**Supplementary Material – Brief literature Overview**

On the 11th of September 2017 a literature search was performed using the PsycInfo and Medline databases in part to collect data for a meta-analysis of the power of psychology research (<https://osf.io/h8u9w/>), but also to allow for a brief overview of the amount and type of articles discussing statistical power in the psychology literature. This supplementary material briefly outlines the procedures used to classify the returned studies, and shows the total number of power surveys, papers giving power sample size determination advice or statistical procedures to estimate statistical power, articles which are conceptual discussions of statistical power, and the number of articles which have assessed the statistical power of statistical procedures under various conditions. Outlining even at this broad level the type and breadth of research that is available discussing statistical power, even just within domain specific fields of psychology, is important in illustrating just how much effort and research has gone into understanding, developing tools to estimate, and discussing statistical power within the field of psychology.

**Method**

**Literature search**

Psych info was searched using the medline interface for the search string *("\*power\*" or "Determination" or "estimat\*" or "sampl\*").m\_titl. and ("power analysis" or "Statistical Power" or "Sample Size Estimation" or "Sample Size Determination" or "Sample size selection").mp.* This search returned 916 documents. Web of Science was searched using the search string *SU = (Psychology OR Psychiatry OR "Mathematical Methods In Social Sciences") AND TI = (Power\* OR Sampl\*) AND TS = ("power analysis" or "Statistical Power" or "Sample Size")*, returning 1,072 documents A total of 1988 documents were returned, leaving 1497 after 462 duplicates were removed.

**Article classification**

All 1487 remaining articles’ abstracts were screened and categorized. Full texts were accessed and assessed for applicability when there was ambiguity. All articles which primarily presented methods to plan the sample size of studies were selected.

This search excludes sample size planning articles for novel research paradigms (e.g., power analyses for large research projects). Conference proceedings were excluded. Software announcements were excluded, although articles about software included if they gave any examples of how the program could be used to estimate statistical power. Reanalyses of single previous studies or papers were excluded even if the focus of the reanalysis was on the paper’s likely statistical power.

Articles were classified into 6 groups, (1) power surveys, articles which estimate the statistical power of a group of studies, (2) sample size determination advice or techniques, (3) conceptual discussions of statistical power, (4) analyses of the statistical power of statistical procedures, (5) Analysis of the use of power analysis in a body of literature (i.e., studies which examine how power analysis has been reported and used in a body of literature), and (6) advice or techniques for effect size estimation for power analysis (e.g., articles detailing how to account for publication bias in estimating effect sizes from the published literature).

**Results**

This literature search identified 74 articles examining the statistical power of bodies of literature in psychology, 285 articles examining the power of different statistical procedures and some 478 articles providing methods of determining power or advice for sample size selection, and over 116 published conceptual discussions of statistical power. This database is available from <https://osf.io/t6jf8/>. A meta-analysis of those articles which attempt to estimate the statistical power of a body of research (power surveys), and analyses of the proportion of studies which report a power analysis can be found at (<https://osf.io/h8u9w/>). Although this is by no means a comprehensive overview of psychology research, it does show that there is a large body of research that has gone into discussing, assessing, and attempting to address psychology’s power problem, and provides a database of articles that may be useful to other researchers as a starting point for their own research.

Table SMLO 1.

*Classification of the types of article retrieved. Note that papers can be in multiple groups.*

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| Type of article | Number of records |
| Articles discussing statistical power | 882 |
| Power surveys | 65 |
| Sample size determination advice or techniques | 432 |
| Conceptual discussions of statistical power | 102 |
| Analyses of the statistical power of statistical procedures | 272 |
| Analysis of the use of power analysis in a body of literature | 14 |
| Advice or techniques for effect size estimation for power analysis | 14 |
| Excluded articles | 607 |

Box SMLO 1. Example papers

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| **Power surveys**  Cohen, J. (1962). The statistical power of abnormal-social psychological research: A review. *The Journal of Abnormal and Social Psychology, 65*(3), 145-153.  ClarkCarter, D. (1997). The account taken of statistical power in research published in the British Journal of Psychology. *British Journal of Psychology, 88*, 71-83.  **Sample size determination advice or techniques**  Kelley, K. (2007). Sample size planning for the coefficient of variation from the accuracy in parameter estimation approach. *Behavior Research Methods, 39*(4), 755-766. doi:10.3758/bf03192966  Okumura, T. (2008). Sample size determination for data analysis by hierarchical linear models: An application to a social psychological research using data of TIMSS 2003. *Japanese Journal of Behaviormetrics, 35*(2), 221-228.  **Conceptual discussions of statistical power**  Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafo, M. R. (2013). Confidence and precision increase with high statistical power. *Nature Reviews Neuroscience, 14*(8), 585-586..  Chase, L. J., & Tucker, R. K. (1976). Statistical power: Derivation, development, and data-analytic implications. *The Psychological Record, 26*(4), 473-486.  **Analyses of the statistical power of statistical procedures**  Engelhardt, W. (1979). Non-parametric testing of interaction: Statistical power analysis. *Psychologische Beitrage, 21*(3-4), 439-449.  Visscher, P. M., & Posthuma, D. (2010). Statistical Power to Detect Genetic Loci Affecting Environmental Sensitivity. *Behavior Genetics, 40*(5), 728-733. doi:10.1007/s10519-010-9362-0  **Analysis of the use of power analysis in a body of literature**  Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafo, M. R. (2013). Confidence and precision increase with high statistical power. *Nature Reviews Neuroscience, 14*(8), 585-586..  Guo, Q., Thabane, L., Hall, G., McKinnon, M., Goeree, R., & Pullenayegum, E. (2014). A systematic review of the reporting of sample size calculations and corresponding data components in observational functional magnetic resonance imaging studies. *NeuroImage, 86*, 172-181.  **Advice or techniques for effect size estimation for power analysis**  Perugini, M., Gallucci, M., & Costantini, G. (2014). Safeguard Power as a Protection Against Imprecise Power Estimates. *Perspectives on Psychological Science, 9*(3), 319-332. doi:10.1177/1745691614528519  McShane, B. B., & Bockenholt, U. (2014). You Cannot Step Into the Same River Twice: When Power Analyses Are Optimistic. *Perspectives on Psychological Science, 9*(6), 612-625. doi:10.1177/1745691614548513 |