Effect sizes for paired data should use the change score variability rather than the pre-test variability.

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2024-10-01

Abstract

Full Citation
Dankel, SJ and Loenneke, JP. Effect sizes for paired data should use the change score variability rather than the pre-test variability. J Strength Cond Res 35(6): 1773–1778, 2021—

What is effect size
- ► Variable that provides an overall measure for magnitude of change (Cite)
- ► Differs from a T-statistic because sample size is not included
- ► Used in various baseline-post-treatment comparison
  - ► Specifically, they are looking at this comparison from the lens of meta-analyses for exercise science and sports medicine

Main Issue

In effect size calculations for paired data, the authors argue that people tend to use the wrong kind of variability. What are the two kinds of variability that they are referring to?

Variability of the Study Sample

- Any measure of difference between subjects in a given treatment group
- Represented by the Baseline and Post-treatment Standard Deviation.
- Dankel(Cite) and his team claim that the use of this type of variability in paired-sample studies is useless as it has nothing to do with the treatment itself

Variability of the Intervention

▶ Any measure of difference between baseline and post-treatment measure
▶ Represented in ths case by the Standard Deviation of Change Scores (I will elaborate on this later)
▶ Dankel and his team prefer this method of assessing variability

Authors

- Do research on the authors and what they have accomplished
- Which Journal was this published in
- Good example of the use of statistics as an interdisciplinary tool

Introduction

Specific Effect Size Measures

- Cohen's d (Cite)
- Hedge's g (Cite)
- Glass delta (Cite)
- Each use some combination of baseline standard deviation and post-treatment standard deviation.
- Measures of variability of the study sample ### Paired Data vs. Independent Data
- Brief overview of each

Methods

Figure 1

Figure 2

Results

Discussion

References