

Home

Contents

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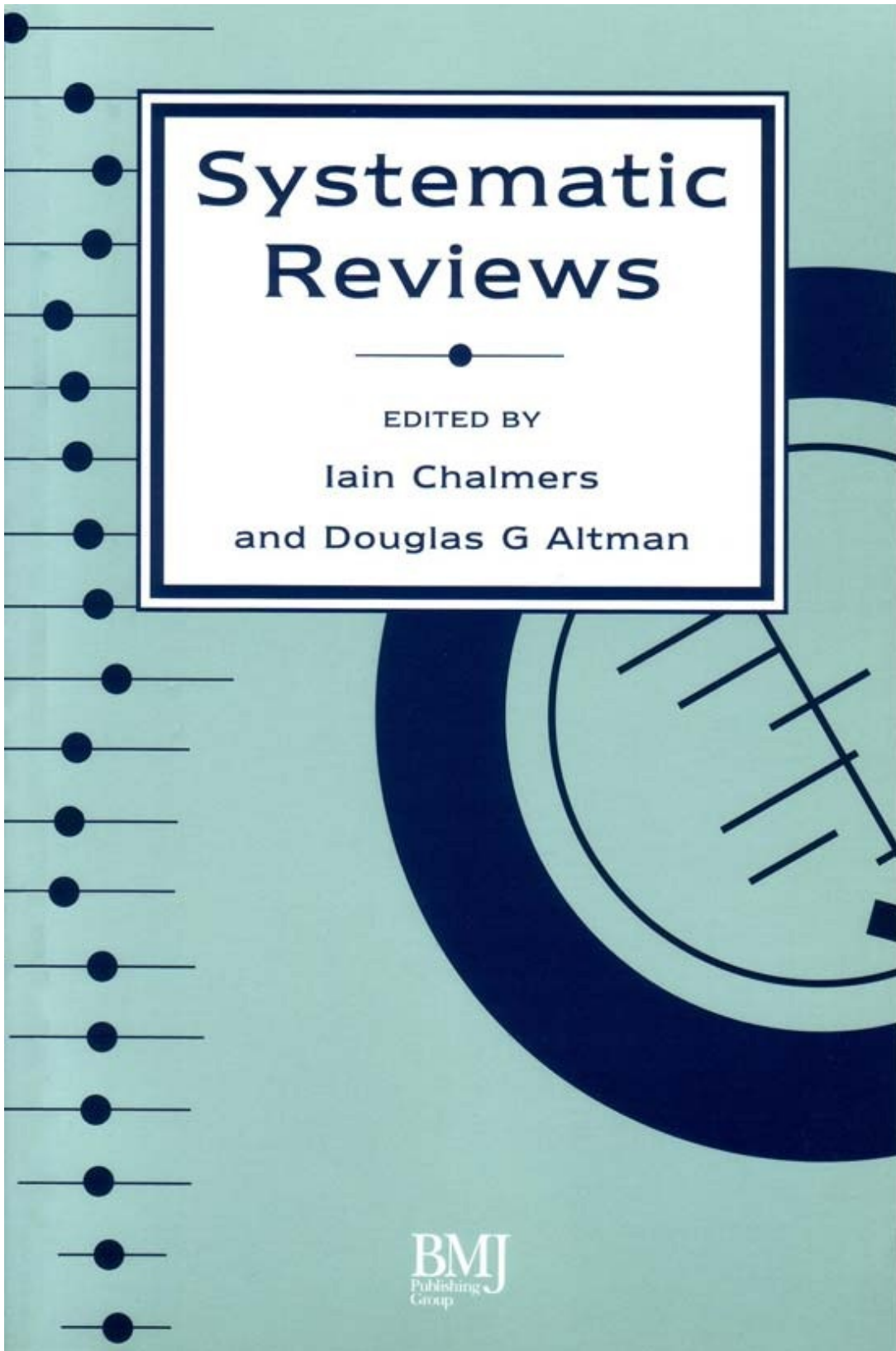
Records

Title Page(s) Key Passage(s) Context

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Chalmers I, Altman DG (1995). Systematic Reviews. London: BMJ Publications.

Title pages



Key passages

This book is dedicated to

Thomas C Chalmers

in appreciation of his many pioneering contributions to the science of reviewing health research, and in particular, for the first clear demonstration of the dangers of relying on traditional reviews of research to guide clinical practice.

Reviews of the results of research have become essential for anyone who is serious about trying to cope with ever-increasing tidal waves of new research evidence. Wider recognition of the key role of reviews in synthesising the results of primary research has prompted people to consider the validity of reviews. Unfortunately, it is usually not possible to judge whether conventional narrative reviews are trustworthy. In contrast to reports of primary research, such reviews rarely make explicit their objectives, materials, and methods. In the 1970s psychologists drew attention to the systematic steps needed to minimise biases and random errors in reviews of research. It was not until 1987 that Mulrow first drew attention to the poor scientific quality of reviews of clinical research.¹ The following year Oxman and Guyatt published guidelines to help readers assess the quality of reviews in health care.²

In an applied field of research such as the evaluation of health care, reviews which have been prepared with disregard for scientific principles can have serious consequences. In 1992, after presenting a landmark comparison of what was being recommended in textbooks of cardiology and what could have been known if their authors had applied scientific principles to their task, Antman and his colleagues noted that “because reviewers have not used scientific methods, advice on some lifesaving therapies has been delayed for more than a decade, while other treatments have been recommended long after controlled research has shown them to be harmful.”³

It was because of a recognition that this worrying state of affairs needed greater exposure and discussion, that the BMJ and the UK Cochrane Centre collaborated in organising a meeting in London in July 1993 to discuss aspects of the science of reviewing clinical research. The chapters in this book are based on papers presented at that meeting, which were published in earlier versions in the

BMJ during 1994. The first two - by Cynthia Mulrow, and by Paul Knipschild - introduce and illustrate systematic reviews. Kay Dickersin, Roberta Scherer and Carol Lefebvre, and Michael Clarke and Lesley Stewart discuss the data collection challenges confronting those preparing systematic reviews. Simon Thompson and Hans Eysenck concentrate on quantitative synthesis of primary data to yield an overall summary statistic (meta-analysis). These chapters make it clear that interpretation of the summary statistics generated through meta-analysis will often present challenges, particularly when the primary data have not been derived from controlled experiments. In the penultimate chapter Andrew Oxman provides guidelines for assessing reviews; and finally one of us (IC) and Brian Haynes describe how systematic reviews are being prepared, updated, and disseminated by the international network of people who together constitute the Cochrane Collaboration. Because the chapters do not offer comprehensive coverage of the field, the book concludes with a methodological bibliography of further reading. For those wishing to explore the science of reviewing research in greater depth we hope that this bibliography will satisfy the appetite that the book is intended to stimulate.

A word about terminology: both the 1993 meeting and the book based on the proceedings have very deliberately used the term "systematic review" rather than some of the alternatives which are in use. Use of this term implies only that a review has been prepared using some kind of systematic approach to minimising biases and random errors, and that the components of the approach will be documented in a materials and methods section. Other terms, particularly "meta-analysis," have caused confusion because of the implication that a systematic approach to reviews *must* entail quantitative synthesis of primary data to yield an overall summary statistic (meta-analysis). As we hope this book will help to make clear, this is not the case. In addition to those circumstances in which statistical synthesis of results of primary research is not advisable, there will be others in which it is quite simply impossible. It is just as important to take steps to control biases in reviews in these circumstances as it is to do so in circumstances in which meta-analysis is both indicated and possible.

Iain Chalmers
Doug Altman
December 1994

- 1 Mulrow CD. The medical review article: state of the science. *Ann Intern Med* 1987; 106: 485-8.
- 2 Oxman AD, Guyatt GH. Guidelines for reading literature reviews. *Can Med Assoc J* 1988; 138: 697-703.
- 3 Antman EM, Lau J, Kupelnick B, Mosteller F, Chalmers TC. A comparison of results of meta-analyses and randomized control trials and recommendations of clinical experts. *JAMA* 1992; 268: 240-8.

1 Rationale for systematic reviews

1

CYNTHIA D MULROW, *associate professor, Divisions of General Medicine and Geriatrics, University of Texas Health Science Center, San Antonio, Texas, USA*

2	Some examples of systematic reviews	9
	PAUL KNIPSCHILD, <i>professor, Department of Epidemiology, University of Limburg, Maastricht, Netherlands</i>	
3	Identifying relevant studies for systematic reviews	17
	KAY DICKERSIN, <i>director, Baltimore Cochrane Center, Department of Epidemiology and Preventive Medicine, University of Maryland School of Medicine, Baltimore, Maryland, USA</i>	
	ROBERTA SCHERER, <i>research associate, Baltimore Cochrane Center</i>	
	CAROL LEFEBVRE, <i>information specialist, UK Cochrane Centre, Oxford</i>	
4	Obtaining data from randomised controlled trials: how much do we need for reliable and informative meta-analyses?	37
	MICHAEL J CLARKE, <i>cancer overviews coordinator, Clinical Trial Service Unit and ICRF Cancer Studies Unit, Oxford</i>	
	LESLEY A STEWART, <i>overview coordinator, MRC Cancer Trials Office, Cambridge</i>	
5	Why sources of heterogeneity in meta-analysis should be investigated	48
	SIMON G THOMPSON, <i>reader in medical statistics, Medical Statistics Unit, London School of Hygiene and Tropical Medicine, London</i>	
6	Problems with meta-analysis	64
	H J EYSENCK, <i>professor emeritus of psychology, University of London, Institute of Psychiatry, London</i>	
7	Checklists for review articles	75
	ANDREW D OXMAN, <i>Coeditor, Cochrane Collaboration Handbook, National Institute of Public Health, Oslo, Norway</i>	
8	Reporting, updating, and correcting systematic reviews of the effects of health care	86
	IAIN CHALMERS, <i>director, UK Cochrane Centre, NHS Research and Development Programme, Oxford</i>	
	BRIAN HAYNES, <i>director, Canadian Cochrane Centre, Health Information Research Unit, McMaster University Medical Centre, Hamilton, Ontario, Canada</i>	
	Bibliography on the science of reviewing research	96
	Index	113

