

At the Crossroads of Psychometrics and Ethics

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The Ohio State University

August 14, 2008

American Psychological Association Meeting

When does a methodological choice go from ill-advised to unethical?

What is ethical?

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Since I’m not an expert on ethics, this presented something of a problem.

A different direction

I tried a number of different definitions, but I couldn't really settle on one that I was completely comfortable with.

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So let's explore, shall we?

A series of vignettes

In the following slides I'll present a few situations which came to mind as I grappled with the idea of ethics as it applies to methodology. I don't have answers, but hopefully this will be a place for all of us to start a longer discussion.

Outliers - Take One

I remove three observations from a study that appear to be outliers. The desired result is still not statistically significant. I remove three more observations and the desired results becomes statistically significant. I report those results with a footnote that six observations were removed as outliers.

Outliers - Take Two

I remove six observations from a study that appear to be outliers. The desired result becomes statistically significant. I report the results with a footnote that six observations were removed as outliers.

Sample size - Take One

I plan on collecting 200 participants for a study I am conducting. With 180 participants collected, I run the analyses and the desired result is statistically significant. I do not collect the additional 20 subjects and publish the study as having $N=180$.

Sample size - Take Two

I plan on collecting 200 participants for a study I am conducting. When all the data are collected, I run the analyses and the desired result is not statistically significant. An additional 20 subjects become available and when I add their data the desired result becomes significant. I publish the study as having $N=220$.

ANOVA or not - Take One

I run a random effects model and the desired result is not statistically significant. Knowing the usual method in the area is ANOVA, I run an ANOVA and the result is significant. I publish the ANOVA results.

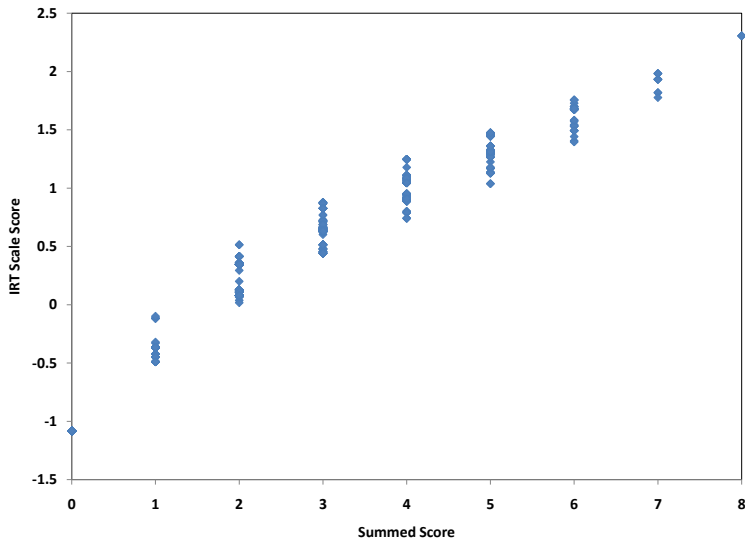
ANOVA or not - Take Two

I run an ANOVA and the desired result is significant. I publish the results.

Cut scores

I develop a scale using classical test theory and determine that a summed score of four is a meaningful cut point between patients with a disorder and those who do not have the disorder.

Comparing IRT and summed scores



I use a widely known scale with a coefficient alpha of 0.9 to track a patient's progress in treatment.

Reliable?

ρ	Standard Error	95% CI	
		Lower Bound	Upper Bound
0.7	0.55	-1.10	1.10
0.8	0.45	-0.89	0.89
0.9	0.32	-0.63	0.63
0.95	0.22	-0.45	0.45
0.99	0.1	-0.2	0.2

Some observations from the trenches

It has been my experience that most researchers enter into any particular analysis already “knowing” what the data are going to tell them.

A great number of travesties are committed in the name of “ease of presentation” or “clarity”.

There are lots of exploratory analyses done without validation on a separate sample.

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Everyone seems to agree that making up data and pretending it is real is a bad thing (a.k.a. unethical) because it suggests there is scientific evidence for something when in fact there is not.

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Everyone seems to agree that making up data and pretending it is real is a bad thing (a.k.a. unethical) because it suggests there is scientific evidence for something when in fact there is not.

Decisions made in the course of analyzing data can result in exactly the same outcome.

What can be done?

I suspect that sometimes researchers engage in dubious activities not out of malice, but out of lack of understanding. As such, the research community could benefit from some broader discussion about the ethics of data analysis.

The End

Thank you.
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