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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  $\chi^2$ .
- 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 misfitting persons

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

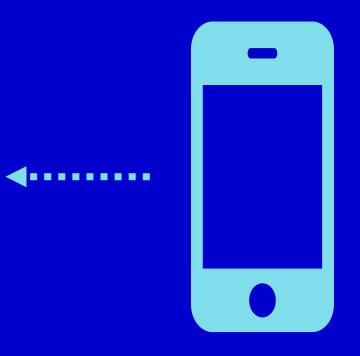
# Model misfit is not always the result of model mis-specification. Weird participants can cause misfit.

Proportion  Misfits	Sample	Mean	Mean	Mean	Mean
IVIISTITS	Size	PAWFI	RMSEA	CFI	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 misspecified
- 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

