Predictive accuracy of Wechsler Adult Intelligence Scale, forth ed., (WAIS-IV) seven- and four- subtest short form models in estimating full scale IQ (FSIQ) and its indices in a Swedish non-clinical sample

Maria Lindau and Mats Najstrom
Stockholm University, Sweden

Neurodegenerative disorders usually show characteristic cognitive profiles, determined by the anatomical dispersion of neuronal loss. Short-term/memory decline is a presenting symptom on Alzheimer’s disease, but atypical early signs also occur. The Wechsler Adult Intelligence Scale (WAIS) may be used to differentiate between normal and sub-normal cognitive performance levels, such as pre-dementia stages, AD and related disorders. According to Meyers et al., (2013), a brief measure consisting of a seven-subtest short form (SF) of the WAIS-IV including Block Design (BD), Similarities (SI), Digit Span (DS), Arithmetic (AR), Information (IN) Coding (CD) and Picture Completion (PC) provides a valid means of measuring cognitive level. In order to validate a short form of WAIS-IV on a Swedish non-clinical sample the aim of the present study was to assess the ability of the seven-subtest SF as well as a reduction of the number of subtests in the SF based on standardized β-values, to predict the full scale IQ (FSIQ) and its indices. WAIS-IV scaled score data from 98 healthy individuals (19-90 years M=46 years, SD=23 years, females=48, males=50) were analyzed with linear regression, which showed that the seven predictors explained 92.5% of the variance in FSIQ. When reducing the SF-set the four highest β-values were obtained from the following subtests: CD, β=0.34 (Processing Speed), SI, β=0.31 (Verbal Comprehension), BD, β=0.25 (Perceptual Reasoning), and AR, β=0.23 (Working memory), which showed to be one subtest from each of the four indices. FSIQ prediction rate of these four subtests was 88.1%. Each of the four subtests correlated significantly on p=<0.01 level with its index. To conclude, FSIQ prediction accuracy for the seven-subtest SF is very high, as well as for the four-subtest model. Since the four-subtest model strongly predicts FSIQ, as well as all its indices, it may be a valid, and time-saving, instrument to assess short-term memory (AR, partly CD) deficits typical for different stages of AD, signs on non-amnestic decline in AD, as well as typical clinical manifestations of frontotemporal degeneration, Parkinson's disease, Lewy body disease, ischemic brain disorders and cognitive dysfunctions associated with depression. In unclear cases additional testing is necessary. Further analyses will reveal possible influences on the norms of age, genus and education.

Biography

Maria Lindau, Licensed Psychologist and PhD, maintains a position as Associate Professor at the Dept. of Psychology, Stockholm University, Sweden. She has about 20 publications, and 15 years of experience as neuropsychologist and researcher at memory clinics at Karolinska and Uppsala university hospitals. She is Bachelor of Arts in History, French and Political Science. Mats Najström is PhD, Licensed Psychologist and Licensed Psychotherapist. He is Head of the Institute for Applied Behaviour Science (ITB) at the Dept. of Psychology, Stockholm University, Sweden.

maria.lindau@psychology.su.se

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