

# Cognitive Pragmatic Treatment: The Importance Of Close Observation Of The Adaptation Process

Ilaria Gabbatore<sup>1</sup> & Francesca M. Bosco<sup>1,2</sup>,  
Prof. Francesca M. BOSCO<sup>3</sup>,  
Dr. Ilaria GABBATORE<sup>4</sup>

<sup>1</sup>*Department of Psychology, University of Turin, Turin, Italy;*

<sup>2</sup>*Institute of Neurosciences of Turin, Italy;*

<sup>3</sup>*Department of Psychology, University of Turin*

*Via Verdi, 10 10124 Torino (Italy)*

*e-mail: [francesca.bosco@unito.it](mailto:francesca.bosco@unito.it)*

<sup>4</sup>*Department of Psychology, University of Turin*

*Via Verdi, 10 10124 Torino (Italy)*

*e-mail: [ilaria.gabbatore@unito.it](mailto:ilaria.gabbatore@unito.it)*

## Introduction

Muthu, Nambi, Krishnan, & Vijayaraghavan (2023a) wrote an interesting paper discussing the effectiveness of a training that showed to determine improvement in Theory of Mind and Quality of Life in people with schizophrenia. As the authors of this commentary are the first and last authors of the paper presenting the Cognitive Pragmatic Treatment (Gabbatore et al., 2015), from which the authors state their treatment was adapted, we would like to highlight the potential of such results, but also provide some clarifications on the data presented.

The first point has to do with some theoretical background and definitions. Pragmatics is the use of language and other expressive means to convey meanings in a particular context (Holler & Levinson, 2019). According to Sperber & Wilson (2002), pragmatics is a submodule of Theory of Mind (ToM), i.e., the ability to understand one's own mental states and those of others, and behave accordingly (Premack & Woodruff, 1978). Based on such a definition, several studies have used pragmatic tasks to assess ToM. For example, the Strange Stories task (Happé, 1994), a classic test used for measuring advanced aspects of ToM, includes examples of irony, jokes and figure of speech, which are considered pragmatic tasks in the relevant literature. More recently, however, some authors

have criticized this perspective, arguing that ToM and pragmatic ability do not completely overlap (Bosco, Tirassa & Gabbatore, 2018; Domaneschi & Bambini, 2020). In particular, from our point of view, the exact nature of the relationship between pragmatics and ToM is far from clear and thus these abilities need to be addressed and evaluated separately. Indeed, a number of empirical studies both during development (e.g., Angeleri & Airenti, 2014; Matthews et al., 2018) and aging (Bischetti et al., 2019), as well as under clinical conditions (e.g., Martin & McDonald, 2003; Parola et al., 2018) have shown that the aforementioned skills are correlated but they are distinct capacities and they do not totally overlap.

The accurate distinction between ToM and pragmatic ability is particularly important, not only from a theoretical point of view, but also because of their clinical and educational significance: these two abilities need to be assessed separately in order to verify specific areas of impairment and to plan targeted rehabilitative and training programs. For example, the literature on typical development (e.g., Pronina et al., 2021) has found that children's pragmatic ability improves after conversational and interactional training, but attribution of mental states does not. On the other hand, a study of Marraffa & Araba (2016) points out that treatments specifically targeting ToM do not determine an improvement of communicative abilities in

children with ASD. These results confirm the need to specifically differentiate both training activities and assessment measures.

In light of these considerations and empirical data on assessment in different populations, Gabbatore et al., (2015) developed the Cognitive Pragmatic Treatment (CPT), from which the study of Muthu and colleagues (2023) gets inspiration. The CPT was created to improve and enhance pragmatic ability at first in individuals with traumatic brain injury, resulting in improvement at both behavioral (Bosco et al., 2018) and neuronal (Sacco et al., 2016) level. In addition, the CPT was slightly modified, i.e., the content and the sessions' focus were revised and the number of sessions was reduced, to be used with people with schizophrenia (Bosco et al., 2016). Once again, participants showed an improvement at both behavioral and neuronal level after the administration of the program (Gabbatore, Bosco et al., 2017). More recently, CPT was further modified for use with teenagers and administered to a group of 21 autistic adolescents, with improvements in both pragmatic understanding and production (Gabbatore et al., 2022).

In all of the above mentioned studies and clinical samples, the results indicated a significant increase in scores when comparing post-training and pre-training performance on participants' pragmatic ability assessed with the equivalent forms of the Assessment Battery for Communication (ABaCo; Bosco et al., 2012). In all studies, pre- and post-training cognitive and ToM assessment was also conducted, showing no significant effect of the CPT in improving ToM skills. This discrepancy with the results obtained in the study of Muthu et al., (2023a) is easily due to the fact that the training they mention in their work was only inspired by the CPT, while it is not the adaptation of the original program, which actually was never made available in the full version. This is also reflected in the different general structure of the training described: the original version of the CPT for schizophrenia (Bosco et al., 2016), indeed, consisted of 20 sessions and each session lasted about two hours with a break, while the training proposed by Muthu and colleagues (2023a) consists of 24 sessions of one hour each.

The translation and adaptation of an instrument, both for assessment or training purposes, involves a series of steps that can be roughly summarized as follows: (a) translation and back-translation to ensure complete consistency between the translated and original versions; (b) content validity testing, conducted by both experts in the field and naïve assessors, to determine if changes need to be made to adapt to the linguistic and cultural context in which the instrument is to be used; (c) a pilot study on the general population to check for possible ceiling effects and/or outliers or further changes needed; (d) analysis of the psychometric properties of the new translated and adapted version.

In addition to the differences in the proposed training with respect to the original one, there are also differences in the assessment measures used before and after training. In our studies, we paid close attention to the possibility of using the equivalent forms of the same tools, consisting of tasks with the same level of difficulty and structure, but with different content, in order to avoid any learning effect. It is possible that the use of simple tasks such as Sally & Ann (Baron-Cohen et al., 1985) or Smarties tasks (Perner et al., 1989) have led to a learning effect that may partially explain the improvement observed by Muthu and colleagues (2023a) in the post-training and follow-up assessment.

Finally, in another paper published more or less at the same time (Muthu, Nambi, Krishnan, & Vijayaraghavan, 2023b), the authors seem to find results consistent with our previously discussed data (Bosco et al., 2016; Gabbatore, Bosco et al., 2017) and line of reasoning, and report that their training led to improvement in pragmatic ability as assessed with the Pragmatic Protocol (Prutting & Kirchner, 1987). The fact that two studies with the same population and the same training program describe two different sets of results could lead to confusion.

In summary, we are pleased that the Cognitive Pragmatic Treatment (Bosco et al., 2016; Gabbatore et al., 2015) may be of interest to other researchers and clinicians, and we are happy to make it available for adaptation for languages and cultural contexts other than Italian, as this would also allow cross-cultural comparisons (see for

example Agrela et al., 2020; Dordević et al., 2016; Gabbatore et al., 2019, for the adaptation of the equivalent forms of the Assessment Battery for Communication in other languages). In addition, adapting existing instruments and interventions rather than developing new ones is a good strategy to optimize resources and reduce crowding-out among research groups working on similar topics. However, the program created by Muthu and colleagues (2023a) is not an adaptation of the CPT and we do not find it appropriate to call it by the same name. The adaptation process is quite delicate and requires adherence to precise steps and procedures (e.g., Gabbatore et al., 2019). Being aware of these challenges is fundamental, especially in a field where the fuzzy boundaries between abilities such as pragmatics and ToM are still highly debated; we believe that a precise definition of target variables and training outcomes is essential to eliminate the possibility of misleading and confounding results.

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