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Measuring sentence production in primary progressive aphasia

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Background and aims: To test the ability of the Sentence Anagram Test (SAT) in distinguishing non-fluent (nfv) and logopenic variants (lv) of primary progressive aphasia (PPA) which are the two most difficult PPA forms to be distinguished based on speech production.
Methods: We recruited 13 nfvPPA, 9 lvPPA and 4 semantic PPA (svPPA) patients. Participants underwent SAT, which included canonical and non-canonical sentences. Performance accuracy and time for completing total and sub-session items were recorded. Performances at syntax comprehension test were also investigated. Neuropsychological features were compared between nfvPPA and lvPPA groups. The four svPPA were not included in the statistical analysis and were only used for a qualitative example of grammar unaffected performance.
Results: PPA groups took similar time to complete all the SAT sub-sessions. Compared to lvPPA, nfvPPA patients showed worse accuracy for both canonical and non-canonical sentences. Likely due to initial comprehension deficits in lvPPA with longer disease duration, both groups of patients performed similarly in the syntax comprehension test. As expected, svPPA qualitatively performed better than the other groups in all investigated domains.
Conclusion: The SAT is a powerful tool for distinguishing nfvPPA and lvPPA. Although some lvPPA had longer disease duration, the SAT was still able to detect the differences in the two variants. Future studies in larger samples should test the performance of these measures for a correct classification at the single subject level.
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Behavioral and physiological markers of feigned memory impairment

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Background and aims: The detection of malingering in cognitive performance is an important clinical challenge. The study goal is to explore behavioral and physiological responses in a performance validity test under normal vs. feigning conditions.
Methods: Twenty healthy women (mean age=32±6; mean education=17±1) recruited in the community performed a digital version of Test of Memory Malingering (TOMM) adapted for eye-tracking recording (iView X™ Hi-Speed 1250 System). Half performed TOMM under normal effort and half were instructed to feign memory impairment as if they were in the initial stages of dementia to receive retirement or disability benefits. Number of correct responses (CR), response time (RT), and fixation time (FT) in old vs. new stimuli were recorded. Mann-Whitney test were used for group comparisons and ROC curves were applied for diagnostic test evaluation.
Results: The feigning group produced fewer CR on both evaluation trials and retention trial ($p<0.001$), had longer RT on evaluation 1 ($p=0.007$) and 2 ($p=0.004$), and had shorter total FT (during the 3 seconds visualization period prior to RT) in old stimuli during evaluation 1 ($p=0.013$) and 2 ($p=0.019$). No significant other group differences ($p>0.05$) were identified regarding RT, first FT, and total FT. ROC curves revealed that behavioral measures (CR and RT) had AUC >0.9 on both evaluation trials and that the AUC for total FT was 0.8 on both evaluation trials.
Conclusion: Healthy individuals feigning memory impairment have a distinct behavioral and physiological response pattern, reflecting an increased effort to inhibit a natural response.
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