

An Evidence-Based Review of Speech-Language Pathology Assessments in Parkinson's Disease

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INTRODUCTION

- Parkinson's disease (PD) is a debilitating, progressive neurodegenerative disorder; 2nd most common after Alzheimer's disease.¹
- Swallowing can be affected even at early stages, impacting functional activities associated with dysphagia.²
- Mild swallowing deficits can contribute to challenges with nutrition, hydration, and independence.
- Speech-language pathology (SLP) assessments screen for and measure dysphagia but few guidelines exist for utilization in PD.
- Our objective was to perform an evidence-based review of dysphagia assessments in PD, examining their clinimetric properties.

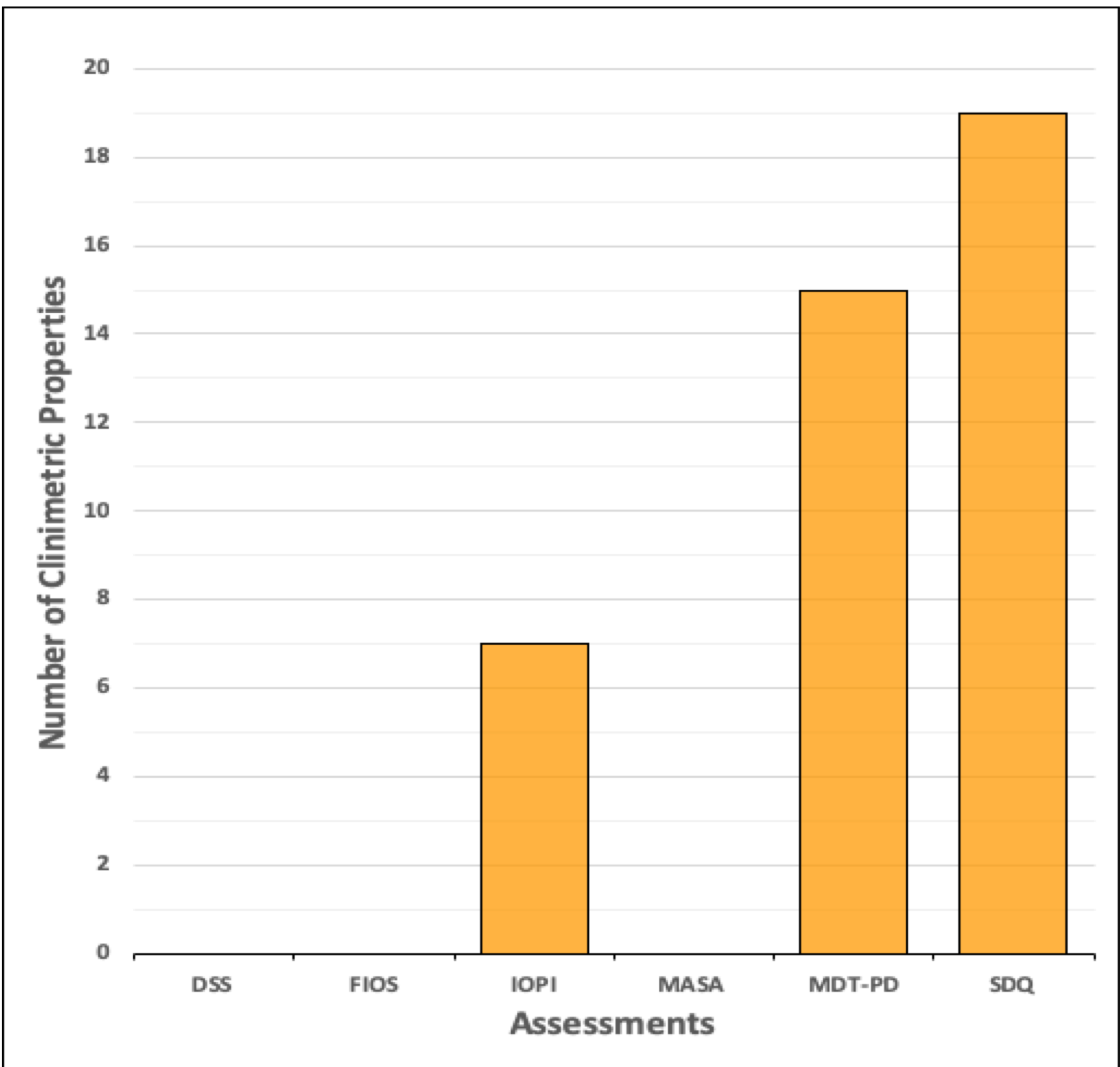
METHODS

- Initially surveyed dysphagia assessments commonly used in neurological populations from the literature (NCBI) and at a major rehabilitation hospital.
- Six SLP assessments clinically utilized specifically in PD were identified and reviewed regarding clinimetric properties with search terms describing interpretation of results, reliability, and validity.
- Each assessment was queried in NCBI, Web of Science, SCOPUS, Cochrane, REHABDATA, CINAHL, and AMED databases for English articles relevant to PD published 01/2001-09/2020.
- Articles were reviewed based on established level of evidence guidelines.³

RESULTS

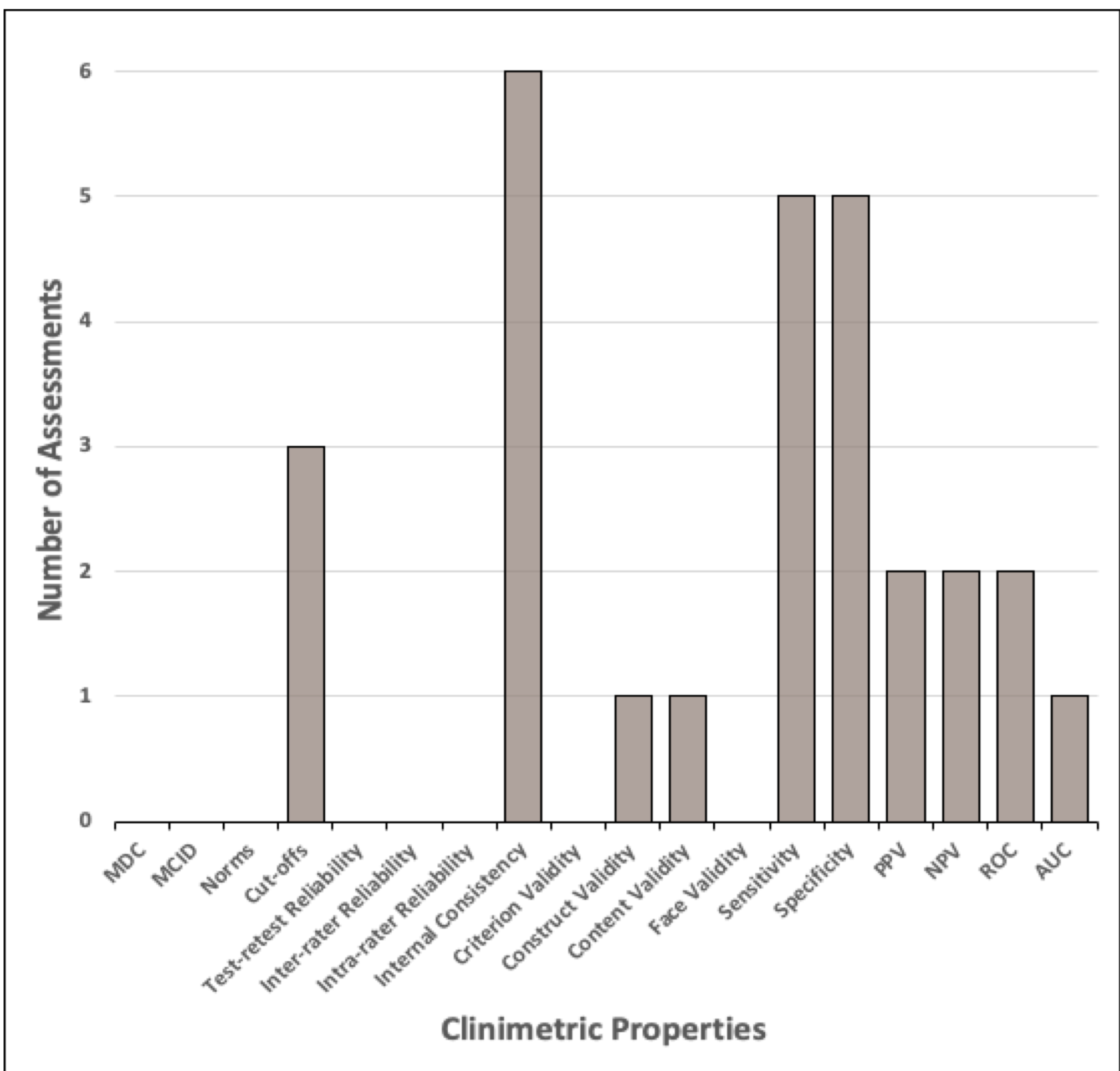
- Search resulted in 43 articles, 25 of which were excluded due to *a priori* review criteria, leaving 18 articles.
- SDQ and MDT-PD were found to have greater evidence of clinimetric properties studied in PD literature than the other assessments. (Fig. 1)
- Only six of 18 articles reported reliability, primarily internal consistency. (Fig. 2)
- Most studied clinimetric variables in the literature were internal consistency, sensitivity, and specificity. (Fig. 2)
- Only the IOPI and SDQ were studied in level 1 evidence articles; these two scales were the most frequently studied in PD-relevant articles. (Fig. 3)
- DSS had no relevant articles, MASA and FIOS had one case study each. (Fig. 3)
- Majority of articles were observational level studies (\geq level 4 evidence).

Figure 1. Number of clinimetric properties found for each assessment



DSS=Dysphagia Supervision Scale, FIOS=Functional Oral Intake Scale, IOPI=Iowa Oral Performance Instrument, MASA=Mann Assessment of Swallowing Ability, MDT-PD=Munich Dysphagia Test-PD, SDQ=Swallowing Disturbance Questionnaire

Figure 2. Number of assessments that had clinimetric properties reported



Interpretation of Results: MDC (Minimum Detectable Change), MCID (Minimal Clinically Important Difference), Norms, Cut-offs
Reliability: Test-retest Reliability, Inter-rater Reliability, Intra-rater Reliability, Internal Consistency
Validity: Criterion Validity, Construct Validity, Content Validity, Face Validity, Sensitivity, Specificity, PPV (Positive Predictive Value), NPV (Negative Predictive Value), ROC (Receiver Operating Characteristic), AUC (Area Under the Curve)

Figure 3. Articles grouped by level of evidence

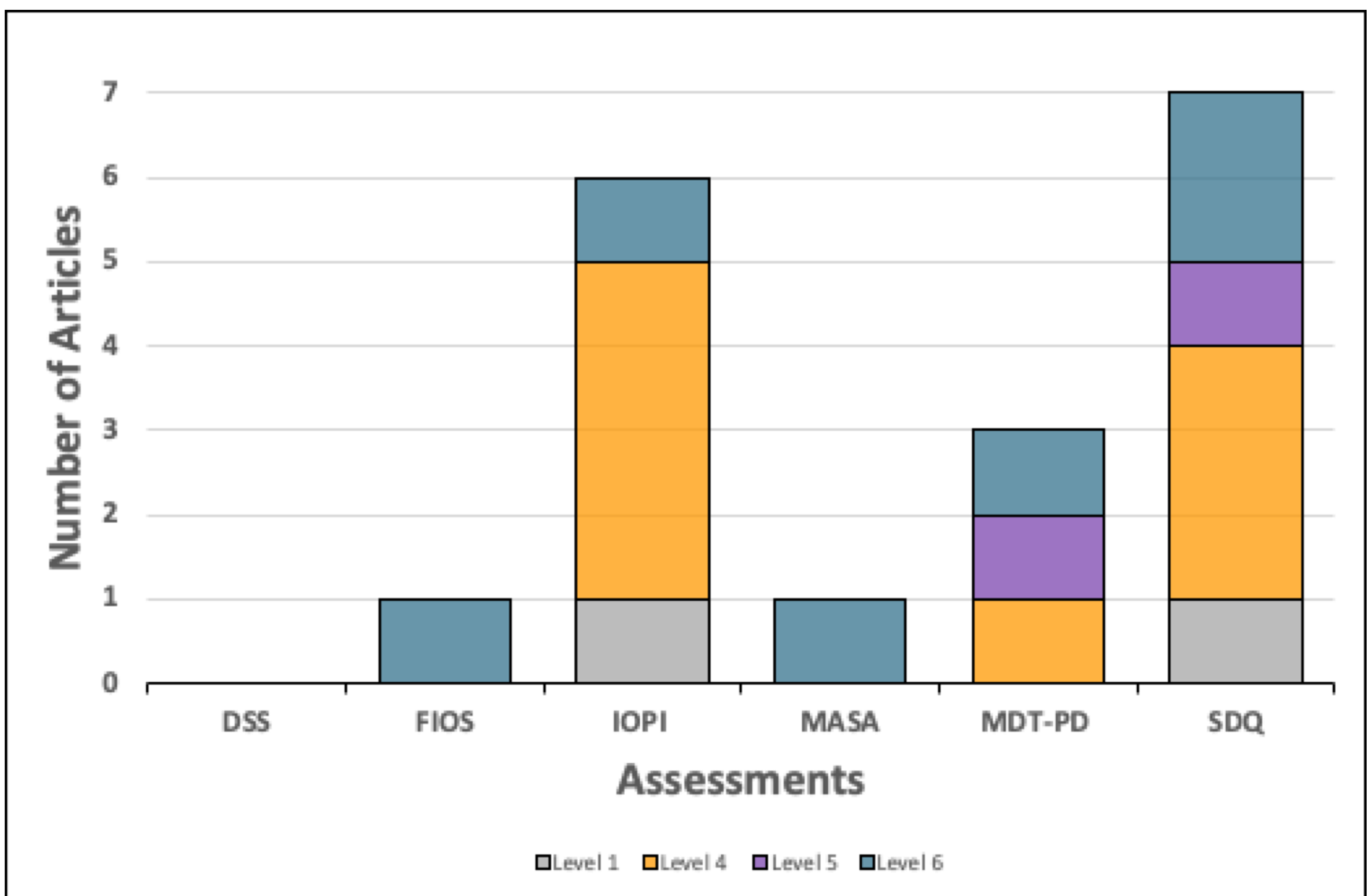
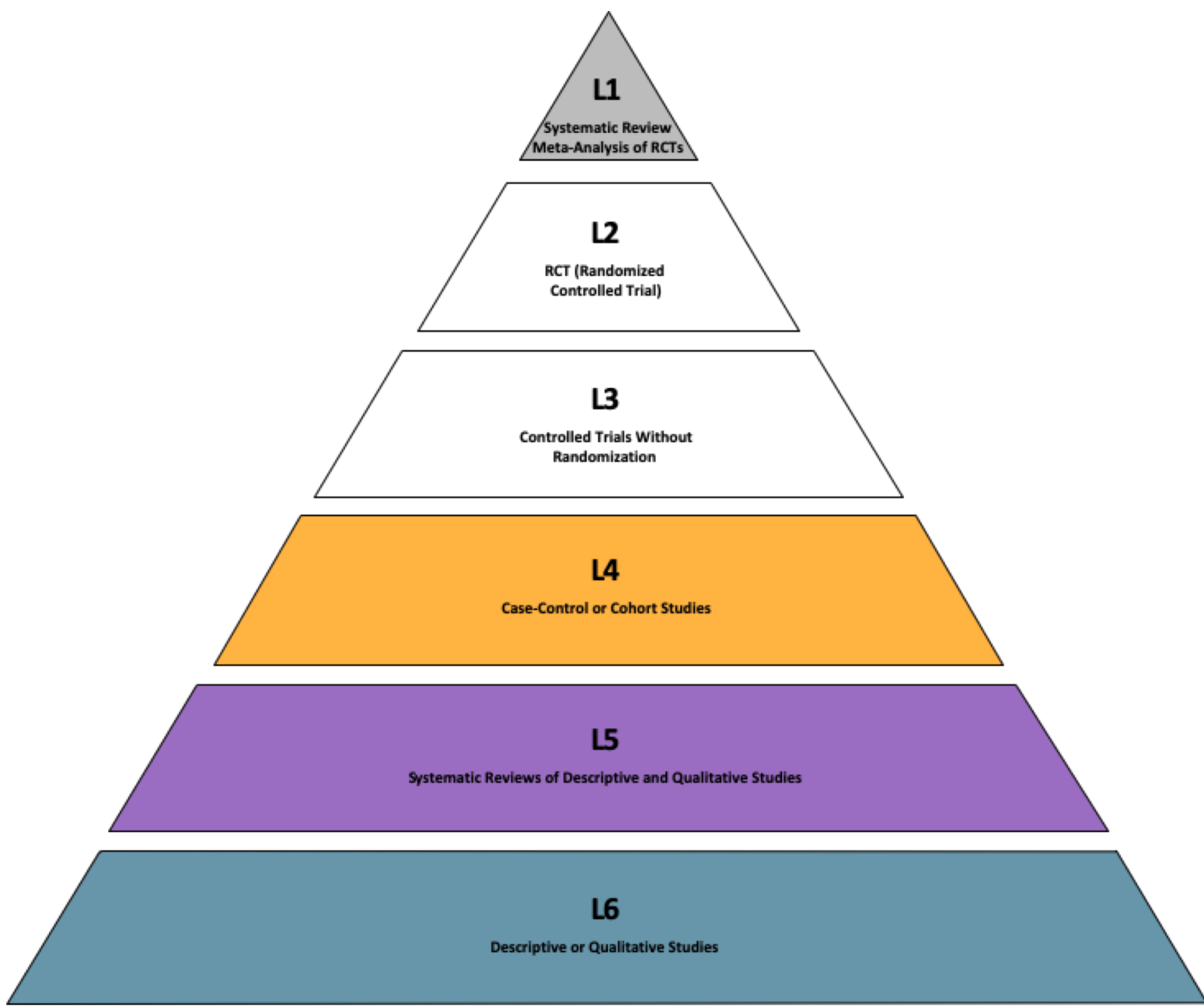


Figure 4. Levels of evidence³



CONCLUSION

- Of the six dysphagia assessments, the SDQ and MDT-PD were the only screening assessments; the other four were performance assessments.
- SDQ and MDT-PD were the best-studied assessments regarding clinimetric properties, PD relevance, and level of evidence.
- Most assessments, however, had limited study and weak evidence in PD.
- Our findings represent an opportunity to further review and validate dysphagia assessments in the PD population.

ACKNOWLEDGMENTS

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