Learning Tool to Assist with Understanding of Common Statistical Tests in Quantitative Research Studies

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Introduction

Many healthcare professionals are engaged in evidence-based practice daily in their work. However, understanding the statistics in published research articles may be difficult for them. In a five-step approach to EBP, Berndt (2009) noted in step 4 to be satisfied “the chosen analysis provides information that answers the research question” (p. 560). Having a tool that assists in the use of common statistical tests for data analysis will assist the nurse in understanding research studies. This diagram can be used for teaching in the nurse educator classroom to help middle and graduate nursing students as well as other healthcare professionals on interdisciplinary teams and in undergraduate and graduate nursing courses as well as other continuing education settings.

Literature

For many nurses to employ EBP practice daily in their work, they must be able to read, interpret, and understand evidence-based statistics. Jones (2013), How to be a critical consumer of research: Two and five statistical concerns. Journal of Emergency Nursing, 39(5), 559–560. doi: 10.1016/j.jen.2009.07.005

References


How to Use Diagram

This diagram provides a visual approach to understanding if the statistical tests used in data analysis are appropriate to answer the research question or hypothesis presented in a quantitative research study.

Step 1 Review levels of measurement: nominal (marital status), ordinal (level of education), interval (temperature), ratio (weight).

Step 2 Review normal distribution (bell curve) in the population.

Step 3 Explain if the research question addresses a relationship between variables, difference between groups, or simply a description of a variable. Identify the appropriate area on the diagram.

Step 4 Provide an example of a research question/hypothesis, data collection method (random assignment?) and data analysis information.

Step 5 Determine if the research question addresses a relationship between variables, difference between groups, or simply a description of a variable. Identify the appropriate area on the diagram.

Step 6 Provide an example of a research question/hypothesis, data collection method (random assignment?) and data analysis information.

Step 7 Based on level of measurement and whether random assignment was used, determine if the data analysis should use parametric or non-parametric tests.

Step 8 Identify the list of tests appropriate. When reviewing a published article, did the author report use of an appropriate test?