

Cochrane Handbook for Systematic Reviews of Interventions Edited by Julian P. T. Higgins & Sally Green, 2008. Chichester, West Sussex, UK: Wiley-Blackwell. \$42.40

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It is always good news when an evaluation report attests either the effectiveness of a medical therapy or the sustainability of a public program whose development or implementation have been funded by the government (both at the federal and state level). That the expected goals of an after-school program or the envisaged effects of a newly approved diabetes treatment have been fully attained and that, as a result, taxpayers' money was wisely spent, are especially relevant from an accountability perspective, even more so in times of financial distress, like the one we are currently living in. Learning about programs' effectiveness is certainly good but it is not sufficient. In other words, demonstrating that Project A accomplished all its objectives and that all its effects were statistically significant does not constitute evidence of substantive impact. What would be more beneficial instead, both from a programmatic and scientific research standpoints, is comparing the effect size of Project A with that of Projects B and C.

However, for studies to be juxtaposed based on the estimation of their effect size, it is necessary that they be directly comparable with each other. However, for that to happen, researchers will need not only to employ equivalent outcome variables but also to measure them consistently with the scientific literature available on their specific topic of interest. That is exactly where one of the meta-analysis' added value lies: enhancing the uniformization of outcome indicators and impact measurements across a variety of studies in a given field (Hedges et al, 1988).

Introduced in the late 1970's (Smith & Glass, 1977), meta-analysis mainly consists in the selection and analysis of quantitative studies meeting the three following criteria: (1) the display of similar substantive, methods and/or extrinsic characteristics (Lipsey 1994); (2) the inclusion of identical outcomes of interest; and 3) the presentation of comparable effect sizes (Rosenthal, 2000; Raudenbush & Bryk, 2002; Shadish, Cook, & Campbell, 2002). Thanks to

meta-analysis, a body of comparable information on the effectiveness of policies or programs accumulates and is thus ready to be used as the basis for decision-making as well as for the setting of future research agenda (Howard et al, 2000). Quite a fascinating topic if it were not for the fact that meta-analysis is not of immediate fruition to the most, mainly due to the statistical complexity and highly technical content of the research topics associated with it. While peer-reviewed articles on meta-analysis have contributed to the dissemination of this research method within academic circles over the last twenty years, a manual on this topic that could make meta-analysis more accessible among the general public (and that could integrate some of the most recent ideas and trends into the current discourse on synthesis of quantitative research) has been missing for over a decade.

The paucity of specialized manuals or how-to-guides on meta-analysis then explains why the publication of the *Cochrane Handbook for Systematic Reviews of Interventions* edited by Julian P. T. Higgins and Sally Green was particularly welcome. In particular, this book is an in-depth description of the Cochrane approach (www.cochrane.org), a very rigorous and somewhat expensive methodology for conducting systematic reviews of interventions. Created in 1993 and already consisting of more than 15,000 contributions in over 100 countries. As an evaluator currently completing his doctoral studies in interdisciplinary evaluation, I started reading it with great trepidation myself. Ever since I heard about it in one of the design classes during my first semester in the program, I thought that this reading was a must for any student in evaluation or research methods. As the book was also

recommended to me by a colleague working at the World Bank on the evaluation of HIV and AIDS programs in sub-Saharan Africa and Latin America, I convinced myself quite rapidly that this Handbook would also be of particular interest for researchers and evaluators working in international development. Although I had already had the opportunity to skim through this somewhat intimidating book (a total of 646 pages divided in three main parts and 22 chapters) at the beginning of the year (I had already found it quite a useful reading then), I went back to it with an even greater interest more recently, once I was invited to write a review for it.

The intellectual and programmatic benefits associated with the conduct of meta-analysis certainly influenced my decision to write a review of this book: I personally engaged myself in the systematic review of street children interventions in the Democratic Republic of Congo and community-based HIV and AIDS programs in Kenya. However, on a more practical level, I was particularly drawn to meta-analysis by the facility of implementing it from my own desk without having to travel overseas, as I have been doing over the last eight years.

Going back to a more thorough read of this book a second time was quite enlightening for five main reasons. First, the clarity of language and the cohesive presentation of topics throughout the whole book. I particularly appreciated the preliminary listing of key points at the beginning of each chapter as well as the summary of findings at the end. That was especially true for the first two parts of the book. In particular, Part I introduces the Cochrane approach and provides the reader with a step-by-step guide on how to plan and prepare a systematic review; Part II offers a more in-depth description

of the meta-analytical methodology, including the question and inclusion criteria development (questions should be describing participants, interventions, comparisons and outcomes), the search, the data collection and the data analysis.

Second, the wealth of practical information provided to reader for the identification and inclusion of appropriate studies in their meta-analytical endeavors. Readers would especially appreciate the list of bibliographic databases recommended for the search of trails report in Chapter 6, such as the Health InterNetwork Access to Research Initiative (HINAERY) or the International Network for the Availability of Scientific Publications (INASP) and the Cochrane Central Register of Controlled Trials (CENTRAL), the African Medicus Index, the Australasian Medical Index, or the Allied Complementary Medicine (AMED). In the same chapter, readers will also learn that it is preferable to (1) conduct searches from 2005 onwards when searching in MEDLINE; (2) conduct searches for the most recent two years when searching in EMBASE; (3) truncate the search term to capture a larger number of articles or reports on the topic of research interest; and (4) add the term NEXT to the search word to incorporate either auto-pluralization or auto-singularization in the search.

Third, the authors have been very thorough in addressing not only methodological but also practical issues which any researcher conducting a review will encounter throughout the whole search process: how to deal with the issue of sensitivity (the number of relevant report identified over the total of existing studies) and precision (the number of relevant reports divided by the number of identified reports); how to reduce the selection bias; what type of the term to

search for in databases; the overall duration of the search process or the type of bibliographic software to use in order to save the references of all the reports included in the final meta-analysis report. In Chapter 8, for instance, readers will learn how to deal with the risks of bias and will also be provided with a sort of checklist on possible validity threats and corresponding actions to take in order to successfully address them (real or not). Next, Chapter 9 reiterates the advantages of conducting a meta-analysis: increased power, improved precision, demonstrated consistent effect of an intervention across several settings and populations, generation of new hypothesis and settlement of controversies on apparently conflicting studies.

Fourth, the book provides a comprehensive overview of issues which any researcher, regardless of the specific approach adopted, should be familiar with. For example, the reader is reminded that, although case studies represent the least rigorous type of study to include in a systematic review, these are normally the ones determining the removal of drugs from the market (Glasziou, 2007). Likewise, the references to some of the approach main components (e.g., the rating system used by the Cochrane approach to assess the quality of studies, also known under the name of GRADE) leads the reader to explain the supremacy of RCT based on the role played by them is such collaborative research efforts and corresponding methodologies, as the Cochrane.

Fifth, the authors made a specific effort to touch upon specific and controversial topics, such as the use of qualitative data and evidence collected through non-randomized trials (e.g., in case the health intervention does not lend itself to being randomly assigned or just a

way to supplement existing randomized trial evidence), the presentation of adverse outcomes or the needed adjustments in case of missing data.

The book is definitely worth reading for anyone interested in learning not only about the Cochrane approach but also about research methods more in general. That being said, the book also presents four major shortcomings.

First, the missed opportunity to reach out to a larger audience. Meta-analysis strongly relies on the review of unbiased studies which also employ identical outcomes measures. However, such studies are particularly hard to come by in areas other than medicine (it is not surprising that MEDLINE and EMBASE are the two databases including the largest number of randomized controlled trials). In particular, the authors seem to have missed to elaborate on the utility of the methodology and its direct applicability across a much wider variety of areas than merely medicine. Rather, than targeting researchers in the medical field, the authors should have made the content of the book to a more diverse crowd, by drawing for instance on examples of meta-analysis conducted in education and nutrition. That could have allowed the authors to initiate researchers to the use of this approach on a small scale within their own domain of interest and lay the ground for a closer coordination at a later stage.

Second, the impression that one receives by reading this book is that the approach described in it will never be implemented by readers independently, that is, without Cochrane technical support. In particular, Cochrane methodology needs to be complied with quite strictly before a review could be certified as a Cochrane. To this purpose, a global team of experts (fifty-two Review

Groups, several Methods Groups, dedicated Trial Search Co-ordinators and Cochrane Centers) have been put in place to manage the editorial process of publishing of both protocols and reviews. That seems to be in conflict with the instructional purpose which a Handbook like this should pursue. Put simply, this book purports to divulgate knowledge about the approach but it constantly reminds readers that they will never be able to replicate it on their own without the support of highly paid specialists trained in this specific methodology. Thus, the use of the methodology is reserved to those who have the both the time to conduct and maintain the review as well as the funds to cover its high costs of implementation. Quite a controversial issue, if one takes into account that a meta-analysis, first and foremost, intends to (1) build a body of knowledge on effective programs and policies and (2) make its findings easily available to the largest possible number of people. Therefore, the question is whether the elevated costs for implementing the Cochrane approach does not ultimately represent a disincentive to promote the spread of meta-analytical thinking (Kline, 2004). Interestingly enough, although the level of compliance with Cochrane guidelines is quite strict when conducting systematic reviews, authors are still advised to add in their peer-review articles a disclaimer about their review not reflecting the Cochrane Collaboration's opinions.

Third, readers need to be aware that the implementation of the guidelines presented in this handbook is not suitable for conducting a meta-analysis across all types of interventions (as the title might mislead one to believe). As mentioned in Chapter 1 and as the origin of the approach name suggests (Archie

Cochrane was a very well know epidemiologist in the United Kingdom), the Cochrane approach is more directly applicable to the review of healthcare interventions only. As a result, most of the studies included in Cochrane reviews will be randomized trials. That being said, several chapters of the book might be of great interest to a larger audience (e.g., the chapters on addressing reporting biases, detecting bias risks and presenting analysis results). The idea of collaboration (not just decision-makers but also consumers are involved in the peer-review process) is also one that could be immediate replicated to a vast array of field.

Fourth, the excessive search for clinical objectivity represents a detriment to the easy application of the analysis findings. In one of the passages, it is suggested that “authors of Cochrane reviews should not make recommendations” (p. 380). That is quite puzzling, especially given the highly participatory and collaborative peer-review process associated with the Cochrane Approach. In particular, I wonder why, while researchers and consumers are explicitly engaged in the peer-review process, health professionals and clinical practical guideline developers are left out of the general discussion, mainly with respect to the utilization of findings. Before the publication of the review, for instance, the provision of concrete recommendations or suggestions for readers would be quite useful, especially for those health authorities, health managers or policy-makers with relatively weak analytical and interpretative skills.

In conclusion, despite the editors’ fallacies with respect to the targeting and envisaged applicability of the book’s content, I strongly recommend the

reading of it to both students and practitioners with a particular interest in research methods. In doing so, I would remind readers of a caveat, though: only by stretching some of the content or related examples presented in the book beyond the medical field, the utility of the Cochrane meta-analytical approach will outweigh the statistical complexity and the stringent implementation conditions associated with it.

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