

Week 6 Discussion: Confidence Interval

Required Resources

Read/review the following resources for this activity:

Textbook: Chapter 8

Lesson

Minimum of 1 scholarly source

In your reference for this assignment, be sure to include both your text/class materials AND your outside reading(s).

Confidence Intervals

In everyday terms, a confidence interval is the range of values around a sample statistic (such as mean or proportion) within which clinicians can expect to get the same results if they repeat the study protocol or intervention, including measuring the same outcomes the same ways. As you ask yourself, "Will I get the same results if I use this research?", you must address the precision of study findings, which is determined by the Confidence Interval. If the CI around the sample statistic is narrow, you can be confident you will get close to the same results if you implement the same research in your practice.

Consider the following example. Suppose that you did a systematic review of studies on the effect of tai chi exercise on sleep quality, and you found that tai chi affected sleep quality in older people. If, according to your study, you found the lower boundary of the CI to be .49, the study statistic to be 0.87, and the upper boundary to be 1.25, this would mean that each end limit is 0.38 from the sample statistic, which is a relatively narrow CI.

$$(UB + LB)/2 = \text{Statistic } [(1.25 + .49)/2 = .87]$$

Keep in mind that a mean difference of 0 indicates there is no difference; this CI does not contain 0. Therefore, the sample statistic is statistically significant and unlikely to occur by chance.

Because this was a systematic review, and tai chi exercise has been established from the studies you assessed as helping people sleep, based on the sample statistics and the CI, clinicians could now use your study and confidently include tai chi exercises among possible recommendations for patients who have difficulty sleeping.

Now you can apply your knowledge of CIs to create your own studies and make wise decisions about whether to base your patient care on a particular research finding.

Initial Post Instructions

Thinking of the many variables tracked by hospitals and doctors' offices, confidence intervals could be created for population parameters (such as means or proportions) that were calculated from many of them.

Choose a topic of study that is tracked (or you would like to see tracked) from your place of work. Discuss the variable and parameter (mean or proportion) you chose, and explain why you would these to create an interval that captures the true value of the parameter of patients with 95% confidence.

Consider the following:

How would changing the confidence interval to 90% or 99% affect the study? Which of these values (90%, 95%, or 99%) would best suit the confidence level according to the type of study chosen? How might the study findings be presented to those in charge in an attempt to affect change at the workplace?