S 5 CompCet and interpretation of the coefficient souCcorrelations

EXAMPLE

AND) Calculation of Pearson product correlation coefficient (manually)

We are interested in whether it is statistically and factually significant for the group of boys dependence in the number of made mistakes and clicks. The performances are given in Table 5.

Tab. 5

proband	*shyby* x_{and}	*clicks* y_{and}	x_{i2}	y_{i2}	$x_i y_i$
1	1	2	1	4	2
2	3	3	9	9	9
3	2	3	4	9	6
4	0	0	0	0	0
5	5	8	25	64	40
6	6	5	36	25	30
7	1	1	1	1	1
8	4	6	16	36	24
9	3	7	9	49	21
10	5	5	25	25	25
11	6	8	36	64	48
12	2	2	4	4	4
13	1	5	1	25	5
14	1	3	1	9	3
15	8	12	64	144	96
∑	48	70	232	468	314

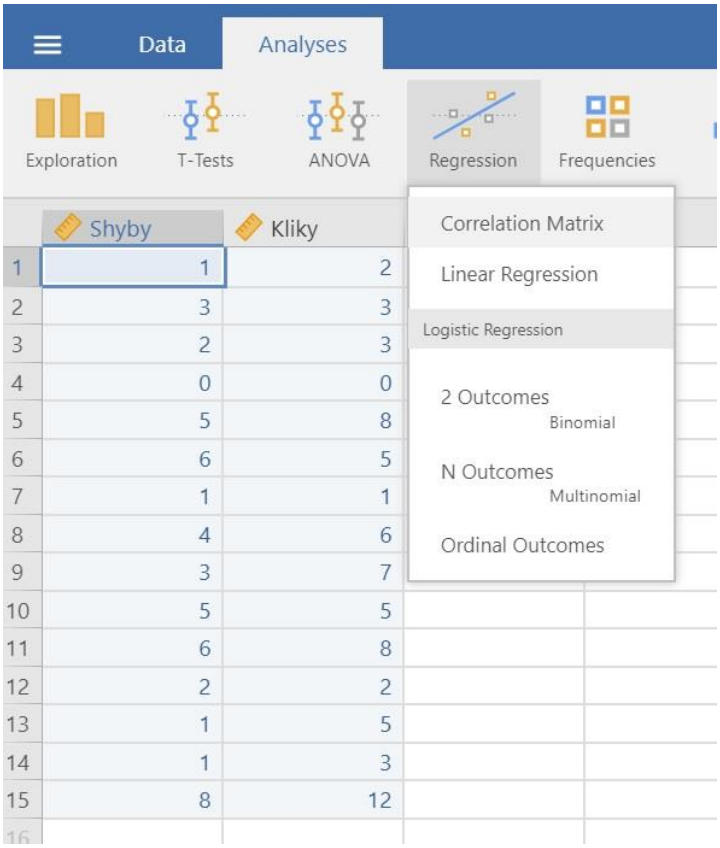
$$= \frac{\sum \sum_{=1} - (\sum_{=1}) (\sum_{=1})}{\sqrt{[\sum_{=1} {}_2 - (\sum_{=1})_2] [\sum \sum_{=1} {}^2 - (\sum_{=1})_2]}}$$

$$= \frac{15 \times 314 - 48 \times 70}{\sqrt{[15 \times 232 - 48_2] [15 \times 468 - 70_2]}} = 0.855$$

B) Calculation of Pearson product correlation coefficient (Jam) + statistical significance:

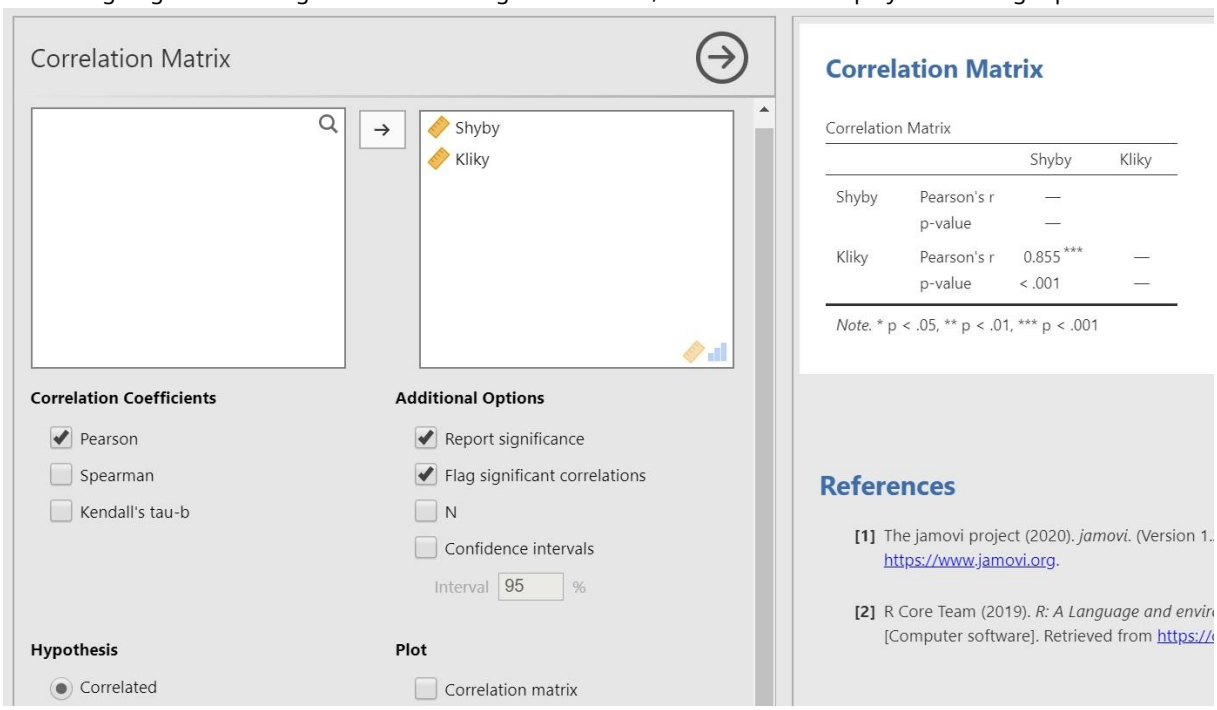
In the case of a random sample from the basic set, we can assess whether it is a statistically significant dependence, using the calculation *p* values:

After entering data, marking them as metric and assigning categories (folds, clicks) we continue through the election *Analyzes → Regression → Correlation Matrix*



	Shyby	Kliky
1	1	2
2	3	3
3	2	3
4	0	0
5	5	8
6	6	5
7	1	1
8	4	6
9	3	7
10	5	5
11	6	8
12	2	2
13	1	5
14	1	3
15	8	12
16		

After assigning data to categories and selecting Person's test, the results are displayed in the right part.



The value of the Pearson product correlation coefficient is 0.855. Value$p$ <0.01 The dependence of bugs and cranks is statistically significant.

C) Calculation procedure inE(practical) importance (effect size)

The square of the correlation coefficient is called coefficient of determination (2). Its value tells us how many percent the observed factor contributes to the resulting dependence (Kerlinger, 1972).

Coefficient of determination $_2 = 0.855_2 = 0.731$

The dependence of the keys on the keys and vice versa is affected by 73%.

TASKS

1. In the Cartesian coordinate system, construct a so-called correlation diagram (correlogram) consisting of points about coordinates (x_{and}, y_{and}) for the dominant press (x_{and}) and non-dominant (y_{and}) arms. Correlogram*(fence)* construct using Jam software. You can find the data in the table you filled in at the link:
   https://docs.google.com/spreadsheets/d/1K2nki8oDTRTQ7aC1MYqiiLLMA70pWhU3mlofiQjMxj0/edit?usp=sharing

2. Visually assess the nature and nature of the scattering of plotted points, estimate the type and size of the observed statistical dependence.

3. Assume that it is a product correlation dependence and calculate the correlation coefficient ($r_{x,y}$).

4. Calculate materiality.