

Effect Size

Course: Statistics 1

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Introduction

In hypothesis testing small differences can lead to statistically significance for *large sample size*

Effect Size addresses the issue of how much weight to be given to very small differences that are statistically significant

Effect Size, *ES*

- *The degree to which a phenomenon exist (Cohen, 1965)*
- It a measure of the magnitude of treatment effect
- Independent of sample size
- Many formula; here will use (Cohen, 1988), d
- **ES:**
 - $d = \text{Mean Difference divided by standard deviation}$*

Interpreting ES

- Rule of Thumb

d	Magnitude of ES (d)
0.2	Small
0.5	Medium
0.8	Large

Cohen, J. (1988). *Statistical power analysis for the behavioral science*. (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates

Example

- Given

$$M_1 = 110.79, M_0 = 120, S.D. = 13.3199$$

- ES, $d = (110.79 - 120) / 13.3199 = -0.69$
- Absolute value of $d = 0.69$
- So d of 0.69 is a **medium** effect