

What is Hedges' g and what is its definition and example?

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April 27, 2024

RECOMMENDED CITATION

stats writer (2024). *What is Hedges' g and what is its definition and example?*.

PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=139936>

Hedges' g is a statistical measure that is used to determine the effect size of a treatment or intervention in a research study. It is a standardized mean difference that compares the average scores of two groups on a continuous variable. It takes into account the variability within the groups and provides a more accurate estimate of the true effect size.

Hedges' g is calculated by dividing the difference between the two group means by the pooled standard deviation. This results in a decimal value that represents the magnitude of the difference between the two groups.

For example, in a study comparing the effectiveness of two different teaching methods on student test scores, Hedges' g can be used to determine the magnitude of the difference between the average scores of the two groups. A larger g value indicates a stronger effect size, while a smaller g value indicates a weaker effect.

What is Hedges' g? (Definition & Example)

In , we often use to determine if there is a statistically significant difference between two groups.

However, while a p-value can tell us whether or not there is a statistically significant difference between two groups, an can tell us *the size* of this difference.

One of the most common ways to measure effect size is to use Hedges' g, which is calculated as follows:

$$g = (x_1 - x_2) / \sqrt{((n_1-1)*s_1^2 + (n_2-1)*s_2^2) / (n_1+n_2-2)}$$

where:

x₁, x₂: The sample 1 mean and sample 2 mean,

respectively n_1 , n_2 : The sample 1 size and sample 2 size, respectively s_1^2 , s_2^2 : The sample 1 variance and sample 2 variance, respectively

The following example shows how to calculate Hedges' g for two samples.

Example: Calculating Hedge's g

Suppose we have the following two samples:

Sample 1:

x_1 : 15.2 s_1 : 4.4 n_1 : 39

Sample 2:

x_2 : 14 s_2 : 3.6 n_2 : 34

Here is how to calculate Hedges' g for these two samples:

$$g = (x_1 - x_2) / \sqrt{((n_1-1)*s_1^2 + (n_2-1)*s_2^2) / (n_1+n_2-2)}$$

$$g = (15.2 - 14) / \sqrt{((39-1)*4.4^2 + (34-1)*3.6^2) / (39+34-2)}$$

$$g = 1.2 / 4.04788$$

$$g = 0.29851$$

Hedges' g turns out to be 0.29851.

Bonus: Use this to automatically calculate Hedges' g for any two samples.

How to Interpret Hedges' g

As a rule of thumb, here is how to interpret Hedge's g:

0.2 = Small effect size
0.5 = Medium effect size
0.8 = Large effect size

In our example, an effect size of 0.29851 would likely be considered a small effect size. This means that even if the difference between the two group means is statistically significant, the actual difference between the group means is trivial.

Hedges' g vs. Cohen's d

Another common way to measure effect size is known as , which uses the following formula:

$$d = (x_1 - x_2) / \sqrt{(s_1^2 + s_2^2) / 2}$$

The only difference between Cohen's d and Hedges' g is that Hedges' g takes each sample size into consideration when calculating the overall effect size.

Thus, it's recommended to use Hedge's g to calculate effect size when the two sample sizes are not equal.

If the two sample sizes are equal then Hedges' g and Cohen's d will be the exact same value.

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