International Conference on

DEMENTIA AND DEMENTIA CARE

August 20-21, 2018 | Singapore City, Singapore

The usefulness of a seven-subtest and four-subtest short form of the WAIS in clinical practice

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Statement of the problem: The Wechsler Adult Intelligence Scale (WAIS) is an American scale and is one of the internationally most frequently applied neuropsychological (nps) measures for the assessment of cognitive levels in e.g. suspected neurodegenerative disorders, neuropsychiatric conditions as well as in non-clinical cases. Despite its popularity (Crawford, et al., 2008), one well known drawback with this instrument is the administration time, which amounts to 3-4 hours (Ryan, et al., 2015). Therefore, ever since the early days of the WAIS-scale (in the 1940s), short forms encompassing 2-8 subtests have been published (Úbeda, et al., , 2016; Denney, et al.,   2015). The seven-subtest short form of the WAIS (7-scale), encompassing the subtests Information, Digit Span, Arithmetic (AR), Similarities (SI), Picture Completion, Block Design (BD) and Coding (CD) (Meyers, et al., 2013) is often used in Sweden, but has up to know not been validated in a Swedish context. The purpose was to investigate whether the 7-scale was statistically valid to apply to the Swedish adaptation of the WAIS-IV, the possibilities of a further reduction of the 7-scale and the usefulness of shortened scales in clinical differential diagnosis.

Methodology: Nps assessment (WAIS) of 218 healthy individuals (aged 18-73) and nps assessment with the full scale WAIS of a clinical sample, n=145, including vascular disorders (stroke, hemorrhages), tumors, head trauma and multiple sclerosis. Statistics: Linear regression and discriminant analysis.

Preliminary findings: Linear regression indicated that the 7-scale   explained 93.1 % of the variance of FSIQ, and that the best reduction of this model was a set of four tests (4-scale): AR, SI, BD, CD, predicting FSIQ with an 87.6% certainty, and representing the WAIS-scale all four indices. In the clinical sample 92.1% of the FSIQ variance was explained by the 4-model. Pairwise analysis of the disease groups with discriminant analysis showed that only the trauma and vascular groups were possible to significantly distinguish (p=. 013) and that 62.0 % were correctly classified.   The sensitivity for the trauma group was 68%, the specificity 75.6%. In the vascular group the sensitivity was 82%, and the specificity 98%. Clinical application of the 7-scale is under ongoing analysis.

Discussion/conclusions: The 7- as well as 4-scale were excellent brief measures in a non-clinical sample. The efficiency of the 4-scale declined considerably when used to differentiate between the neurological diagnoses, where only one pair of disorders, vascular and trauma, was possible to differentiate out of six paired combinations.   This opens for a discussion about the possibilities to apply reduced test batteries for diagnostic purposes, how often typical neuropsychological test profiles are presented in clinical practice and how common it is that different diagnoses have overlapping profiles.

Biography

Maria Lindau is licensed psychology and PhD in medicine, for many years she has worked as a clinical neuropsychologist in Sweden at Karolinska Huddinge - Karolinska Universitetssjukhuset and at Akademiska sjukhuset, Uppsala. Since last decade she serves as an Assistant Professor in neuropsychology at the Dept. of Psychology, Stockholm University. Her research focus is on major and mild neurocognitive disorders (dementia/MCI), as well as on psychometrics.

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