Supplementary Material – Results 1

The three tables presented in this supplementary file add detail to three sections. Table SM-1 provides the demographic details for ratings of the importance of power (divided into job role and open science engagement), to support Table 3 and the two chi square tests reported at the beginning of the results section. Table SM-2 presents the demographic details of power analysis experience (again, for job roles and open science engagement) to support the two chi square tests reported in Part 1 of the results section.

Table SM-3 presents an extensive list of the errors made in definitions of power, with accompanying frequencies and quotes from participants, which accompanies Part 3 of the results section of our paper. It can be seen in Table SM-3 that many participants appear to have confused statistical power itself with an a priori power analysis, which is simply a method of calculating power.

**Table SM-1.**

*Importance of Power Ratings, Divided by Job Role and Open Science Engagement.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Rating – Importance of Power**  *Frequency* | | | | |
|  |
|  | **Very** | **Somewhat** | **Not very** | **Not at all** | **I don’t know** |
| **Full Sample** | 127 | 66 | 5 | 1 | **7** |
| **Job Role** |  |  |  |  |  |
| MSc | 2 | 0 | 0 | 0 | 0 |
| RA or TA | 4 | 2 | 1 | 0 | 0 |
| PhD | 62 | 36 | 0 | 0 | 4 |
| Postdoctoral researcher | 17 | 5 | 1 | 0 | 0 |
| Lecturer | 28 | 20 | 2 | 0 | 2 |
| Professor | 10 | 2 | 1 | 1 | 1 |
| Other | 3 | 1 | 0 | 0 | 0 |
| *Missing* | *1* | *0* | *0* | *0* | *0* |
| **Open Science** |  |  |  |  |  |
| Yes | 74 | 36 | 3 | 1 | 3 |
| No | 51 | 28 | 1 | 0 | 4 |
| Prefer not to say | 1 | 1 | 1 | 0 | 0 |
| *Missing* | *1* | *1* | *0* | *0* | *0* |

**Table SM-2.**

*Experience using Power Analysis, Divided by Job Role and Open Science Engagement.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Experience Using A Priori Power Analysis | | | |
|  | *Frequency* | | | |
|  | **Yes** | *Uses* | *Has Used* | **No** |
| **Full Sample** | **184** | *152* | *32* | **30** |
| **Job Role** |  |  |  |  |
| MSc | **2** | *2* | *0* | **0** |
| RA or TA | **6** | *6* | *0* | **1** |
| PhD | **79** | *66* | *13* | **23** |
| Postdoctoral researcher | **21** | *15* | *6* | **2** |
| Lecturer | **50** | *45* | *5* | **2** |
| Professor | **13** | *9* | *4* | **2** |
| Other | **4** | *3* | *1* | **0** |
| *Missing* | ***9*** | *6* | *3* | ***0*** |
| **Open Science** |  |  |  |  |
| Yes | **101** | *85* | *16* | **16** |
| No | **72** | *58* | *14* | **12** |
| Prefer not to say | **1** | *1* | *0* | **2** |
| *Missing* | ***10*** | *8* | *2* | ***2*** |

**Table SM-3.**

*Errors in Definitions of Power, with Frequencies and Examples, Divided Into Power Analysis Experience (Yes or No).*

|  |  |  |  |
| --- | --- | --- | --- |
| **Power Defined As…** | **Frequency** | | **Example Definition** |
| ***Yes*** | ***No*** |
| **Effect size** | **-** | **2** | “The size/strength of the effect” |
| **Power analysis** | *2* | *2* | “I see it [as] the way to estimate the required number of participants needed to have a pre-specified chance of finding an effect if it exists” |
| **Type I error** | **3** | **-** | “Likelihood any significant effect is not due to chance” |
| **Type II error** | **7** | **-** | “The probability of conducting [a] type II error” |
| **Sample Size** | **15** | **7** |  |
| *General* | *1* | *-* | “Sample size per number of experimental groups” |
| *Minimum sample size* | *6* | *2* | “The number of participants needed to show an effect” |
| *Sample size for meaningful results* | *4* | *-* | “The number of participants I would require to show meaningful results” |
| *Sample size for reliable results* | *2* | *1* | “The number of participants needed to ensure results are reliable” |
| *Sample size for representative results* | *-* | *1* | “Using enough participants to provide a large enough sample to be representative/statistically sensitive” |
| *Sample size for validity of study* | *-* | *1* | “The minimum sample size needed to be confident that any conclusion drawn is valid” |
| **Measure of meaningful results** | **5** | **2** | “Capacity of the study to produce results that are statistically meaningful” |
| **Measure of representative results** | **3** | **3** | “How likely it is that my results are representative to the general population” |
| **Measure of validity** | **2** | **-** | “Not fully sure, but I know that increased power means that your results are likely to be more valid (i.e., not spurious)” |
| **Other** | **4** | **3** | “It is like the impact of the finding given the sample and figures”  -  “Is it about taking the log of a number normalized to a standard value?” |