

Meta-analysis in Medical Research

**The handbook for the
understanding and
practice of meta-analysis**

Gioacchino Leandro

Gastroenterologist, Biostatistician
Castellana Grotte, Italy

FOREWORD BY

Giuseppe Gallus

Head of the Institute of Medical Statistics
University of Milan, Italy

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To those who have helped me become
who I am, even if they expected more

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Foreword

In their current medical practice, physicians need to be updated with the results of the most important clinical studies. In addition, they are often asked to be part of trials and to evaluate the results of new diagnostic tools and experimental data. A good knowledge of principles and the methodology of statistics is therefore mandatory for all physicians.

Although there has been an increasing interest in evidence-based practice of medicine in the past few years, the data interpretation is still performed badly and statistics are often misused. Among the principal reasons for this is the lack of knowledge concerning the use of mathematical and statistical tools, and a consequent tendency to avoid them if possible. Thus, those physicians who are more familiar with this type of statistics, and who know what is required in good medical practice and how to communicate with their colleagues, are of great help.

This guide to meta-analysis, together with the included statistical software, is the work of a clinician and it deals with the difficulties mentioned above.

The reader is introduced to the principal aspects of meta-analysis using a simple terminology, which does not imply a superficial approach. The most common errors encountered in the practical application of statistical procedures are discussed. The program is designed for easy use, which will help clinicians to utilize meta-analysis. The handbook contains a short section dedicated to the statistical procedures applied. A basic knowledge of statistical methods is an essential starting point, but this manual can also be of great interest and provide useful information for those who have greater experience and are consolidating their statistical knowledge. It is therefore logical that the author's choice has been to concentrate on practical guidelines rather than describing statistical methods.