Statistical Significance

P-value / α level

Definition

- Statistical significance is used to:
  Accept or reject the null hypothesis

- Statistical hypothesis testing is used to determine whether the result of a research is statistically significant.

Statistical Significant

(Independent variable) (Dependent variable)

Input (1) ⟶ **Output (1)**

Input (2) ⟶ **Output (2)**

If there is significant difference between results. ⟶ We reject H0

If there is no significant difference between results. ⟶ We accept H0

What is p-value and α level?

P- value : the probability value

α level (= 0.05) sets the limit for keeping or rejecting the H0

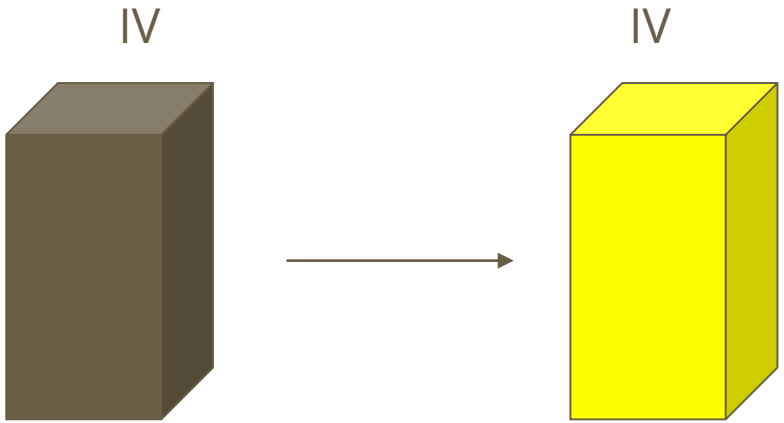
P- value and α level

- **If $p \leq \alpha$** ⟶ there is a relationship between IV and DV **(reject H0 and assume H1)**

- **If $p > \alpha$** ⟶ there is not any relationship between IV and DV **(keep the H0)**

Example:

M= 100 boxes monthly



H0: M=100 boxes after changing the color

H1: M≠100 boxes after changing the color

Example:

α level = 0.05

If p-value > α ⟶ keep H0

0.07

0.05

If p-value ≤ α ⟶ reject H0

0.03

0.05

References

- McLeod, S. A. (2019, May 20). *What a p-value Tells You About Statistical significance*. Simply Psychology. https://www.simplypsychology.org/p-value.html
- Minitab Blog Editor. (2015, March 19). Understanding Hypothesis Tests: Significance Levels (Alpha) and P values in Statistics. Retrieved December 20, 2019, from https://blog.minitab.com/blog/adventures-in-statistics-2/understanding-hypothesis-tests-significance-levels-alpha-and-p-values-in-statistics