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Titolo Converting Data into Evidence [[electronic resource]] : A Statistics Primer for the Medical Practitioner / / by Alfred DeMaris, Steven H. Selman

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Statistics, general

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Livello bibliografico Monografia

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Nota di bibliografia Includes bibliographical references and index.

Nota di contenuto Preface; Contents; Chapter 1: Statistics and Causality; What Is Statistics?; What Statistics Is; An Example; Populations and Samples; Probability vs. Nonprobability Samples; Sampling "to" a Population; Statistics and Causal Inference; A Mathematical Definition of "Causal Effect"; How Do We Estimate the ACE?; Example of Latent Self-Selection; Internal vs. External Validity: A Conundrum; Chapter 2: Summarizing Data; Descriptive Statistical Techniques; Quantitative vs. Qualitative Data; Describing Data; Measuring Center and Spread of a Variable's Distribution; The Mean
Percentiles and the MedianDispersion; Data from the General Social Survey; Describing the Population Distribution; The Normal and t Distributions; Applications: Descriptive Statistics in Action; Tarenflurbil Study; Hydroxychloroquine Study; RALP Study; Brachytherapy Study; Chapter 3: Testing a Hypothesis; The Test of Hypothesis; Let's Roll the Dice; Testing Whether Al's Die Is Loaded; Statement of Hypotheses; Testing the Null Hypothesis; Making a Decision; "Statistically Significant" Results; What About Your Sequence of Die Rolls?; Large-Sample Test of Hypothesis About a Mean
Assumptions for the TestStatement of Hypotheses; Before Going Further: The Sampling Distribution of a Sample Statistic; Simple Example of a Sampling Distribution; A More Elaborate Example;

Sampling Distribution of the Mean for the Large-Sample Test of Hypothesis; The Central Limit Theorem; Test Statistic and P -Value; Summary; Chapter 4: Additional Inferential Procedures; Confidence Intervals and the T Test; Confidence Intervals; Testing the Difference Between Two Means: The T Test; Statement of Hypotheses; Sample Information and the Sampling Distribution; Assumptions for the T Test Computation of the Test StatisticFinding the P Value; One-Tailed vs. Two-Tailed Tests; Summary: Hypothesis Testing; Decision Errors and the Power of the Test; Power of the T Test in the Diet Example; T Tests for the GSS Data; Comments About Statistical Tests; P Values, Revisited; Sampling from "The Population"; Application: T Tests and Statistical Power in Action; Gender Difference in Physician Salaries; Power Considerations in Hydroxychloroquine Study; Power in the Arterial Inflammation Study; Chapter 5: Bivariate Statistical Techniques; A Nonparametric Test for the Steak-Diet Example
Computing the WRSTBivariate Statistics; Bivariate Analysis: Other Scenarios; Qualitative Treatment with More Than Two Levels: ANOVA; Qualitative Treatment and Qualitative Response: χ^2; Calculating the χ^2 Value; Minimum and Maximum Values of χ^2; Measuring the Strength of Association; Quantitative Treatment and Response: The Correlation Coefficient; Testing the Significance of R; The Paired t Test: How Correlation Affects the Standard Error; Summary of Bivariate Statistics; Application: Bivariate Statistics in Action; ANOVA: GGT and Alcohol Consumption
χ^2 : Second-to-Fourth Digit Ratio Study

| Sommario/riassunto | Converting Data into Evidence: A Statistics Primer for the Medical Practitioner provides a thorough introduction to the key statistical techniques that medical practitioners encounter throughout their professional careers. These techniques play an important part in evidence-based medicine or EBM. Adherence to EBM requires medical practitioners to keep abreast of the results of medical research as reported in their general and specialty journals. At the heart of this research is the science of statistics. It is through statistical techniques that researchers are able to discern the patterns in the data that tell a clinical story worth reporting. The authors begin by discussing samples and populations, issues involved in causality and causal inference, and ways of describing data. They then proceed through the major inferential techniques of hypothesis testing and estimation, providing examples of univariate and bivariate tests. The coverage then moves to statistical modeling, including linear and logistic regression and survival analysis. In a final chapter, a user-friendly introduction to some newer, cutting-edge, regression techniques will be included, such as fixed-effects regression and growth-curve modeling. A unique feature of the work is the extensive presentation of statistical applications from recent medical literature. Over 30 different articles are explicated herein, taken from such journals. With the aid of this primer, the medical researcher will also find it easier to communicate with the statisticians on his or her research team. The book includes a glossary of statistical terms for easy access. This is an important reference work for the shelves of physicians, nurses, nurse practitioners, physician's assistants, medical students, and residents. . |