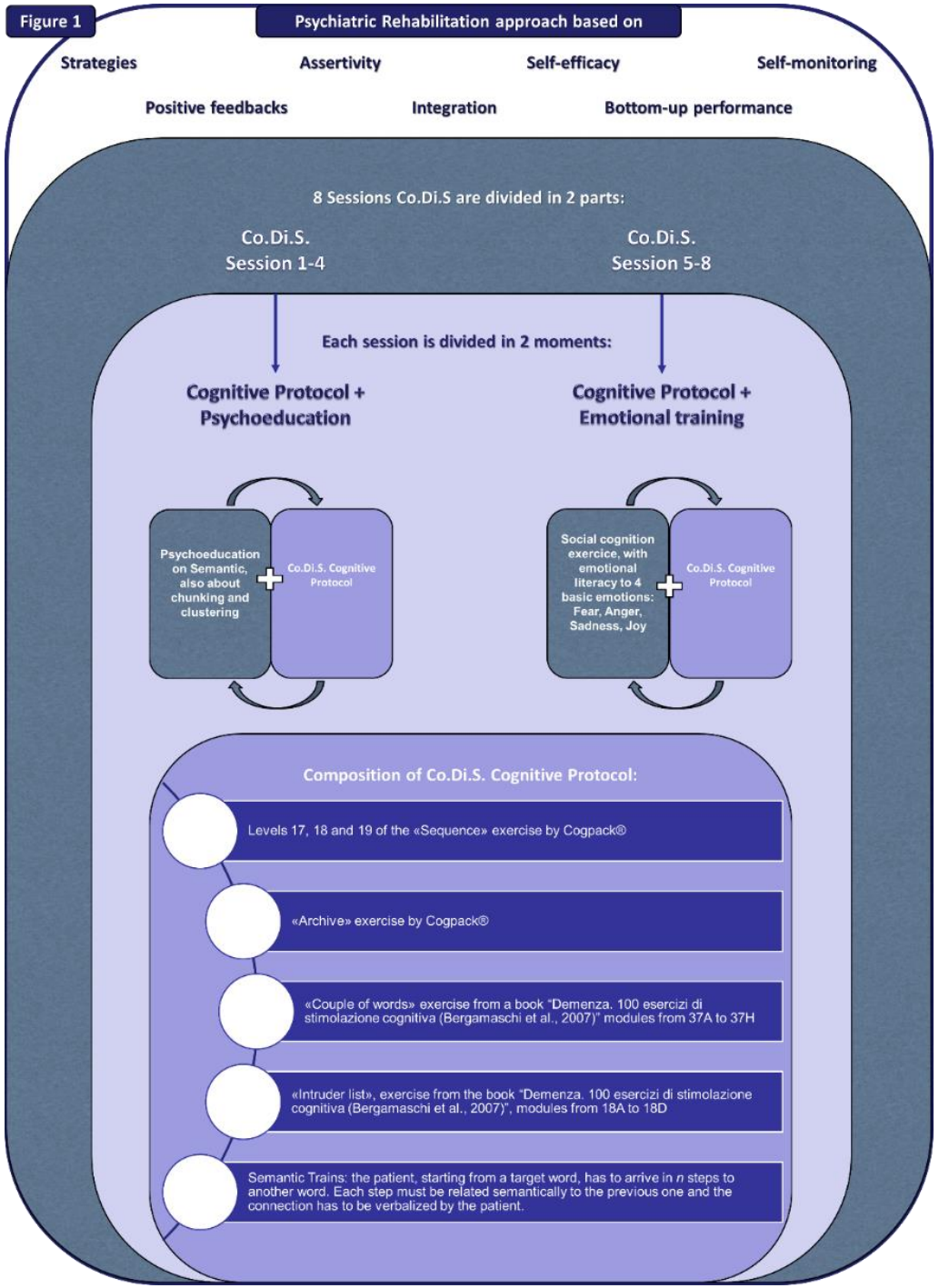
Cognitive exercises of semantic differentiation
Esercizi Cognitivi di Differenziazione Semantica (Co.Di.S.)

- Co.Di.S. is a new approach to psychiatric rehabilitation based on the Cognitive Remediation method of a stepped-care, recovery-oriented, bio-psycho-socio-cultural nature for the stimulation of skills relating to the semantic network, a central element in the interpretation and taking care of users belonging to the psychosis spectrum.

Cognitive exercises of semantic differentiation

Co.Di.S.

Esercizi **Co**gnitivi di **Di**fferenziazione **S**emantica

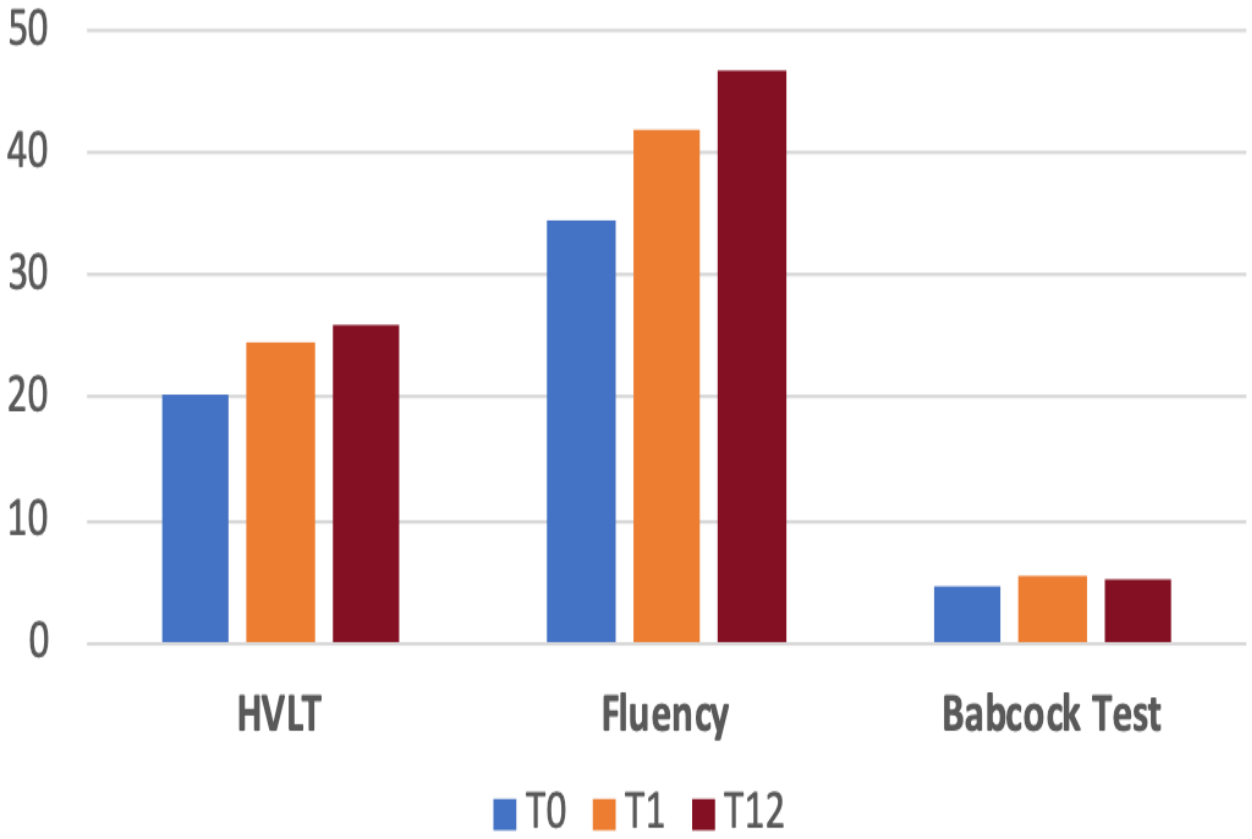


Assessment

<u>Cognitive and functioning domains</u>
Pre- and post-treatment, at 12 and 24 months (T0, T1, T12, and T24)

<u>Linguistic domains</u>
Speech recording in the pre- and post-treatment phase (T0 and T1)

Cognitive functioning and Co.Di.S.

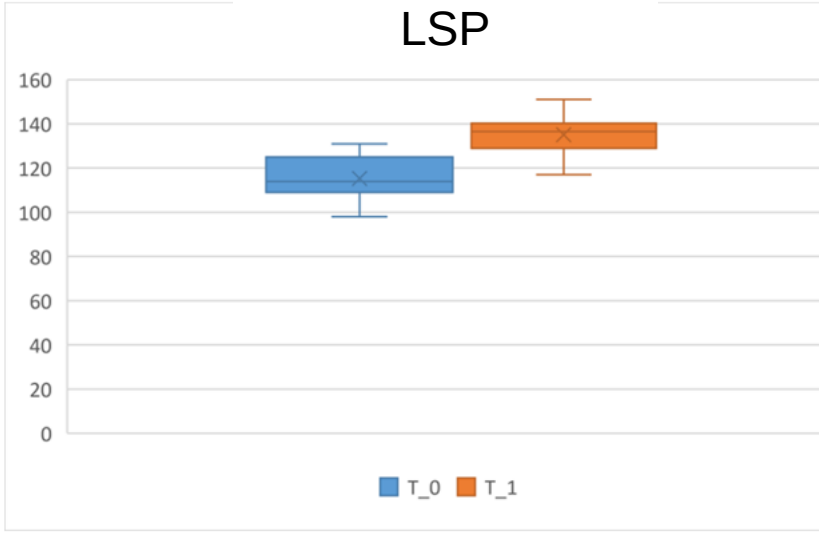


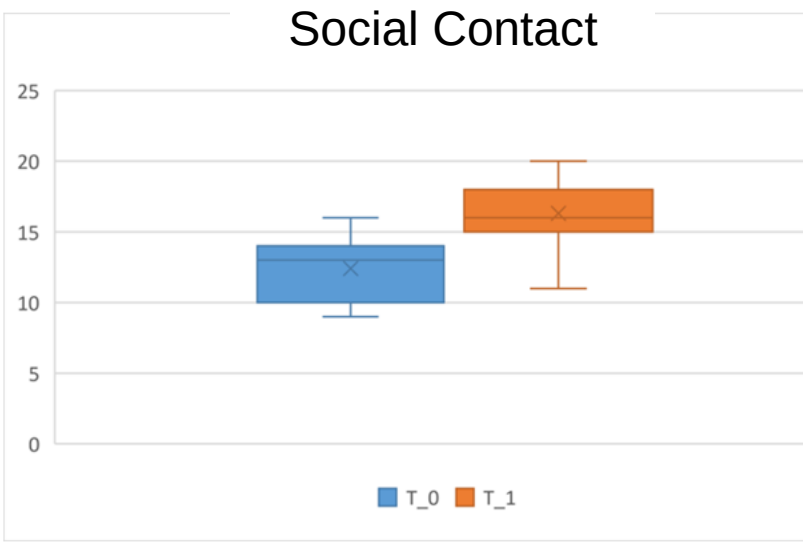
At the end of the “Co.Di.S.” protocol, significant improvements were observed:

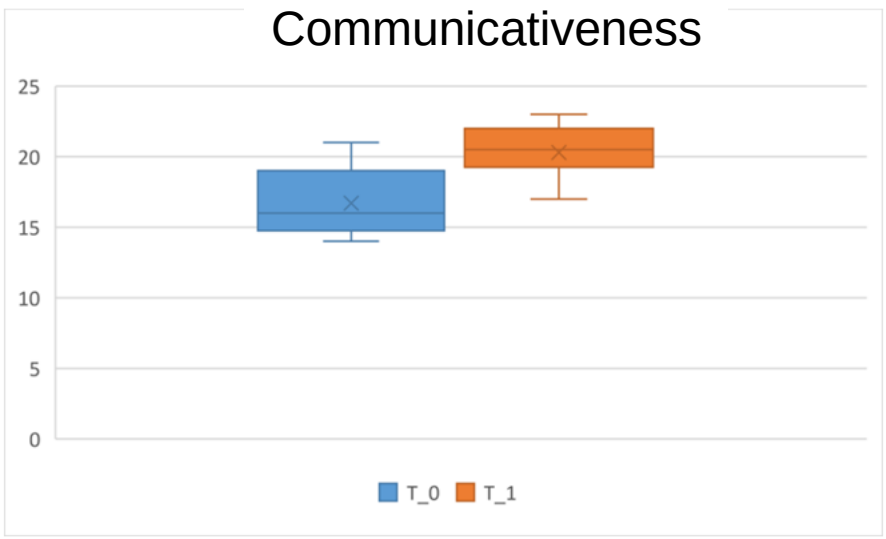
- in verbal learning and memory in general;
- in Fluency for Semantic Categories;
- in clustering processes in the HVLT subtest of the MCCB and the Backcock test (better use of semantic advantage).

The HVLT, Semantic Category Fluency, and Babcock Test improvements were also stable at 12 and 24 months of follow-up.

Social functioning and Co.Di.S.







d = 0.72

d = 0.64

d = 0.63

Social functioning measured with the LSP (Life Skills Profile) test showed:

- a significant improvement in the «Self-care», «Non-Turbulence», «Communicativeness», and «Social Contact» scales of the LSP at the end of treatment with CO.DI.S.;
- a significant increase at T12 and T24 compared to T0 and T1, particularly in communication skills [*data not showed*].

Language analysis
with artificial intelligence methods

Università di Roma Tor Vergata

Language analysis carried out during assessments

- Faux-Pas
- Monster Box

SEMANTICASE

Wordcloud

Word frequency

Sentiment

PIAZZA COPERNICO
LEARNING EXPERIENCE EVOLUTION

Faux-Pas

SEMANTICASE

Controls

T0

From the Wordcloud emerges the prevalence of words such as:

"definitely" in the control group, unlike the patient group from which the wordcloud shows the prevalence of words such as "let's say", "maybe", "in short", all words that indicate a lower degree of certainty.

Università di Roma Tor Vergata

Monster Box

Gruppo Controllo

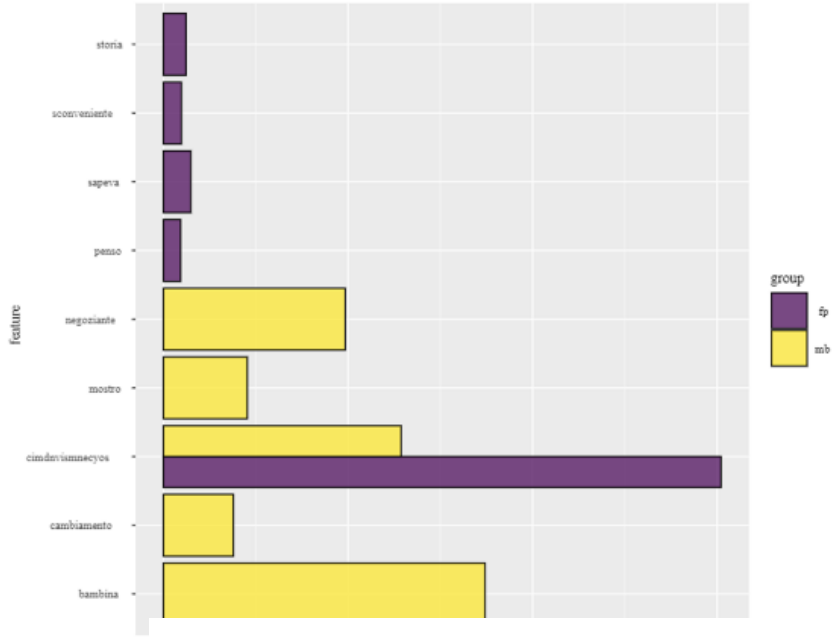
T0

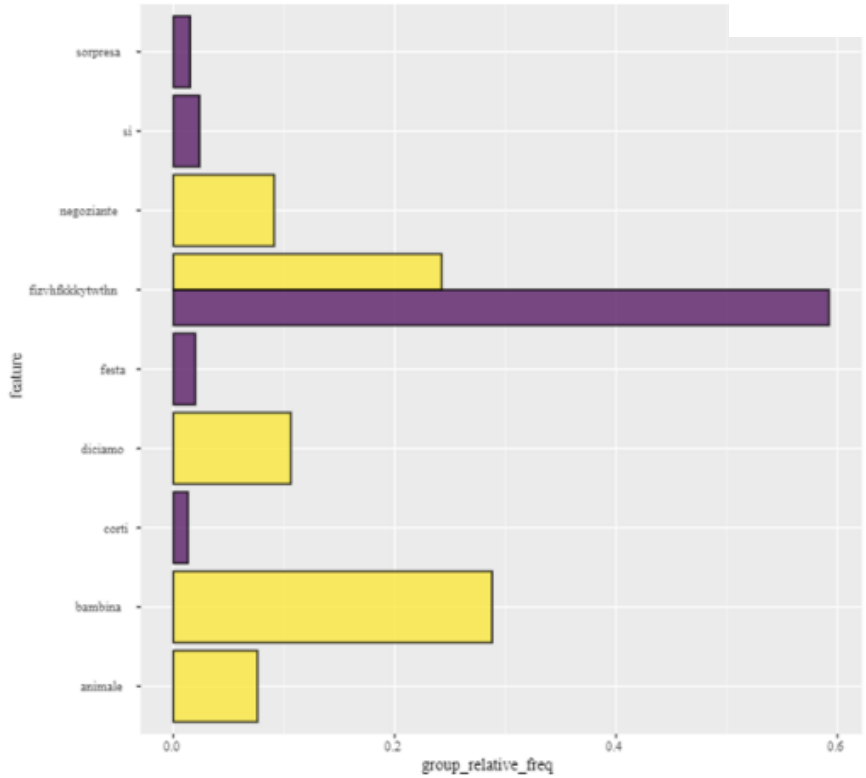
SEMANTICASE

Word frequency

Controls

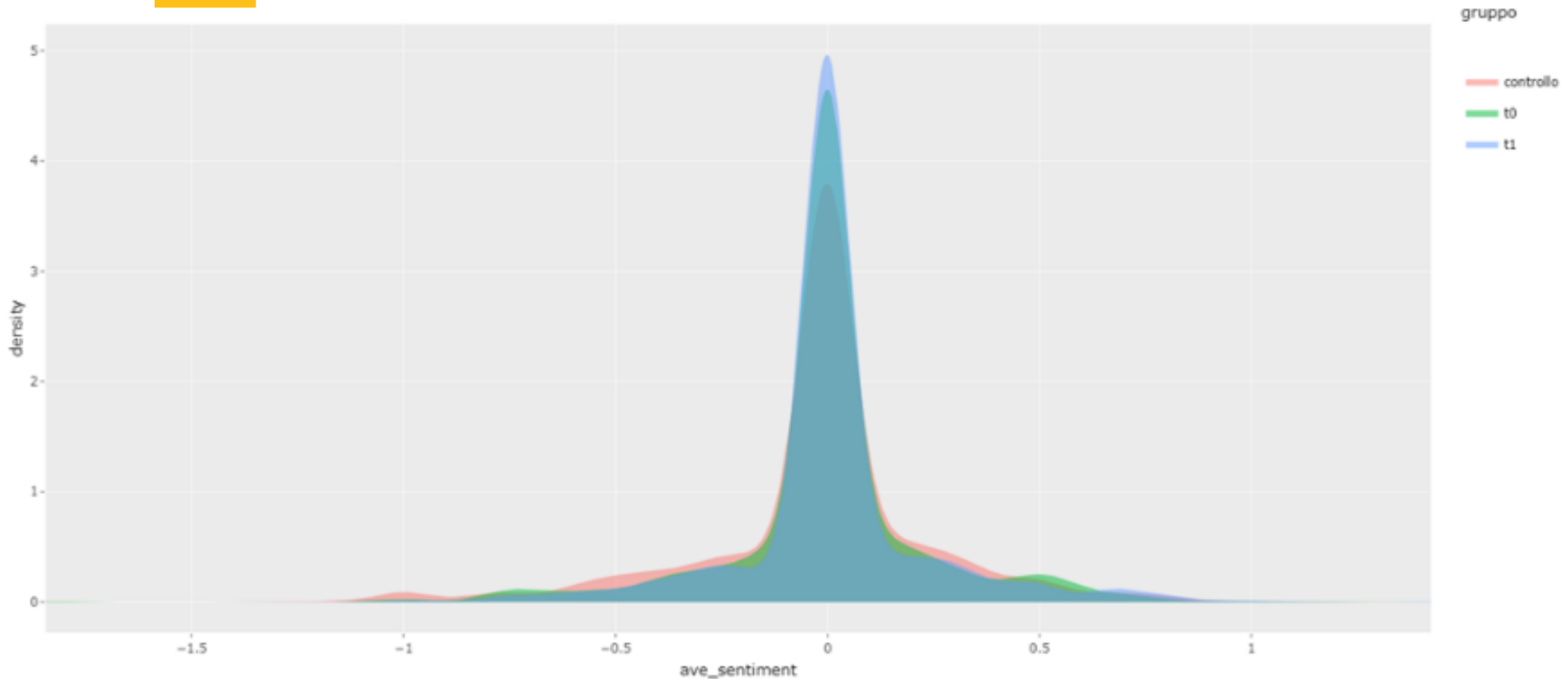
Università di Roma Tor Vergata





SEMANTICASE

Sentiment



Università di Roma Tor Vergata

- From the analysis of the sentiment compared between the three groups, we observe how the density is lower in the control group and higher among the patients, in particular, it increases at T1: this could be due to the work on semantics (?) (in fact from the cognitive evaluations it was found an increase in verbal fluency).
- On the other hand, sentiment is better delineated in the control group than in the patient group (T0 and T1): healthy people encode feelings such as fear, disgust, surprise, and sadness better.

Comments and perspectives

- In the preliminary study, the Co.Di.S. intervention seems to determine a semantic enhancement.
- Language analysis with artificial intelligence methods integrates standard assessment and provides different information on the effects of rehabilitation interventions.
- “Real-life” methods (such as, for example, ecological speech recording) could integrate the study of communication and language in the various phases of the rehabilitation process.