



Pros and Cons of the Simple Sum Score on Tests and Questionnaires

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Room 401-402, Meng Wah Complex, HKU

Chair: Professor Jimmy de la Torre



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Abstract:

Since the introduction of latent variable models such as item response theory models and factor models (structural equation modeling), latent variables have become favorite for representing abilities and traits and differentiating individuals with respect to these attributes. However, in the practice of reporting test results to examinees and others concerned such as parents, teachers, employers, and therapists, sum scores and test scores that are transformations of sum scores (standardized scores, percentiles, IQ-scores, scores on educational tests) are often used because of their simplicity and intuitive appeal: They are simply easier to understand and interpret than scores on latent variables such as log odds, and therefore have greater potential for communication.

I will demonstrate that for standard testing, sum scores and their transformations are fully acceptable. Actually—and few people including psychometricians know this—item response theory provides the theoretical justification for the practical use of the simple sum score. I will discuss situations in which the sum score should be preferred to the latent variable and illuminate the opposite situations where the latent variable is superior and must be preferred to the sum score. Both have merits and drawbacks, often in different situations. Thus, they complement and strengthen each other rather than compete.

Literature:

Sijtsma, K., Ellis, J. L., & Borsboom, D. (2024). Recognize the value of the sum score, psychometrics' greatest accomplishment. *Psychometrika*, 89, 84-117. <https://doi.org/10.1007/s11336-024-09964-7>

About the speaker:



Klaas Sijtsma is an emeritus professor of methods and techniques of psychological research at Tilburg University. He is the former dean of the School of Social and Behavioral Sciences, rector magnificus of Tilburg University, and president of the Psychometric Society. His research focuses on the measurement of psychological attributes (such as intelligence, personality traits, and attitudes), especially using item response theory and classical test theory and factor analysis. He also studies missing data and outlier problems in test, questionnaire and survey data; the history of psychometrics, psychology, and science; and issues concerning research integrity and questionable research practices. He has published more than 200 papers and

book chapters and coauthored three books on the measurement of psychological attributes and one book on research integrity and questionable research practices. Currently, he serves as co-chair of the Committee on Research Integrity at Erasmus University Rotterdam.

~ All are welcome ~

For enquiries, please contact the Office of Research, Faculty of Education at hkchow@hku.hk