Rosenthal Correlation Coefficient (es_rosenthal)

Author: P. Stikker
Website: https://peterStatistics.com
YouTube: https://www.youtube.com/stikpet
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Introduction

The *es_rosenthal* function calculates a Rosenthal Correlation Coefficient.

This document contains the details on how to use the functions, and formulas used in them.

1 About the Function

1.1 Input parameters:

- **zVal**
  the z-value statistic from a test
- **n**
  the total sample size

- *Optional parameters*
  - **qual**
    the rule-of-thumb to be used for the qualification/classification. See the function *th_pearson_r* for details and options (default is "bartz".
  - **out** (default is "value") – only applies to non-array VBA function
    Choice what to show as result. Either:
    - "value" (default): value of the effect size
    - "qual" : the qualification

1.2 Output

- **r**
  The effect size value

- **qualification**
  The qualification using the specified rule of thumb

Note for *Excel:*

the array function *es_rosenthal_arr* will require 2 rows and 2 columns.

1.3 Dependencies

- **Excel**
  - The additional function '*th_pearson_r*' for the rule-of-thumb interpretation is needed.

- You can run the **es_rosenthal_addHelp** macro so that the function will be available with some help in the 'User Defined' category in the functions overview.

- **Python**
  The following libraries are needed:
  - pandas is needed for data entry and showing the results
  - *th_pearson_r* for the rule-of-thumb interpretation is needed

- **R**
  th_pearson_r for the rule-of-thumb interpretation is needed.

2 Examples

2.1 Excel

	A	B	C	D	E	F
1						
2						
3						
4		z	1,143943			
5		n	20			
6						
7			0,2557934	=es_rosenthal(C4;C5)		
8			low	=es_rosenthal(C4;C5;;"qual")		
9						
10		Rosenthal (	Qualification			
11		0,2557934	low			
12						
13		B10:C11 =>	=es_rosenthal_arr(C4;C5)			

2.2 Python

```
1]: from eff_size_rosenthal import es_rosenthal
    from thumb_pearson_r import th_pearson_r
    import pandas as pd

    z = 1.143943
    n = 20

    es_rosenthal(z, n)
```

1]:

	Rosenthal corr.	Classification
0	0.255793	low

2.3 R

```
> source("eff_size_rosenthal.R")
> source("thumb_pearson_r.R")
>
> z = 1.143943
> n = 20
>
> es_rosenthal(z, n)
          r qualification
1 0.2557934           low
```

3 Details of Calculations

$$r = \frac{z}{\sqrt{n}}$$

Symbols:

- n the sample size
- z the calculated z-statistic value.

Source:

4 Sources

Unclear if this is the original source, but it's the oldest I could find:

$$r = \sqrt{\frac{Z^2}{N}} = \frac{Z}{\sqrt{N}} \qquad [2.18]$$

(Rosenthal, 1991, p. 19)

References

Rosenthal, R. (1991). *Meta-analytic procedures for social research* (Rev. ed). Sage Publications.