

Survey auditing based consistency checks to improve measurement with the Positive and Negative Syndrome Scale (PANSS)

Methodological Question

Can survey auditing methods help identify inconsistent PANSS administrations?

Introduction

- Previously published work has presented expert consensus consistency checks for PANSS administrations (Rabinowitz et al, 2017).
- Those consistency checks were based primarily on flagging incompatibilities in scoring among the 30 PANSS items within and between PANSS administrations.
- The field of auditing checks, as applied to survey research, provides yet another method for identifying irregularities in data.

Aim

Apply survey auditing methods to PANSS ratings to identify additional consistency checks.

Methods

Three relevant survey auditing methods were applied that examine data irregularity:

1. underuse of response choices,
2. overuse of response choices,
3. bias for even or odd responses.

These were applied to see how frequently they occurred in the NewMeds repository of 122,139 PANSS administrations and to see how these relate to the previously published expert validated flags (Rabinowitz et al, 2017).

We sought to find those auditing irregularities that were associated with ratings that had serious inconsistencies as per the published expert derived consistency checks. This was done using recursive partitioning, a statistical procedure that identifies optimal groupings.

Acknowledgments: The research leading to these results has received support from the Innovative Medicine Initiative Joint Undertaking under grant agreement n° 115008 of which resources are composed of European Federation of Pharmaceutical Industries and Associations (EFPIA) in-kind contribution and financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and the Elie Wiesel Chair at Bar Ilan University.

Disclosure: Jonathan Rabinowitz has received research grant(s) support and/or travel support and/or speaker fees and/or consultant fees from Janssen (J&J), Eli Lilly, Pfizer, Lundbeck, Roche, Abraham Pharmaceuticals, Pierre Fabre, Intra-cellular Therapies, Minerva, Takeda and Amgen. Alon A. Rabinowitz has no disclosures.

Jonathan Rabinowitz & Alon A. Rabinowitz

Bar Ilan University, Israel

Jonathan.Rabinowitz@biu.ac.il



Results

PANSS administrations that did not include any items rated with a score of 2, 3 or 4, that repeated the same rating score on 20 or more items or used odd numbers for 25 or more item ratings were 1.6 to 3.1 times more likely to also have at least one serious inconsistency based on expert derived checks.

	Percent of ratings	At least one high flag in rating Odds ratio (95% CI)
Did not include any PANSS items rated		
2	5.2% (n=6300)	1.76 (1.66; 1.87)
3	3.3% (n=4001)	<u>3.10</u> (2.92; 3.34)
4	16% (n=19526)	<u>1.60</u> (1.51; 1.63)
Same value 20 or more items	8.6% (n=10532)	2.16 (2.06; 2.26)
Odd number 25 items or more	8.9% (n=10840)	1.85 (1.76; 1.94)

Conclusions

- Auditing based inconsistency checks appear to be a useful adjunct to expert derived checks in the quest to identify problematic PANSS administrations.
- Application of auditing consistency checks have the potential to improve reliability and validity of clinical trials.

References

Rabinowitz J, Schooler NR, Anderson A, et al. Consistency checks to improve measurement with the Positive and Negative Syndrome Scale (PANSS). Schizophr Res. 2017;190:74-76.

<https://doi.org/10.1016/j.schres.2018.06.025>