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Using Statistics for Quantitative Reasoning

Overview

➢ What is Quantitative Reasoning
➢ Quantitative reasoning at Walden
➢ Descriptive Statistics
➢ Inferential Statistics
➢ Biostatistics
➢ Statistics in the real world
➢ Questions?
What is Quantitative Reasoning?

Applying Basic skills (such as statistics)
To the analysis and interpretation
of real-world quantitative information (data)
In the context of a problem
To draw relevant conclusions
All degree levels at Walden University require QR skills (poll moment…)

Skills are developed in statistics courses

Most courses require statistical software, such as Statdisk, SPSS, or Excel

Statistics courses include both descriptive and inferential statistics
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Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data and form the basis of virtually every quantitative analysis.

- Understand different levels of measurement (categorical and continuous)
- Describe variables (mean, mode, median, SD, Variance)
- Produce graphs (pie/bar/scatter/histogram)
Examples of Descriptive Statistics

➢ Human Services: Participation rate for counseling services

➢ Health Services: Prevalence – measure the frequency (mode) of a disease in a population

➢ Public Policy: Understanding election results – mean versus standard deviation
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Inferential Statistics

➢ Translate research question into a testable hypothesis

➢ Select appropriate test, such as compare means (t-test/Anova) or regression (binary, multiple, or logistics)

➢ Perform analysis and interpret results
Examples of Inferential Statistics

➢ Human Services: What is the nature of the relationship between demographic/social factors, and attitudes toward police? (Multiple Regression)

➢ Health Services: Is there a relationship between specialty of physicians and medical malpractice cases in Puerto Rico? (Correlation and Regression)

➢ Public Policy: Examine the differences in the media between Canada and the United States for how they portray refugees (Ancova)
To be or not to be.....significant

- \( p < \alpha \) is accepted as statistically significant
- \( p > \alpha \) is considered not statistically significant
Using Statistics for Quantitative Reasoning

*Making sense of data that relates to living organisms*

**Biostatistics** = Statistics + Health Sciences and Biology

- Medicine
- Biology
- Public Health
Biostatistics Example: Risk of Autism and Vaccines

Calculate the Odds ratio:

\[ O.R. = \frac{A \times D}{B \times C} \]

- No Relation =1
- Positive Relation >1
- Negative Relation <1
Statistics application in the real world:

Think about your workplace (poll moment…).

How many of you apply statistics at work? Can you share some examples how you apply quantitative reasoning in your workplace?
Questions???
- Contact the ASC with questions at Academicskills@mail.waldenu.edu
- Look for the entire Building Your Skills for Success Conference on our YouTube Channel
- For monthly updates, subscribe to the ASC Savvy Student Newsletter
- Follow us on Twitter, read our blog, & listen to our podcast!

*Links below!*
Thank you for attending!