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Defining statistical measurement levels of Intuitive Eating with the Rasch Rating Scale Model

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Abstract
Intuitive eating is an intrinsic ability to moderate the amount and type of food, promoting a healthy diet and self-regulation of one's own weight. Different instruments (IES-H, IES-T, IES-2) have been developed to assess intuitive eating between different population groups from different countries. The construct validity and invariance of the 23-item Intuitive Eating Scale-2 (IES-2) has been widely validated by Confirmatory Factor Analysis and Exploratory Factor Analysis. However, these Classical Test Theory (CTT) methods have not always confirmed the same 4-factor structure.

Rasch analysis, a Modern Test Theory method (MTT), has been used as an alternative approach to examine the psychometric properties of various health and medical instrument (HADS, KIDSCREEN-52, LANSS, MHRM). One significant difference between CTT and MT is the method of calculating a composite score. A CTT total sore is based on the summation of raw categorical scores, whereas these raw categorical scores are converted to interval-scaled measures into a Rasch composite score.

Data was collected from 625 respondents was fitted to the Rasch Rating Scale Model. The data fitted the model adequately, as less than 5% and 1% of absolute standardised residuals were found to be ≥ 2 and ≥ 3, respectively. A Principle Component Analysis of Rasch residuals (PCAR) was used to determine the unidimensionality of the IES-2 and its subscales, after checking and adjusting for lack of item fit and proper rating scale functioning. PCAR indicated that all 23 items could not function as a single total unidimensional Rasch measure. However, the same item structure for the 4 subscales, originally proposed by Tylka and Kroon Van Diest, was confirmed by PCAR. The relationship between the respondents and the IES-2 items in each subscale could be explained using a Wright map, allowing both to be represented on the same logit scale.

Statistical different levels of intuitive eating were determined for each subscale from a table representing the relationship between the lowest and highest possible raw scores and their Rasch measures. Wright maps showed the position of respondents between cut-off lines indicating different statistical levels along each unidimensional subscale of intuitive eating. The majority of respondents were classified into 2 out of 4 levels in the subscale Unconditional Permission to Eat, 3 out of 5 levels in Eating for Physical Rather Than Emotional Reasons, 3 out of 5 levels in Reliance on Internal Hunger and Satiety Cues and 2 out of 4 levels in Body-Food Choice Congruence.

Conflict of Interest
"There is no conflict of interest"