

The “bi-factor vogue”

Tuesday, September 24, 2024 11:50 AM (10 minutes)

The application of the bi-factor model is frequently implemented to assess the latent structure of psychological tests. However, this “bi-factor vogue” in many cases led to anomalous results, in particular, despite models displaying excellent fit indices had also anomalous loading patterns (Eid et al, 2016). In this work, the latent structure of the Prospective and Retrospective Memory Questionnaire (PRMQ; Smith et al., 2000) was evaluated using several model comparisons to provide instances of bifactor misspecification. The PRMQ was administered through an online survey to a matched sample of 384 participants (50% Female; Age = 37.43 ± 11.49 ; Education = 15.57 ± 3.28), all analyses were performed in the statistical programming environment R (R Core Team, 2022).

Three classical models proposed by Crawford et al. (2003) and four alternative bi-factor models meant to address anomalous outcomes when the bi-factor classic model is applied were calculated and compared using the lavaan package (Rosseel, 2012; Eid et al., 2016)

Considering classic fit indices and alternatives in contrast with previous studies, the results seemed to support the unidimensional model as the best-fitting one ($df = 104$; CFI = .99; TLI = .99; RMSEA = .07; SRMR = .060; $\chi^2 = 290.86$, $p < .001$), rather than the alternative bi-factor (PUC = .59; ECV > 0.60; $\omega_h > .70$; Reise et al., 2013; McDonald, 1999)

The results are in line with the latent variable that PRMQ proposes to evaluate, indeed, the proximal construct that PRMQ's items assess is memory self-efficacy, namely the respondents' beliefs of the frequency of forgetting.

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