Clinical Data Analysis on a Pocket Calculator: Understanding the Scientific Methods of Statistical Reasoning and Hypothesis Testing

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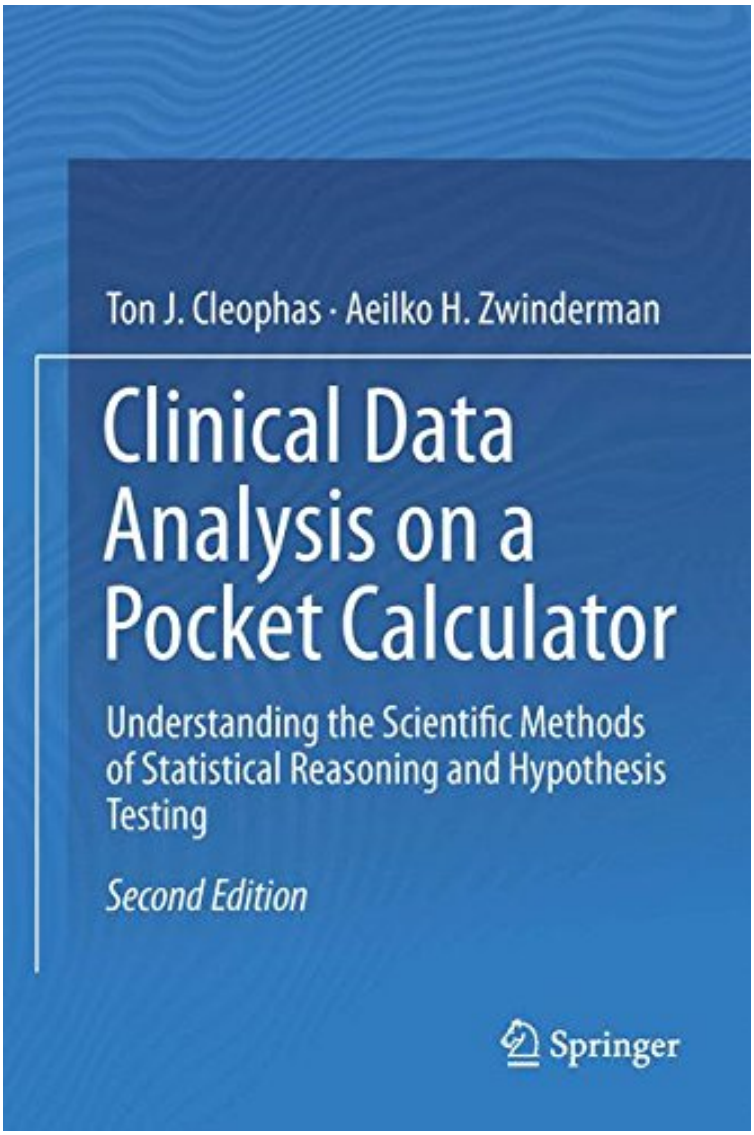

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Ton J. Cleophas, Aeilko H. Zwinderman : Clinical Data Analysis on a Pocket Calculator: Understanding the Scientific Methods of Statistical Reasoning and Hypothesis Testing before purchasing it in order to gage whether or not it would be worth my time, and all praised Clinical Data Analysis on a Pocket Calculator: Understanding the

Scientific Methods of Statistical Reasoning and Hypothesis Testing:

In medical and health care the scientific method is little used, and statistical software programs are experienced as black box programs producing lots of p-values, but little answers to scientific questions. The pocket calculator analyses appears to be, particularly, appreciated, because they enable medical and health professionals and students for the first time to understand the scientific methods of statistical reasoning and hypothesis testing. So much so, that it can start something like a new dimension in their professional world. In addition, a number of statistical methods like power calculations and required sample size calculations can be performed more easily on a pocket calculator, than using a software program. Also, there are some specific advantages of the pocket calculator method. You better understand what you are doing. The pocket calculator works faster, because far less steps have to be taken, averages can be used. The current nonmathematical book is complementary to the nonmathematical "SPSS for Starters and 2nd Levelers" (Springer Heidelberg Germany 2015, from the same authors), and can very well be used as its daily companion.

From the Back CoverIn everyone's life the day comes that medical and health care has the highest priority. It is unbelievable, that a field, so important, uses the scientific method so little. The current book is helpful for implementation of the scientific method in the daily life of medical and health care workers. From readers' comments to the first editions of this work, the authors came to realize that statistical software programs is experienced by professionals in the field as black box programs producing lots of p-values, but little answers to scientific questions, and many readers had not been happy with that situation. The pocket calculator analyses appeared to be, particularly, appreciated, because they enabled readers for the first time to understand the scientific methods of statistical reasoning and hypothesis testing. So much so, that it started something like a new dimension in their professional world. We should add a number of statistical methods can be performed more easily on a pocket calculator, than using a software program. Also, there are some specific advantages of the pocket calculator method. You better understand what you are doing. The pocket calculator works faster, because far less steps have to be taken, averages can be used. With statistical software all individual data have to be included separately, a time-consuming activity in case of large data files. Some analytical methods, for example, power calculations and required sample size calculations are difficult on a statistical software program, and easy on a pocket calculator. The reason for a rewrite was to give updated and upgraded versions of the forty chapters from the first editions, including the valuable comments of readers. Like in the textbook complementary to the current work, entitled "SPSS for Starters and 2nd Levelers" (Springer Heidelberg 2015, from the same authors), an improved structure of the chapters was produced, including background, main purpose, scientific question, schematic overview of data files, and reference sections. In addition, for the analysis of more complex data twenty novel chapters were written. We showed that, also here, a pocket calculator can be very helpful.For the readers' convenience the chapters have been reclassified according to the most basic difference in data characteristics: continuous outcome data (34 chapters), binary outcome data (26 chapters). Both hypothesized and real data examples are used to explain the sixty pocket calculator methods described. The arithmetic is of a no-more-than high-school level. About the AuthorThe authors are well-qualified in their field. Professor Zwinderman is past-president of the International Society of Biostatistics (2012-2015), and Professor Cleophas is past-president of the American College of Angiology (2000-2002). From their expertise they should be able to make adequate selections of modern methods for clinical data analysis for the benefit of physicians, students, and investigators. The authors have been working and publishing together for 17 years, and their research can be characterized as a continued effort to demonstrate that clinical data analysis is not mathematics but rather a discipline at the interface of biology and mathematics.The authors as professors and teachers in statistics at universities in The Netherlands and France for the most part of their lives, are convinced that the scientific method of statistical reasoning and hypothesis testing is little used by physicians and other health workers, and they hope that the current production will help them find the appropriate ways for answering their scientific questions. Three textbooks complementary to the current production and written by the same authors are Statistics applied to clinical studies 5th edition, 2012, Machine learning in medicine a complete overview, 2015, SPSS for starters and 2nd levelers, 2015, all of them edited by Springer Heidelberg Germany.