Collecting data for meta-analysis – Part III

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Actually, my main frustration comes not from only statistically significant or expected results being published (publication bias), but from reporting quality of many published papers. For meta-analysis you need to record results of all the included studies as effect sizes. These are seldom reported in publications, despite recent encouragement (Nakagawa and Cuthill, 2007). Luckily, effect sizes can be calculated from the reported results of statistical tests or descriptive statistics. Still, collecting effect sizes for meta-analysis is a pain, because good quality (detailed) reporting of statistics is rare. Even such simple thing as not being able to tell the precise sample size can cause you trouble in calculations. It may be difficult to guess sample size for a particular analysis, especially if that analysis involved complex experimental design with several groups. Also, authors usually report just initial experimental group sizes, but later, for different reasons, some individuals are censored out from the analyses without reporting that fact. Authors of research papers typically omit many other crucial details, both in experimental design and in results reporting, which are important for calculating effect sizes. Worse still, for non-significant statistical tests often no statistics are reported at all, or there is just "P>0.05" or similar vague statement. But these results are important for including in meta-analysis and you usually end up writing to authors trying to get details of these "non-significant results".

When it comes to the point when you are thinking about contacting the authors to get the details you did not find in their papers, it might be worth considering the probability of success. Getting the requested data is quite likely, if the papers are recent (lets say from last 10 years), the authors know you or your collaborators, and you request is just for couple of numbers and not for a complete rewritten report of the study.

Last thing, many high-profile journals publish only very short papers, forcing the authors to drop off detailed descriptions of methods and results and to present only the main finding. By containing not enough details, these papers can often be difficult and annoying when they have to be included in meta-analysis. Making things worse, many authors even do not make use of an opportunity to add online supplementary materials. Some choose instead to direct the reader to look at experimental procedures in their earlier publications, which (surprise!) do not contain clear and informative descriptions either (how does it get through review process?). I have seen a paper in a very good journal that does not even mention the name of the species (is "fruitflies" and "Drosophila" enough?).

Are there some temporal trends? While digging through a big pile of publications, I noticed that before 1990 articles were much longer and more thorough, and more recently they started getting shorter and briefer. If we want to conduct and read reliable meta-analyses, we still need a good quality reporting of experimental and statistical methods and results, and that is a job for both authors and editors. And, yes, I love thick, long, very detailed supplementary materials…

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