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INTRODUCTION

- Misfit is typically posited to be caused by un-modeled dependencies amongst variables. But can misfit sometimes be the result of weird people in the sample?

The People Are Weird Fit Index (PAWFI)

- Participants are sequentially removed from the sample until the model exhibits exact fit according to χ^2.
- PAWFI is the proportion removed

METHODS AND RESULTS

SIMULATION 1: Using PAWFI to identify members of mis-fitting group

- Simulation conditions vary proportion of mis-fitting persons and type of misfit
- Most persons removed were mis-fitting, but a fairly low proportion of mis-fitting persons were identified

SIMULATION 2: Comparing PAWFI and traditional fit indices when the model is mis-specified

- Simulation conditions vary sample size and extent of misfit
- PAWFI is not invariant to sample size; PAWFI is larger for larger sample size
- PAWFI is less sensitive to misfit at small sample size than RMSEA, CFI, SRMR

SIMULATION 3: Comparing PAWFI and traditional fit indices in the presence of mis-fitting persons

- Simulation conditions vary sample size and proportion of mis-fitting persons
- PAWFI is consistent across sample sizes, but much smaller than proportion of mis-fitting persons

Model misfit is not always the result of model mis-specification. Weird participants can cause misfit.

Proportion Misfits	Sample Size	Mean PAWFI	Mean RMSEA	Mean CFI	Mean SRMR
10%	250	.01	.05	.97	.03
10%	500	.01	.05	.98	.03
20%	250	.02	.09	.94	.05
20%	500	.03	.09	.94	.05

Simulations were performed in which the population model matched the analysis model. However, a proportion of the sample was generated using a different model. Fit index results averaged across 100 simulations are reported in this table.

Use a QR code reader to visit the github page for PAWFI, including code and a manuscript

The People Are Weird Fit Index.

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THINGS TO CONSIDER

- Mis-fitting participants are not necessarily outliers – standard data preparation may not catch them
- Tactically removing participants can always yield a well-fitting model even when that model is mis-specified
- How can we tell if misfit is caused by participants or by mis-specification?
- PAWFI is not effective as an approximate fit index. Can a participant focused approximate fit index be created?
- Random respondents do not induce substantial misfit