Package ‘metapower’

April 7, 2020

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Title Power Analysis for Meta-Analysis
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License GPL-2
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Imports cowplot (>= 1.0.0), dplyr (>= 0.8.5), ggplot2 (>= 3.3.0), knitr (>= 1.28), magrittr (>= 1.5), tidyverse (>= 1.0.2), testthat (>= 2.3.2), rmarkdown (>= 2.1), rlang (>= 0.4.5)
VignetteBuilder knitr
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NeedsCompilation no
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mod_power

homogen_power_plot  
Plot Power Curve for Test of Homogeneity

Description

Plot Power Curve for Test of Homogeneity

Usage

homogen_power_plot(obj)

Arguments

obj  should be an mpower object

Value

Power curve plot for the user specified input parameters

mod_power

Compute Power for Categorical Moderation Meta-analysis

Description

Computes statistical power for categorical moderator models under fixed- and random-effects models

Usage

mod_power(
    n_groups,  
effect_sizes,  
sample_size,  
k,  
es_type,  
test_type = "two-tailed",  
p = 0.05,  
sd_within = NULL,  
con_table = NULL
)

Arguments

- **n_groups**: Number of anticipated groups in moderation analysis
- **effect_sizes**: Expected effect sizes of for each group.
- **sample_size**: Expected number of participants (per group)
- **k**: Total expected number of studies
- **es_type**: 'Correlation', 'd', or 'OR'
- **test_type**: "two-tailed" or "one-tailed"
- **p**: Significance level (Type I error probability)
- **sd_within**: (Optional) For computing power for a test of homogeneity (within-groups). standard deviation of each group to the overall mean
- **con_table**: (Optional) For Odds Ratio effect sizes. Expected 2x2 contingency table as a vector in the following format: c(a,b,c,d)

<table>
<thead>
<tr>
<th>2x2 Table</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>Not Present</td>
<td>c</td>
<td>d</td>
</tr>
</tbody>
</table>

Value

Estimated Power estimates for between and within-groups moderation

Examples

```r
mod_power(
  n_groups = 3,
  effect_sizes = c(0,.1,.55),
  sample_size = 15,
  k = 15,
  es_type = "Correlation",
  sd_within = c(1,1,4),
  test_type = "two-tailed",
  p = .05)
```

Description

Computes statistical power for meta-analytic main effects, tests of homogeneity, and categorical moderator models under both fixed- and random-effects models.
Usage

```r
mpower(
  effect_size,
  sample_size,
  k,
  es_type,
  test_type = "two-tailed",
  p = 0.05,
  sd = NULL,
  con_table = NULL
)
```

Arguments

- **effect_size**: Expected effect size magnitude
- **sample_size**: Expected number of participants (per group)
- **k**: Expected number of studies
- **es_type**: 'Correlation', 'd', or 'OR'
- **test_type**: "two-tailed" or "one-tailed"
- **p**: Significance level (Type I error probability)
- **sd**: (Optional) Fixed-effects models only: Expected standard deviation among all effect sizes
- **con_table**: (Optional) For Odds Ratio. Expected 2x2 contingency table as a vector in the following format: c(a,b,c,d)

<table>
<thead>
<tr>
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</tr>
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<tr>
<td>Not Present</td>
<td>c</td>
<td>d</td>
</tr>
</tbody>
</table>

Value

Estimated Power

References


Examples

```r
mpower(effect_size = .5, sample_size = 10, k = 10, es_type = "d")
```
power_plot

Plot Power Curve for Meta-analysis

Description
Plot Power Curve for Meta-analysis

Usage
power_plot(obj)

Arguments
obj This should be an mpower object

Value
Power curve plot for the user specified input parameters
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