The Revised Interoceptive Accuracy Scale (IAS-R)

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Abstract

Something something.

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Introduction

Interoception - definition - is the trending topic. Unfortunately, it is also notably hard to measure.

Scales are useful to capture metacognitive and subjective aspects and beliefs While the relationship between scales and tasks is a strong point of contention, it is important to continue developing sound scales from a structural (i.e., factorial) standpoint.

One of the most recent scale is the IAS, which is interesting because...

The purpose of this work is to re-analyze the factor structure of the scale using complementary statistical approaches. and propose a revised version.

Study 1

Study 1 is a re-analysis of the data from Murphy et al. (2020) regarding the factor structure of the Interoceptive Accuracy Scale (IAS). The aim is to use a finer-grained method for estimating the optimal number of latent factors (namely, the *Method Agreement Procedure*, in Lüdecke et al., 2020; Makowski, 2018), and perform a statistical model comparison using Confirmatory Factor Analysis (CFA).

Participants

The exploratory factor analysis (EFA) and initial model selection was performed on the data from study 1 of Murphy et al. (2020), downloaded from OSF, included 451 participants (Mean age = 25.8, SD = 8.4, range: [18, 69]; Gender: 69.4% women, 29.5% men, 1.11% non-binary). Data from the study 6, which included 375 participants (Mean age = 35.3, SD = 16.9, range: [18, 91]; Gender: 70.1% women, 28.5% men, 1.33% non-binary), was used as a test-set for confirmatory analysis.

Results

The *Method Agreement Procedure* suggested 1 latent factor as optimal, supported by 5 (31.25%) out of 16 methods (Bentler, Acceleration factor, Scree (R2), VSS complexity 1, Velicer's MAP), followed by 4 factors supported by 4 methods (Kaiser criterion, beta score, optimal coordinates, parallel analysis).

We fitted the simple-structure (i.e., each variable loading only unto its maximal latent factor) of these two models using CFA, underlining the 4-factors model as having a significantly better fit ($\Delta\chi^2(6) = 232, p < .001; BIC_{EFA-1} = 23041, BIC_{EFA-4} = 23846$). Using the EFA loading patterns and the CFA modification indices, we then compared the initial 4-factor model to two variants: one with 2 items removed (Blood sugar and Taste), and another with, additionally, the *Interoception* factor split into two (with the pain-related items grouped together). The latter model (*CFA-5*), was significantly superior to the others ($\Delta\chi^2(4) = 28.8, p < .001; BIC_{EFA-4mod} = 21555, BIC_{CFA-5} = 21551$). Finally, we removed the least loaded items of expulsion (cough) to improve the balance (3 items per secondary scales, and 6 for interoception), which significantly improved the model fit ($\Delta\chi^2(17) = 61.4, p < .001; BIC_{CFA-5mod} = 20552$).

Finally, we re-fitted the models on a new data set (study 6 of Murphy et al., 2020).

Summary

Exploratory Factor Analysis suggested a 1-factor and 4-factors solutions, but the latter was favoured by CFA. Further comparison suggested that a 5-factors model (obtained by separating *Nociception* from *Interoception*) had a superior fit. The 5 factors are:

- **Interoception**: Heart, Hungry, Breathing, Thirsty, Temperature, Sexual arousal.
- **Nociception**: Muscles, Bruise, Pain.
- **Expulsion**: Burp, Sneeze, Wind.
- **Elimination**: Vomit, Defecate, Urinate.

- **Skin**: Itch, Tickle, Affective touch.

The final revised scale, made of 18 items (6 for interoception and 3 per secondary dimension), is available below.

Study 2

Data Availability

The dataset analysed during the current study are available in the GitHub repository https://github.com/DominiqueMakowski/InteroceptiveAccuracyScale.

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