Two Related-Sample Tests: The sign, and the Wilcoxon Tests

The Sign, and Wilcoxon tests were developed to analyze data from studies with similar designs.

These tests, can be applied to problems with repeated-measure designs and matchedsubject designs.

Repeated-measure designs

An individual is assessed on a measure on two occasions or under two conditions. Each individual is a case in the SPSS data file and has scores on two variables.

The goal of repeated-measure designs is to determine whether participants changed significantly across occasions (or conditions)

Matched-subject designs

Participants are paired, and each participant in the pair is assessed once on a measure. Each pair of participants is a case in the SPSS data file and has scores on two variables.

The purpose of matched-subject designs is to evaluate whether the pairs of participants differ significantly under the two conditions. For both types of studies, each case in the SPSS data file has scores on two variables.

The Sign, and Wilcoxon tests evaluate differences between paired scores, either repeated or matched.

The variables for the Sign and Wilcoxon have multiple possible scores. With these tests, the focus is on whether the medians of the variables differ significantly.

EXAMPLE (LESSON 44 data file 1)

Michelle is interested in determine if workers are more concerned with job security or job pay. She gains the cooperation of 30 individuals who work in a variety of work settings and asks each employee to indicate how concerned they are about their salary level and about their job security The scores on the variables are based on rating scales that range in value from 1=no concern to 10=ultimate concern.

The question is: Does median concern for job security differ from median concern for job pay?

KRelated-Sample Test:

The Friedman Test

The Friedman test is extension of the Wilcoxon test.

The Friedman test allow for the analysis of **repeated-measures data** if participants are assessed on two or more occasions or to **matched-subject data** if participants are in pairs, triples, or in some greater number.

Repeated-measure designs

Each participant is a case in the SPSS data file and has scores on *K* variables. A researcher is interested in determining if subjects changed significantly across occasions or conditions.

Matched-subject designs

Participants are matched in sets of *K* participants, and each participant in a set is assessed once on a measure. Each set of participants is a case in the SPSS data file and has scores on *K* variables.



LESSON 45 data file 1

The question is: Do employees' medians on concern for job pay, job security and job climate ratings differ in the population?