InvestigationOfSampleSizePlanningInPsycSci

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In order to get an initial estimate of the research planning practices common in psychology I assessed the 121 emperical research articles published in the November 2017 to August 2018 issues of Psychological Science. The sample size was determined in order to constrain multinomial confidence interval width to a maximum of 20%.

Of the 121 empirical research articles published during this period 51, 42% of articles, reported a power analysis.

Of the reported power analyses, the most common approach was to effect size selection was to use a Single previous study as the effect size, with 12 articles (% of articles which reported an power analysis) reporting having done so.

Most of these articles used a point estimate from a single previous study (n = 6) to estimate the effect of an intervention. Just two articles reported using effect sizes from meta analyses toward the same goal, and one used the effect size seen in a pilot study.

The other articles either reported a sensitivity analysis (showing the effect size that the sample size gave them 80% power to detect, n = 3) in order to justify the obtained sample size, or they used benchmarks from Cohen (1988; n = 2) or did not provide any justification for the effect size used in power analysis (n = 1), making it unclear whether their estimate was of the minimum effect of interest or an estimate of the true effect size of the intervention (see <https://osf.io/bmv2d/> for the data behind the above description). X papers adjusted their effect sizes for publication bias.

Table [1] Justifications for power analysis

|  |  |  |  |
| --- | --- | --- | --- |
| Effect size selection method | n | 95\_CI\_LB | 95\_CI\_UB |
| Average effect size in a set of studies (not a formal meta-analysis) | 3 | 0 | 12 |
| Average effect size in a set of studies (not a formal meta-analysis), reduced for publication bias in an ad hoc manner | 2 | 0 | 11 |
| Based sample on single previous study’s sample size (no PA) | 1 | 0 | 10 |
| Effect size from meta-analysis | 2 | 0 | 11 |
| Informal assertion of effect size | 7 | 0 | 15 |
| Lowest effect size reported in a previous paper on this topic | 1 | 0 | 10 |
| Medium effect benchmark from Cohen | 6 | 0 | 14 |
| No effect size stated | 4 | 0 | 12 |
| No power analysis reported | 69 | 50 | 66 |
| Pilot study | 3 | 0 | 12 |
| Post hoc (i.e., justification of obtained sample size) | 3 | 0 | 12 |
| Rule of thumb supported by power analysis | 1 | 0 | 10 |
| Sensitivity analysis | 3 | 0 | 12 |
| Single previous study | 12 | 2 | 19 |
| Small effect benchmark from Cohen | 3 | 0 | 12 |
| Smallest effect size from set of pilots | 1 | 0 | 10 |

Of the reported power analyses, the most common approach (used in ) was to estimate the true effect of the intervention. Most of these articles used a point estimate from a single previous study (n = 6) to estimate the effect of an intervention. Just two articles reported using effect sizes from meta analyses toward the same goal, and one used the effect size seen in a pilot study. The other articles either reported a sensitivity analysis (showing the effect size that the sample size gave them 80% power to detect, n = 3) in order to justify the obtained sample size, or they used benchmarks from Cohen (1988; n = 2) or did not provide any justification for the effect size used in power analysis (n = 1), making it unclear whether their estimate was of the minimum effect of interest or an estimate of the true effect size of the intervention (see <https://osf.io/bmv2d/> for the data behind the above description).

The sample is not representative of psychology articles in general, but does give an….

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