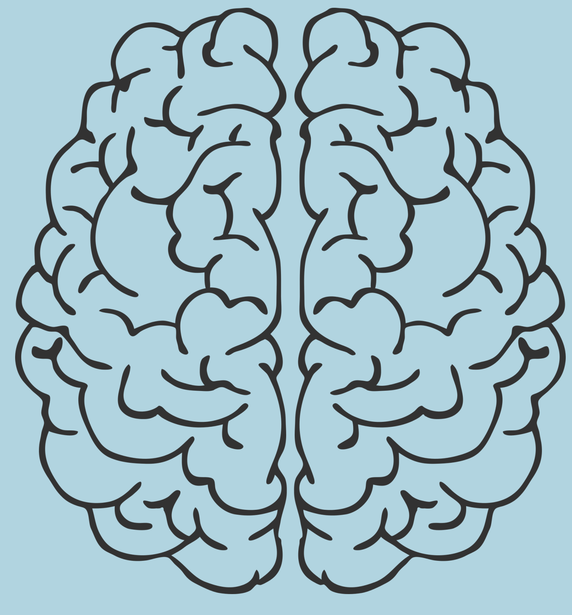
The German APACS Brief: Development, adaptation and validation of a pragmatic assessment for clinical use



Lena Sophie Wilkens[1]; Laura Anna Ciaccio[2]*; Giorgio Arcara[3]; Valentina Bambini[4†]; Rosario Tomasello[1†]*

** shared first authorship † shared last authorship*
[1] Freie Universität Berlin [2] Università di Pavia [3] Università di Padova
[4] Istituto Universitario di Studi Superiori di Pavia

INTRODUCTION

Pragmatic competence, which is defined as the ability to infer the intended meaning of an utterance beyond its literal content, is a distinctive feature of human communication. This capacity can be compromised by a range of genetic conditions, brain injuries, and neurological diseases (Cummings, 2014; Jagoe, 2017). Despite this crucial role of pragmatics, most clinical assessments focus primarily on the structural aspects of language, such as semantics, grammar and phonology, while pragmatic abilities are often underrepresented (Achhammer et al., 2016).
To address this gap, we developed and adapted a German version of an existing screening instrument, the Italian Assessment of Pragmatic Abilities and Cognitive Substrates (APACS) Brief by Bischetti et al. (2024). Additionally, we adapted said test to be better suited for non-fluently speaking patients. We then validated its functionality and sensitivity regarding socio-demographic variables as well as overall cognitive abilities using a group of healthy volunteers.

MATERIALS

APACS Brief
- Brief screening tool regarding various domains of pragmatics
- Composed of two versions (A and B), an extensive manual and automated calculation tables
- In person assessments or remote application are possible

German version
- Adapted for non fluently speaking patients, using exclusively multiple choice paradigms
- The interview is considered optional

TEST TASKS

INTERVIEW

Short biographical interview evaluated based on four pragmatic difficulties

NARRATIVES

Short news story with questions regaring explicit and implicit information as well as figurative speech

FIGURATIVE LANGUAGE 1

Multiple choice questions on metaphor, idiom and proverb comprehension with situational context

HUMOUR

Multiple choice paradigm that requires choosing the accurate funny ending for jokes

FIGURATIVE LANGUAGE 2

Multiple choice questions on metaphor, idiom and proverb comprehension with minimal context

METHODS & PROCEDURE

Subjects
- 50 neurologically healthy subjects (31 female, 18 male, 1 non-binary; mean age 48.2 (SD 20.2; range 20-87; mean education 18.6 years (SD 3.29; range 13-26)

Tasks and Material
- Montreal Cognitive Assessment (MoCA) (Nasreddine et al., 2005) to obtain a global cognitive profile
- Version A and B of the German APACS Brief (counterbalanced across subjects)
- Feedback session regarding task comprehension as well as the overall assessment and the remote modality
- Tested remotely via Cisco WebEx in one 45 minute session, with each APACS version taking approximately 10 minutes

ANALYSIS & RESULTS

- Regression analyses to evaluate sociodemographic and cognitive effects using age, education and MoCA scores (figure 1): best-fit regression model included age and education as predictors with a strong age and marginal education effect
- Findings confirm a strong effect of age on pragmatic performance (Baraldi & Domaneschi, 2024)
- Pragmatic performance showed a notable correlation with cognitive profile (assessed via MoCA).
- Additional tests for the robustness of the test as well as the equivalence of version A and B: data indicates good test reliability, Statistical equivalence found between test versions A and B
- Strong positive correlation observed between participants' total scores on versions A and B
- Computation of clinical cut-off values stratified for age and education

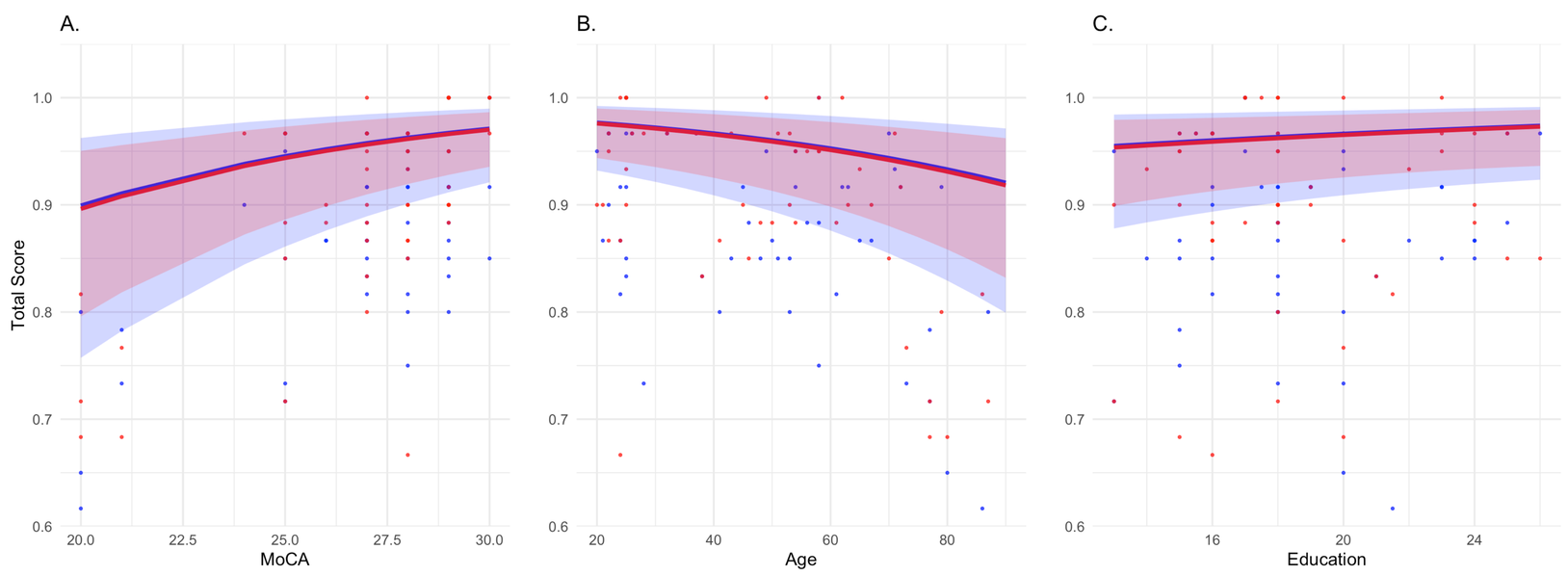


Figure 1. Effects of MoCA (b = 0.442, SE = 0.081, z = 5.487, p < 0.000001) , age (b = -0.403, SE = 0.098, z = -4.121, p = .00004) and education (b = 0.169, SE = 0.010, t = 1.694, p = 0.090) on test scores with version A in blue and version B in red. Individual dots correspond to raw data, lines illustrate the predicted values from the generalized linear models, shaded areas indicate the 95% confidence intervals.

Example of a Figurative Language Task
Please choose the correct interpretation:

"Some libraries are gold mines."
1) In some libraries, you can find gold.
2) In some libraries, you can find very valuable knowledge.
3) In libraries, gold miners search for information about discovery sites.

CONCLUSION

The German APACS Brief represents a time-efficient and clinically practical instrument to assess pragmatic language abilities in routine diagnostic settings in German-speaking populations thanks to its brevity and straightforward scoring procedure. Moreover, it can be used remotely offering a simplified follow-up procedure and accessibility in regions with limited infrastructure.

LITERATURE: Achhammer, Bettina, Julia Büttner-Kunert, Stephan Sallat & Markus Spreer (2016): Pragmatische Störungen im Kindes- und Erwachsenenalter (Forum Logopädie). Stuttgart, New York: Georg Thieme Verlag. **Baraldi, Maria Alice & Filippo Domaneschi (2024)**: Pragmatic Skills in Late Adulthood. Journal of Psycholinguistic Research 53(2). 20. doi:10.1007/s10936-024-10061-0. **Bischetti, Luca, Chiara Pompei, Biagio Scalingi, Federico Frau, Marta Bosia, Giorgio Arcara & Valentina Bambini (2024):** Assessment of pragmatic abilities and cognitive substrates (APACS) brief remote: a novel tool for the rapid and tele-evaluation of pragmatic skills in Italian. Language Resources and Evaluation 58. 951–979. doi:10.1007/s10579-023-09667-y. **Cummings, Louise (2014):** Pragmatic Disorders Across the Life Span. Pragmatic Disorders (Perspectives in Pragmatics, Philosophy & Psychology), vol. 3, 31–65. Dordrecht: Springer Netherlands. doi:10.1007/978-94-007-7954-9_2. **Jagoe, Caroline (2017):** Disruption of Pragmatics in Adulthood. In Louise Cummings (Hrsg.), Research in Clinical Pragmatics (Perspectives in Pragmatics, Philosophy & Psychology 11), 181–210. Cham: Springer International Publishing. doi:10.1007/978-3-319-47489-2_8. **Nasreddine, Ziad S., Natalie A. Phillips, Valérie Bédirian, Simon Charbonneau, Victor Whitehead, Isabelle Collin, Jeffrey L. Cummings & Howard Chertkow (2005):** The Montreal Cognitive Assessment, MoCA: A Brief Screening Tool For Mild Cognitive Impairment. Journal of the American Geriatrics Society 53(4). 695–699. doi:10.1111/j.1532-5415.2005.53221.x.