
Advanced Bio-Medical Statistics

Agreement analysis / reliability

- Bland Altman Plots;
- Cohen's Kappa Test,
- Weighted Kappa
- Interclass Correlation Coefficient (ICC)

Chi-Square tests: different questions, different designs

- McNemar's Test; Cochran's Q Test; Chi-square test of homogeneity (Test of two proportions)

Specificity and sensibility analysis

- False Positive and false negatives
- Calculating sensitivity, specificity
- Roc Curves

Differences between groups

- More on ANOVA: Complex designs, ANCOVA ; MANOVA
- How to use ANOVAS when assumptions are not met – non-parametric options and link to regression models

Regression Models

- Moderation – the importance of simultaneous effects
- Mediation – when the effects are in a cascade
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Survival Analysis – Kaplan Meyer and Cox Regression

- Time to event and the importance of multiple models
- Hazard Ratios

Logistic Regression and propensity scores

- Revisit logistic regression, interpretation of odds and estimation of probability function.
- Logistic as the first step to propensity scores
- Post-randomization of data

Data reduction

- Creating an Index
- Chronbach's Alpha;
- Principal components analysis

Finding patterns and homogeneous groups of cases

- Factorial Analysis
- Clusters
- Using clusters within any model