Textbook Examples of IBM SPSS Procedures

Each SPSS procedure listed below has its own section in the textbook. These sections include a purpose statement that describes the statistical test, identification of alternative tests, key assumptions and requirements, example research question and null hypothesis, steps used to conduct the procedure, selected SPSS output and analysis, and an example of how one might report results in a scholarly journal article or report. One can download the SPSS dataset file associated with each SPSS procedure listed below and generate the output and data analysis displayed in the textbook in order to check one's understanding of the statistical procedure.

Goodness of Fit Tests	
SPSS Procedure	**SPSS Dataset File Used in Book Example**
Binomial Test – nonparametric; compares the proportion in one of two categories to a hypothesized test proportion.	Community.sav
Chi-Square (χ^2) Goodness-of-Fit – nonparametric; determines if a sample of data for one categorical variable comes from a population with a specific distribution.	Motivation.sav
Kolmogorov-Smirnov Test – nonparametric; determines whether a sample of data from one continuous variable comes from a specific distribution; $N \geq 50$.	Motivation.sav
One-Sample *t*-Test – parametric; compares a calculated sample mean from one continuous variable to a known value.	Motivation.sav
One-Sample Wilcoxon Signed-Rank Test – nonparametric; compares a calculated sample median from one continuous variable to a known value.	Motivation.sav
Shapiro-Wilk *W* Test – nonparametric; determines whether a sample of data from one continuous variable comes from a specific distribution; $N < 50$.	Motivation.sav
Wald-Wolfowitz Runs Test for Randomness – nonparametric; compares the order recorded to random order.	Motivation.sav

Difference Tests	
SPSS Procedure	**SPSS Dataset File Used in Book**

	Example
Analysis of Covariance – parametric; compares two or more independent samples after controlling for one or more interval or ratio covariate(s), one interval or ratio DV (multiple DVs for MANCOVA).	Motivation.sav
Between Subjects ANOVA – parametric; compares multiple independent samples, one interval or ratio DV.	Motivation.sav
Cochran's *Q* Test – nonparametric; compares multiple dependent samples, nominal DV.	Ratings.sav
Dependent *t*-Test – parametric; compares two dependent samples, interval or ratio DV.	Computer Anxiety.sav
Friedman Test – nonparametric; compares multiple dependent samples, ordinal DV.	Computer Anxiety.sav
Independent *t*-Test – parametric; compares two independent samples, interval or ratio DV.	Computer Anxiety.sav
Kruskal-Wallis *H* Test – nonparametric; compares multiple independent samples, ordinal DV.	Computer Anxiety.sav
Levene's Test – parametric; compares multiple independent samples for equal variances, interval or ratio DV.	Motivation.sav
Mann-Whitney *U* Test – nonparametric; compares two independent samples, ordinal DV.	Computer Anxiety.sav
McNemar Chi-Square Test – nonparametric; compares two dependent samples, nominal DV.	Survey.sav
Median Test – nonparametric; compares multiple independent samples, ordinal DV.	Computer Anxiety.sav
Multivariate ANOVA – parametric; compares multiple independent and/or dependent samples, multiple interval or ratio DVs.	Motivation.sav
Related Samples Sign Test – nonparametric; compares two dependent samples, nominal or ordinal DV.	Computer Anxiety.sav
Wilcoxon Matched-Pair Signed Ranks Test – nonparametric; compares two dependent samples, ordinal DV.	Computer Anxiety.sav
Within Subjects ANOVA – parametric; compares multiple dependent samples, one interval or ratio DV.	Computer Anxiety.sav

Correlation and Prediction Tests

SPSS Procedure	SPSS Dataset File Used in Book Example
Binomial Logistic Regression – nonparametric; predicts one dichotomous DV using multiple continuous and/or categorical IVs.	Community.sav
Bivariate Regression – parametric; predicts one interval/ratio DV using one interval/ratio IV.	Motivation.sav
Canonical Correlation Analysis (CCA) – parametric; determines relationship between a set of multiple interval/ratio IVs and a set of multiple interval/ratio DVs.	Alienation.sav
Cohen's Kappa (κ) Measure of Agreement – nonparametric; determines consistency of two raters, one categorical variable with equal number of categories for each rater.	Ratings.sav
Contingency Coefficient (C) – nonparametric; determines symmetric relationship between two nominal variables, maximum value depends on table size, used for large tables, e.g., 5x5 or larger, chi-square based.	Community.sav
Cramér's *V* – nonparametric; determines symmetric relationship between two nominal variables, used for tables larger than 2x2, chi-square based.	Community.sav
Discriminant Analysis – parametric; predicts one categorical DV using multiple interval/ratio IVs.	Community.sav
Eta (η) Correlation Coefficient – nonparametric; determines total linear and nonlinear asymmetric relationship between one nominal and one interval/ratio variable.	Motivation.sav
Gamma – nonparametric; determines symmetric relationship between ordinal and dichotomous nominal variables, ignores ties, based on concordant-discordant pairs, proportional reduction of error measure.	Community.sav
Internal Consistency Reliability Analysis – parametric; measures the internal consistency reliability of a scale or subscale	Community Index.sav
Intraclass Correlation Coefficient – nonparametric; determines consistency of raters using ratio, interval, or ordinal variables of the same class.	Ratings.sav
Kendall's tau-*b* – nonparametric; determines monotonic symmetric relationship between two ordinal variables, used when the number of	Community.sav

rows and number of columns are equal, adjusts for tied pairs, based on concordant-discordant pairs.	
Kendall's tau-*c* – nonparametric; determines monotonic symmetric relationship between two ordinal variables, used when the number of rows and number of columns are not equal, based on concordant-discordant pairs.	Community.sav
Lambda (λ) – nonparametric; determines asymmetric measure between two nominal variables, uses the modal distribution, proportional reduction of error measure.	Computer Knowledge.sav
Multiple Regression and Correlation – parametric; predicts one interval/ratio DV using multiple interval/ratio IVs, dummy variables permitted as IVs.	Motivation.sav
Partial Correlation – parametric; determines relationship between two interval/ratio variables after controlling for one or more interval/ratio variables.	Motivation.sav
Pearson Chi-Square (χ^2) Two-Way Contingency Table Analysis – nonparametric; determines symmetric relationship between two nominal variables; chi-square based.	Computer Anxiety.sav
Pearson Product-Moment Correlation – parametric; determines symmetric linear relationship between two interval/ratio variables.	Motivation.sav
Phi (Φ) – nonparametric; determines symmetric relationship between two nominal variables, used for 2x2 tables, chi-square based.	Community.sav
Point-Biserial Correlation (r_{pb}) – parametric; determines symmetric linear relationship between one dichotomous variable and one continuous variable.	Community.sav
Principal Components and Factor Analysis – parametric; determines common underlying dimensions among multiple interval/ratio variables.	Community Index.sav
Relative Risk and Odds Ratio – nonparametric; determines relative risk and odds ratio between two dichotomous variables.	Risk.sav
Somers' *d* – nonparametric; determines monotonic asymmetric relationship between two categorical ordinal variables, adjusts for ties in the DV only, based on concordant-	Community.sav

discordant pairs.	
Spearman Rank Order Correlation – nonparametric; determines monotonic symmetric relationship between two ranked variables.	Motivation.sav
Two-Step Cluster Analysis – parametric; determines natural groupings among multiple continuous and categorical variables.	Motivation.sav
Uncertainty Coefficient (UC) – nonparametric; determines asymmetric relationship between two nominal variables, uses the entire distribution, proportional reduction of error measure	Community.sav

Case Studies	
Statistical Analysis Case	**SPSS Dataset File Used in Book Example**
Data Screening	Alienation.sav
Multiple Groups Analysis	Motivation.sav
Regression Analysis	Alienation.sav
Repeated Measures Analysis	Computer Anxiety.sav