

Is the Rasch-Type Loneliness Scale Rasch-conform? A Psychometric Analysis of Multiple German Versions

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Given its severe health-related consequences, reliably identifying and measuring loneliness is of central importance. The German 6-Item Rasch-Type Loneliness Scale (RTL5) is a widely used instrument that is applied both as a unidimensional scale — addressing overall loneliness — and as a two-dimensional scale, differentiating between emotional and social loneliness. As of yet, there is no IRT-based analysis of different versions of the German RTL5 in terms of different item wordings and the number of response categories. In the present study, we conducted a comprehensive psychometric analysis of the German RTL5 across five datasets ($n1 = 3079$, $n2 = 287$, $n3 = 412$, $n4 = 408$, $n5 = 413$). Overall, the results indicate that the scale evinces the best psychometric features when applied with a 4-point Likert-type response format. By contrast, threshold disordering was observed in all six items when using the original five response categories. Furthermore, no differential item functioning (DIF) was present in the version that uses items differing from the original scale. The Person Separation Reliability for this scale was satisfactory with $PSR = .809$. Infit and outfit mean square indices of all items were within the acceptable range. Overall, the results indicate Rasch-conformity of an adapted version (i.e., changes in item wording on three items and reduction of response categories) of the German RTL5. We, therefore, suggest that this version of the German RTL5 should be used in German-speaking countries in the future.

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