

# Performance validity in clinical neuropsychological assessment

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## Summary

The work in this dissertation focusses on the validity of test performance of adult patients who present for routine care in a clinical setting. The main objective of the studies described in this dissertation was to gain more insight into the prevalence rate of invalid performance, the impact of feedback interventions upon indications of invalid performance, and the relevance of performance validity to treatment outcome. These aims are addressed in the five studies of this dissertation.

**Chapter 1** introduces the evolving concept of performance validity from forensic to routine clinical care. Methods for measuring performance validity are addressed, as are the continuing questions related to performance validity assessment in routine clinical care. Finally, the aims and outlines of this dissertation are presented at the end of this chapter.

**Chapter 2** presents a case report of a patient who was referred by a Neurologist in a general hospital setting for neuropsychological assessment because of persisting cognitive complaints and fatigue. Approximately ten years earlier, this patient was diagnosed with mild cognitive impairment (MCI) by her treating medical specialist, where low performance on cognitive tests were crucial for these diagnostic conclusions. During a new neuropsychological assessment, the patient failed multiple PVTs and showed a marked discrepancy between her low-test performance and actual level of functioning. We discuss how performance validity assessment sheds a different light on her former MCI diagnosis. This case report illustrates the clinical relevance of PVT usage, but also its challenges and complications in routine clinical care.

The systematic review study in **chapter 3** aimed to evaluate how often adult clinical patients fail a well-validated freestanding PVT in the context of routine clinical care. Meta-analyses were carried out to calculate pooled base rates of PVT failure, and an overall pooled PVT failure rate of 16%, 95% CI [14, 19] was found. Type of clinical context, diagnosis group,

presence of external gain incentives, and psychometric properties of the utilized PVT were found to impact the rate of PVT failure. To our knowledge, this study is the first to provide high-quality information about PVT failure, which can be utilized for calculating clinically relevant statistics such as the positive/negative predictive values and likelihood ratios. Thereby, the diagnostic accuracy of performance validity can be increased for both research and clinical purposes.

In the second part of this dissertation (**chapters 4 and 5**), we examined the impact of interventions to counter performance below best of capabilities (i.e., PVT failure). In other words, our focus was on examining how feedback interventions impact the performance on subsequent tests when a patient fails a PVT. Ultimately, such interventions might contribute to increasing the overall quality of neuropsychological assessment outcomes and therewith improve appropriate diagnostic conclusions and recommendations for treatment. For this purpose, we performed an observational cross-sectional study using retrospective data and a multicenter single-blind randomized controlled trial (RCT). In the observational study (**Chapter 4**), we found that performance on a PVT equally improved during re-assessment in both the group that was provided with feedback versus the group in which invalid performance was left unaddressed. In the feedback group, a significant improvement on a repeated reaction time test was apparent compared to the no-feedback group. However, it is important to consider that this specific result could also have been influenced by the difference in time intervals for the repeated assessments between the two groups. In the multisite RCT (**chapter 5**), we found that a brief neutral direct feedback intervention upon PVT failure had no effects on subsequent repeated and single-administered PVT performance and standard cognitive tests. Combining the findings of chapters 4 and 5, these results suggest that there are limitations to using feedback upon indications of invalid performance if the goal is to increase patients' efforts to perform at the best of their capabilities.

In **Chapter 6**, we examined the impact of performance validity on treatment outcome. Instead of employing a dichotomous pass/fail approach to PVT results, we utilized the complete range of scores from a freestanding PVT. This was done to enhance statistical power when examining its relationship with response and adherence to cognitive behavioral therapy (CBT) in patients with chronic fatigue syndrome (CFS). We found that, CFS patients with low PVT performance (i.e., higher likelihood of performance below best of capabilities) are more likely to attend fewer therapy sessions and not complete the follow-up assessment, indicative of limited adherence to treatment. However, for those patients who completed the intervention, their response to CBT was comparable to those who scored high on the ASTM, despite their initial lower performance on the PVT. Therefore, instead of being an indicator restricted to the assessment of the credibility of performance on cognitive tests, performance validity may also serve as a behavioral proxy about the level of engagement a patient has regarding a behavioral treatment intervention.

**Chapter 7** presents the general discussion of this dissertation, integrating all study results, reflecting on both the methodological strengths and weaknesses, and detailing the implications for clinical practice, education, and future research. The studies conducted in this dissertation demonstrated that invalid performance is prevalent in a substantial minority of adult patients seen for routine clinical care. The relevance of invalid performance extends beyond diagnosis and encompasses (a) management strategies for patients who show indications of noncredible performance, and (b) adherence to subsequent treatments. Our studies provide clinicians with more knowledge, insights, and practical guidance about performance validity assessment in routine clinical care. By offering practical tools for improving the determination of performance validity status and by clarifying its importance, clinicians may feel more comfortable integrating the proposed validity assessment guidelines into their daily practices. Ultimately, patients may benefit from these developments as this may lead to a specific clinical

focus on noncredible performance, rather than overlooking the possibility of non-credible performance, dismissing PVT failure, or losing empathy and abandoning attempts to provide clinical aid.