

Embracing technology: professional end-users' perspectives on digital neuropsychological assessment in cognitive rehabilitation

C.L. van de Wouw, M. Steenhuis, H. Huygelier, J.M.A Visser-Meily, C. van de Moosdijk, K. Meitinger, & T.C.W. Nijboer

1. Introduction

Conventional **paper-&-pencil tests** aim to **estimate a patient's maximum cognitive capacity**.

However, they may **not** always **detect subtle impairments**.

D-NPA has several advantages, including the opportunity to develop **novel outcome measures** that provide more **detailed insights** into **cognitive processes**.

Understanding the **perspectives of professional end-users (clinicians & researchers)** is **crucial** for the **development & implementation** of **technology in clinical practice**.

The aims were twofold: (1) to elucidate the **professional end-users' definition of d-NPA**, & (2) to examine their **(disciplinary) perspectives** on the **relative merits (i.e., benefits & drawbacks) of d-NPA**.

2. Methods

An **online survey** was conducted between May & June 2021. **Qualitative analysis** (i.e., thematic analysis) was employed to summarise meaningful relationships. **Sample description & frequency of qualitative codes** were presented. **345 respondents** completed the survey.

1. *What does the term 'Digital Neuropsychological Assessment' mean to you?*
2. *What do you perceive as the primary benefit of d-NPA?*
3. *What do you perceive as the primary pitfall of d-NPA?*

3. Results: sample description

Characteristics	N	%
Age in years, mean (SD)	41.18 (10.64)	
Sex (Women)	232 (204)	87.9
Discipline	302	
Occupational therapist (OT)	99	32.8
Assistant psychologist (AP)	52	17.2
Healthcare psychologist (GZ)	45	14.9
Rehabilitation physician (MD)	39	12.9
Clinical (neuro)psychologist (NP)	21	7.0
Other	46	15.2
Specialism	293	
Rehabilitation	185	63.1
Neurology	40	13.7
(Neuro)Psychiatry	21	7.2
Geriatrics	18	6.1
Medical psychology	7	2.4
Other	22	7.5

4. Results: frequency of qualitative codes (definition of d-NPA)

Most respondents (n = **317 responses**) mentioned one or more of the identified sub-themes for the d-NPA as a **digital test that could be conducted either remotely or in a conventional setting using a computer or tablet**.

5. Results: frequency of qualitative codes (relative merits)

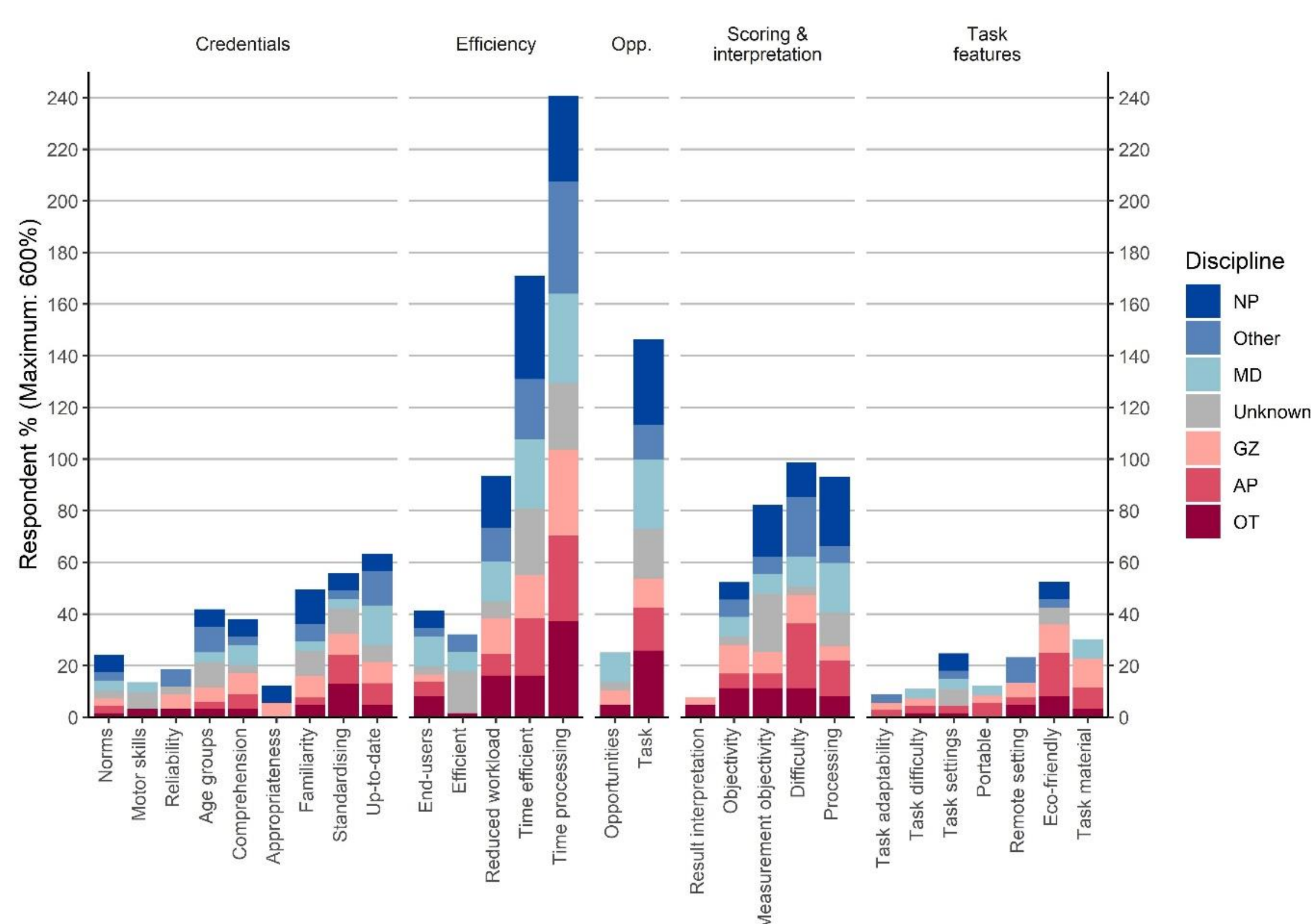


Figure 1

Top 5 disciplines' perceived benefits of d-NPA, classified by themes & sub-themes.

Efficiency was identified as the **primary benefit** of the d-NPA, with most disciplines recognising the **faster processing of test results**.

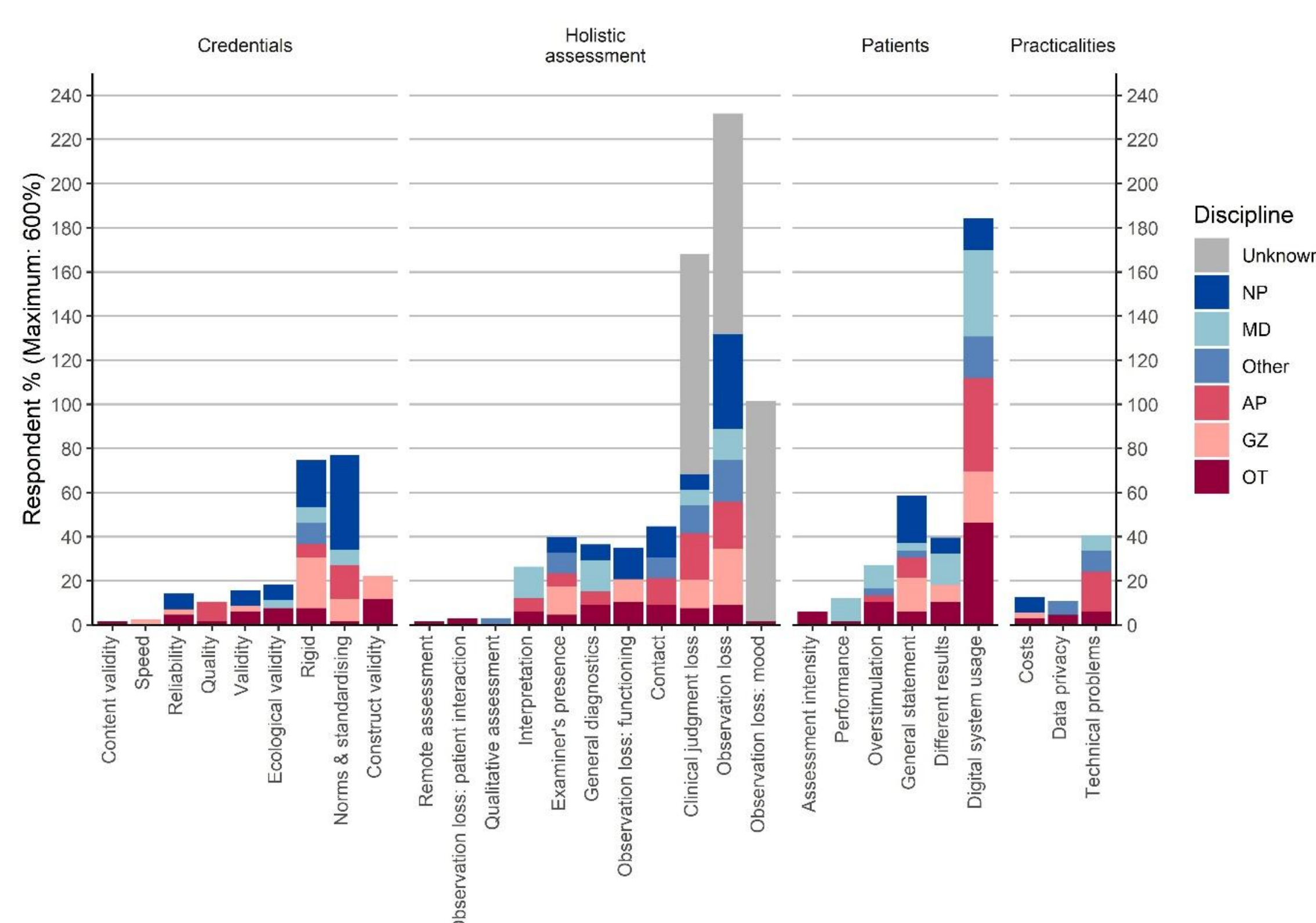


Figure 2

Top 5 disciplines' perceived drawbacks of d-NPA, classified by themes & sub-themes.

Validity emerged as the **primary drawback**, with many disciplines concerned that **test performance reflected digital proficiency** rather than the cognitive function the test aimed to measure.

6. Discussion

Improved efficiency in primary care is paramount for maintaining **accessibility, affordability & quality** (Dutch Integral Care Agreement; IZA, 2022).

Digital proficiency may be considered a **crucial cognitive skill**.

- Digital testing may offer **more ecologically valid** measures.

Familiarity with tablets **does not negatively impact test performance** across various clinical populations (Spreij et al.).

Future research is needed to:

- Understand the **impact of different levels of digital proficiency on test performance**.
- Establish **normative data** based on levels of digital proficiency.
- Provide **evidence-based clinical guidelines** defining the minimum level of digital proficiency required for valid completion of a digital test.

Findings emphasise the importance of developing **user-friendly digital systems in close collaboration with end-users** to address validity issues & **meet patients' individual needs**. This could make digital tests more **accessible & effective** for a **diverse clinical population**.