

TYPES OF DATA VARIABLES

| Type of Data | Descriptor | Central Tendency & Variability | Example: |
|--|--|--|---|
| Non-Parametric – Data from the population used in the study does NOT follow a normal distribution | | | |
| Nominal | <ul style="list-style-type: none"> Categorical (Binary or Dichotomous) Non-numerical variable No sense of ranking | <ul style="list-style-type: none"> Central: Mode & frequency Variability: None (Qualitative) | <ul style="list-style-type: none"> Yes or No endpoints or (e.g., mortality) Gender, ethnicity, Rh type |
| Ordinal | <ul style="list-style-type: none"> Ordered Categorical (i.e., There is a sense of ranking & order) Non-numerical variable Not measurable numerically The magnitude of difference between each level is NOT known or the same | <ul style="list-style-type: none"> Central: Mode, Median, & Frequency Variability: Range or +/- Interquartile Range (IQR) Visual: Box-and-Whisker Plots | <ul style="list-style-type: none"> NYHA FC for HF Cancer staging BMI classifications Social class (deprived → affluent) Smear result: +, -, or uncertain |
| Continuous* | <ul style="list-style-type: none"> Data that does NOT meet the assumptions or criteria for parametric data for a reason to be considered | <ul style="list-style-type: none"> Central: Mode, Median, & Frequency (avoid use of mean) Variability: Range; +/- IQ range | <ul style="list-style-type: none"> Skewed lab results Small sample size < 30 |
| Parametric – Data from the population used in the study DOES follow a normal distribution | | | |
| Continuous | <ul style="list-style-type: none"> Numerical and measurable A true sense of ranking that goes to infinity or absolute zero Magnitude of the difference between each level is known or is the same | <ul style="list-style-type: none"> Central: Mode, Median, Mean Variability: Range, interquartile range, & standard deviation (+/- SD) Visual: Frequency Distribution graphs | <ul style="list-style-type: none"> Blood pressure, temperature, pulse Labs <u>without</u> cutoffs: Sodium |

Standard Statistical Tests

Decision Table

| | Type of Data (Scale of Measure) | 2 Independent Groups | Related or Paired Groups | ≥ 3 Independent Groups | ≥ 3 Related or Paired Groups | Measures of Correlation |
|-----------------------|---|------------------------------------|--------------------------------|--|---|--|
| Non-Parametric | Nominal (Categorical) (No Order or Rank) | Chi-square Fisher's Exact | McNemar Test | Chi-square for k independent samples | Cochran Q | Cramér's V or Phi (Contingency coefficient) |
| | Ordinal (Categorical) (Has Order & Rank) | Mann-Whitney U | Wilcoxon Signed Rank Sign Test | Kruskal-Wallis H test (+post-hoc tests; e.g., Dunn's) | Friedman test | Spearman rho Kendall's tau |
| Parametric | Continuous (Quantitative) (Measurable & Order) | Student's t-test Welch's t-test | Paired t-test | One-way ANOVA (+post-hoc tests; e.g., Tukey, Bonferroni, Scheffé) | Repeated Measures ANOVA (+post-hoc tests; e.g., Tukey, Bonferroni) | Pearson's r Correlation |