

# **TOP TEN LIST**

## **TEN BEST WAYS TO DO BAD MULTI-LEVEL METHODS RESEARCH**

**With apologies to David Letterman, and thanks for editorial assistance to Elizabeth Kirby and for their insights to the following Internet contributors:**

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## Number 10

### Statistical Power Corrupts . . .

**Determine the statistical power of your multi-level analysis using the lowest level of data (the one with the most cases). Don't worry about the numbers of higher level groupings – consider them powerless.**

**Confused? Just guess about the number of cases you need for power when doing the analysis.**



## Number 9

### The More, the Merrier

Use as many variables as you like for each analysis. The number of cases you have at each level is irrelevant, as are indicators of model fit if the analysis shows anything 'significant'.



## Number 8

### Abracadabra

**Multi-level models have magical powers. Assume that all issues and concerns in study design and data collection are remedied through the use of a multi-level model.**



## Number 7

### Default Settings Rule

**A major challenge in setting up your analysis is the selection of the appropriate covariance structure.**

**So – regardless of how big your dataset is, just fit the unstructured covariance structure and go with that. You'll end up with model results . . . which will almost certainly be wrong.**

## Number 6

### In the Eye of the Beholder

Level of measurement doesn't matter, and the only variables of importance to your study are those included in the analysis. No one is interested in how your operational measures were constructed, and as you did this so expertly there's no need to mention any of these issues as potential study limitations.



## Number 5

### It's All Just Data in the End . . .

Multi-level analyses are as simple as multiple linear regression. How you load the data into the models makes no difference in the statistical results regardless of the type of analysis you perform.

Remember, fixed effects are for fools (also known as 'dismal scientists'), and analyses with undeclared class variables always yield valid results.

## Number 4

### Don't Forget the Kitchen Sink

Typically you will have considerably more data on individual level factors than on higher level factors in your 2 level model. Go ahead and use all the variables you possibly can – over-adjustment has no consequences for the statistical integrity of your analysis.





## Number 3

### Is There a Scientific Method to His Madness?

If you hypothesized a significant association between a predictor and an outcome and found none, just recode the data as much as needed to force the desired result. After all, your instincts as a researcher are unlikely to be wrong, so feel free to manipulate the data as needed to get support for your hypothesis.

## Number 2

### One Size Fits All

**Clarity in stating your research questions is for fools. Just set up the analysis of individual and neighborhood factors and interpret the results.**

**It doesn't matter whether you want to know if neighborhoods matter over and above individual risk factors, or whether your primary interest is in neighborhood factors, or in specific neighborhood factors. The same model should suffice to test all of these assertions.**

## Ten Best Ways to Do Bad Multi-Level Methods Research

# Number 1

## In the Mind's Eye

**Theories and conceptual frameworks have no role in the design, conduct and interpretation of multi-level analyses. In fact, if anything they get in the way of efficient research practice and should be avoided at all costs.**

