Learn to Read and Write Systematic Reviews: The Belgian Campbell Group
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What is This?
Learn to Read and Write Systematic Reviews: 
The Belgian Campbell Group

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Practitioners working in social welfare, education, judicial circuits, psychology, and many other domains of human sciences daily decide on best treatments for their clients. The authors expect those practitioners to base their decisions on evidence from scientific research. The Campbell collaboration is an international nonprofit organization that supports a systematic evaluation of the effects of existing and new arising interventions in social sciences. In November 2005, 20 local volunteers launched the Belgian Campbell group. The most important tasks of this group are (a) to organize course programs on systematic reviews and (b) to assist Belgian authors willing to contribute to the Campbell collaboration in the writing of their protocol and systematic review. In this article, the authors introduce the concept of a systematic review and present the first achievements of the Belgian Campbell group, its current strengths, weaknesses, opportunities, and threats.

Keywords: evidence-based practice; systematic reviews

In 1979, a British epidemiologist named Archie Cochrane stated that medical science had missed the opportunity to create an efficient system of decision making. Until then, no one had come up with the idea to systematically gather, critically appraise, and summarize results from scientific studies from methodologically sound research designs (Cochrane, 1979). Cochrane’s ideas resulted in the setup of the Cochrane collaboration (CC) in the early 1990s. The main goal of this international nonprofit organization is to produce and disseminate systematic reviews that evaluate the effects of mainly therapeutic interventions in medical sciences. The CC has since then produced more than 1,500 systematic reviews on medical interventions and inspired a group of researchers in social sciences to start thinking about setting up a similar initiative. In the year 2000, the international Campbell collaboration (C2) was launched. This collaboration also aims at improving the quality of practice; hence, it is specifically targeted toward disciplines within social sciences or related scientific fields. C2 has three main review groups: (a) social welfare, (b) education, and (c) criminology. All review groups aim at motivating as many researchers, practitioners, and policy makers as possible to start producing and using systematic reviews. The number of Campbell systematic reviews is still limited. Twenty-four completed reviews have been integrated in the C2 database of systematic reviews. However, there is potential for growth. In C2-SPECTR, a database, including results from individual studies, one can find almost 12,000 randomized controlled trials (RCTs) of effects of interventions in social welfare, education, criminology, and other related fields. An RCT is a trial that uses randomized control. This is considered the most reliable form of scientific evidence because it eliminates all forms of cognitive bias. However, results from other research designs also need to be synthesized. Many research questions cannot be answered by trying to fit them within the tight jacket of an experimental design. Outcome research is important, but it needs to be closely...
and sensitively related to research on processes (Smith, 1987).

INTRODUCING SYSTEMATIC REVIEWS

Basic Ingredients of a Campbell Systematic Review

A Campbell systematic review is a methodologically sound review of the effects of a well-described intervention in a well-described population. For decades, the same topics have been studied by dozens of researchers. Those studies do not always present the same results for a similar research question. A systematic review synthesizes results from different individual studies addressing the same research topic. It aims at providing a clear answer to the question: What works? Another question that could be addressed is: What works under which circumstances? Practitioners in an evidence-based environment will need the ability to track down, critically appraise (for validity and usefulness), and incorporate the rapidly growing body of evidence into their practice (Sacket & Rosenberg, 1995). Systematic reviews incorporate some of the basic ingredients needed.

Formulating a Research Question

A systematic review aims at answering a clear targeted research question. It differs substantially from a narrative review in specifying and delineating the research question as much as possible. A PICO-acronym has been developed to assist authors of systematic reviews in formulating a targeted research question. First, it has a well-defined population (P) to focus on, for example, a group of clients, students, victims, or patients with certain characteristics such as a specific social background, age, sex, or case history. Second, the intervention (I) to be evaluated has to be clearly described, including, for example, its length, intensity, operationalization, and so on. The inclusion of a control–intervention (C) or placebo group is optional but might be considered when one needs to choose between several existing alternatives. In addition, one needs to describe the desired outcome (O) of the intervention, including an idea of how the author plans to measure it.

An example. A group of teachers is interested in reducing the drug use of their high school students. In the current policy, students caught with drugs are punished and expelled from school. However, this strategy does not seem to have any effect. The new strategy they propose to the director is a knowledge transfer about the effects of drugs, physically and psychologically.

Search for Evidence

Once the research question is clear and specified, the author has to decide on the information sources that should be consulted to retrieve individual studies providing an answer to the research question. These can be electronic (databases and online journals) as promoted by Newman (2003) or print based (textbooks, journals, etc.). To deliver a transparent and reproducible search strategy, all key terms used to retrieve research studies have to be listed. To prevent bias, it is important that published as well as unpublished studies are included in the review, as long as they fit the inclusion criteria. Unpublished data can be retrieved through contacting authors specialized in the topic of interest and by screening abstracts from congresses, and so on. Furthermore, language restrictions are not recommended when searching literature. Studies with positive results are more likely published in high-impact English journals, whereas studies with negative results often only get published in local journals or do not get published at all. Authors should be aware of a potential language and publication bias.

Selection and Critical Appraisal of Evidence

With a decent and extensive search strategy, an author may retrieve many studies. However, not all of them will be relevant for the systematic review. They have to fit the predefined inclusion criteria on study population, research design, interventions studied, and the outcome expected. This selection process is preferably done by two independent researchers, by whom the results are compared and discussed. This should lead to a list of studies that can be screened for methodological quality, because including low-quality studies in a systematic review will have a negative impact on the pooled results produced. Several checklists have been developed to assist researchers in their attempt to critically appraise the quality of retrieved studies. They may vary for each specific research design. Critical appraisal of research studies is preferably done by two independent researchers, to prevent bias.

Synthesizing Results From Scientific Studies

To synthesize results from individual studies, a specific statistical technique called meta-analysis is used. A meta-analysis can only be applied to empirical quantitative
research studies (Lipsey & Wilson, 2001). Studies have to be more or less homogeneous for the target group, the intervention, the comparison, and the outcome. In a meta-analysis, all results from the included studies are pooled and recalculated. The estimation of the studied effect is based on a much larger group of patients compared with de-estimation of effects from each individual study separately. Selected studies with a larger research population usually get more weight within the meta-analysis. The pooled result has a better precision and a smaller confidence interval than the individual studies. This final result will communicate an advantage or disadvantage for the intervention, possibly compared with an alternative (which can also be a placebo). Based on such a result, a practitioner has the opportunity to accept or reject an intervention with more certainty. One of the bigger advantages of a meta-analysis is that potential small effects that are possibly not detected in individual studies can be detected in a meta-analysis. The synthesis of results from qualitative study designs is called meta-synthesis. Many authors have contributed to the development of methods to improve the synthesizing of qualitative research results (Britten et al., 2002; Noyes & Popay, 2007) or to integrate results from qualitative research with results from trials in systematic reviews (Dixon-Woods et al., 2006; Oliver et al., 2005; Thomas et al., 2004). Readers can visit the Web site of the Cochrane Qualitative Research Methods Group for more information at www.joannabriggs.edu.au/cqrmg/index.html.

Formulating an Answer

The final result of a meta-analysis usually determines the conclusion of the author of the systematic review. Practitioners and policy makers will find a summary of the information needed to decide on “best practice” for their clients or target groups, in which the most effective intervention will be recommended. However, one should always consider potential contraindications for treatments with a positive outcome. Second, positive results have to be relevant for practice. If the drug use in high school students is reduced to 50% because of a knowledge transfer, but there are only 5% less students in the experimental group compared with the placebo group that reduced their use, it might not be worth the effort after all. The environment of the student–user might play an important role here and has to be considered. Is the student sensitive to peer pressure? What is the student’s social background? Do the student’s parents use drugs as well? and so forth. Several elements need to be considered to guarantee the best possible solution for a certain student.

The Potential Value of Systematic Reviews

The question why researchers, practitioners, and policy makers should produce and use systematic reviews is easy to answer. Systematic reviews guarantee a more efficient use of scientific findings within the field of social sciences. They contribute to a measurable effect of funds from society provided for scientific research and thus contribute to a more evidence-based approach toward science and society. Evidence-based practice (EBP) within social welfare, education, criminology, and other related fields of interest becomes a necessity to motivate political and social choices, which should be inspired by rational rather than emotional arguments. Does knowledge transfer really have a preventive effect on the drug use of high school students or should we focus on re-educating their parents? Several stakeholders benefit from the production and use of systematic reviews and have to be mobilized to become a partner in the international and local Campbell groupings.

Practitioners

Practitioners are increasingly expected to know about what works in practice to participate effectively in decision making, assuming that practitioners are rational agents drawing logical consequences of evidence-based findings (Webb, 2001). However, barriers toward EBP and the use of scientific information sources still exist, mostly because the decision-making processes in, for example, social work are very complex. In addition, access to scientific information is limited. Individual subscriptions to scientific journals are too expensive and the language used is hard to understand. Even when their institution provides access, practitioners may find it difficult to find the right studies in the overload of information. To them, it seems impossible to keep up-to-date with recent insights. The C2 provides up-to-date summarized information, with conclusions in plain language that is much easier to understand. It opens the door to the use of scientific arguments when negotiating strategies, programs, or policies for (a group of) clients. Generally speaking, this should lead toward a quality improvement that is beneficial for practitioners as well as their clients.

Policy Makers

Campbell systematic reviews are able to guarantee a more efficient use of scientific findings by policy makers. They provide answers to the question “what works?” and summarize the most important findings. Policy makers with limited time to read may find it easier to read ready-made
evidence. Results of systematic reviews focus on measurable effects of social, educative, and criminological interventions. They also reveal gaps in existing research, in case no answers to the research question are found. And so, they contribute to and provide guidance in the tough discussions on the assignment of limited funds for scientific research. However, policy makers still have to be careful in generalizing results from systematic reviews. Certain topics can be very context specific or have only been researched in Europe or Asia. Even a high-quality review might not be able to guarantee applicability of the results in each society, continent, or country.

Researchers

Although practitioners and policy makers benefit from the use of results from scientific research, researchers may benefit from the production of one. Any high-quality empirical evaluation study includes a profound study of existing literature. Producing a systematic review helps the researcher in summarizing information based on a methodologically sound approach. Questions that were not resolved in previous research projects are revealed. Results from systematic reviews are also very transparent and reproducible, increasing their trustworthiness and improving their chance for publication in high-impact journals, as has been the case for Cochrane systematic reviews (Montori, Wilczynski, Morgan, & Haynes, for the Hedges team, 2003).

INTRODUCING THE BELGIAN CAMPBELL GROUP

A Short History

In April 2005, the Belgian branch of the CC took the initiative to organize a seminar to introduce the international C2, to make participants familiar with the basic steps in a systematic review, and to communicate some of the main advantages of systematic reviews for researchers, policy makers, and practitioners. A steering group member of the international collaboration was invited as a guest speaker to support the initiative and to attract participants from different disciplines in social science. Participants who were interested in participating in a local steering group to further support Campbell-related initiatives were invited. The steering group eventually got confirmed in November 2005. The group works close to the goals of C2 and aims at becoming a communication platform for researchers, policy makers, and practitioners interested in EBP in general and more specifically in the production of systematic reviews. Worldwide, there is only one local Campbell center that has officially been recognized by C2, the Nordic Campbell Center. However, there are many partners supporting the main goals of the collaboration, such as the EPPI-Centre in the United Kingdom, the meta-analysis unit of the University of Murcia in Spain, the Jerry Lee Center in Pennsylvania (United States), the Belgian Campbell group, and many more.

Structure

The steering group of the Belgian Campbell group exists of practitioners, policy makers, and researchers from the Flemish-speaking and French-speaking part of Belgium. They are working in the domain of educational sciences, psychology, sociology, social work, health care, and criminology. Some members of the group already have experience in meta-analysis from both a methodological and a statistical point of view; others became members to learn more about systematic reviews and to motivate colleagues to make systematic reviews or to make use of the results of systematic reviews both in practice and in policy making.

Finances

All members of the Belgian Campbell group voluntarily invest in the development of the Belgian Campbell group and are not paid for their efforts. At the onset, the Belgian Campbell group was sponsored by the Belgian Cochrane branch, and more recently some of the core administrative affairs of the Belgian Campbell group could be transferred to an employee of the Catholic University of Leuven, which guarantees a professional organization of future events.

Goals and Tasks

The Belgian Campbell group has formulated several goals in the domain of education, research, and policy. Up until now, the Belgian Campbell group has already organized several workshops and courses concerning the production and interpretation of systematic reviews of quantitative and qualitative data. The Belgian Campbell group also motivates and supports individual Belgian researchers who are interested in writing a Campbell review. Furthermore, the members of the group are also interested in writing articles in national and international journals to outline and promote the work of the local Belgian Campbell group and to inspire other countries to take the same initiatives. They also participate at national and international conferences concerning the topic of systematic reviews. Finally, the Belgian Cochrane group preserved a space on their Web site for the Belgian Campbell
group to promote systematic reviews in social sciences and tried to spread newsletters to interested people.

At this moment, the work of the Belgian Campbell group is depending on the voluntary efforts of several individual practitioners, scientists, and policy makers. In the future, one of the important goals of the group is to acquire funding and/or research projects from the Belgian policy makers (a) by proving the benefits of systematic reviews and (b) by promoting the use of systematic reviews in making evidence-based decisions concerning educational, psychological, social, and political affairs, which will increase the quality of these interventions.

A SWOT ANALYSIS: CURRENT STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS

A Definition

A SWOT analysis is a strategic planning tool to evaluate the strengths (i.e., attributes of the organization that are helpful to achieving the objective), weaknesses (i.e., attributes of the organization that are harmful to achieving the objective), opportunities (i.e., external conditions that are helpful to achieving the objective), and threats (i.e., external conditions that are harmful to achieving the objective) in a project or in a business venture or in any other situation of an organization or individual requiring a decision in pursuit of an objective. (see http://nl.wikipedia.org/wiki/SWOT-analyse)

The Different Components of the Analysis

Strengths. Although the Belgian Campbell group is still young, it succeeded in organizing several successful educational activities that attracted a substantial number of national and international stakeholders. The group is recognized as an important partner in teaching young researchers how to produce systematic reviews. The steering group hosts people from various disciplines. It also recruited members on a policy, a practice, and a research level, including people with experience in meta-analysis and systematic reviews. These people invest in the further development of the Belgian Campbell group as a volunteer and free of charge. The initial steps in negotiating a basic course on systematic reviewing in social sciences for PhD students at several universities have also successfully been taken.

Weaknesses. Although many of the steering group members show a thorough enthusiasm to increase the impact of the group, the number of active members and the interest in delivering small contributions to the daily work is considered low to moderate. Researchers especially change work posts frequently, leaving them only little time to invest in the activities of the group. Currently, the number of researchers actually starting a Campbell review is limited. However, this might change in the near future. If so, the group might face a lack of manpower to guarantee individual guidance for Belgian authors of systematic reviews. Also, most contributors to the group are from the Flemish part of Belgium. Therefore, the French-speaking part of Belgium is hardly reached. In the near future, more French-speaking partners should be mobilized and engaged to support the groups’ activities in the southern part of Belgium.

Opportunities. The general idea of EBP seems to be gaining popularity on a political level and within scientific institutions. The group is expecting an increasing demand from policy makers and practitioners. Several teachers and program makers have started integrating the ideas of EBP and the statistical techniques of meta-analysis into their programs for students. This might increase the number of Belgian researchers actually starting to produce a systematic review. Policy makers have started contacting the group to explore future collaboration to improve the quality of interventions within society. The group faces important opportunities to really influence decisions made to the advantage of Belgian society.

Threats. The lack of funding to support the growth of the group appears to be the main threat for the near future. The Belgian branch of the CC has well supported the start-up of its sister organization in Belgium but has a limited budget itself. If the idea of EBP and systematic reviews becomes part of the curricula of future students, the Belgian Campbell group might make itself redundant in the long run. Although this might appear as a threat at first, it can also be considered the main goal of the Belgian Campbell group. But until that happens, a lot of work still has to be done.

CONCLUSION

The interest in EBP is starting to rise in Belgium on a policy level, a scientific level, and to a lesser extent also at the workplace. Currently, the application of its principles in daily practice is limited. This can probably be explained by a lack of knowledge and familiarity with the concepts of EBP and systematic reviews and by a lack of time. However, the use of systematic reviews can be helpful in this respect. Instead of reading different
articles, one review can offer the practitioner a quick overview of different interventions that are used in a specific domain as well as the quality of each of these interventions. Campbell systematic reviews guarantee high quality, thanks to the very strict and transparent methodology. They are also easily accessible through the Internet and through C2. The Belgian Campbell group can deliver a positive impact by teaching researchers, practitioners, and policy makers how to produce and use systematic reviews and by guiding the way to high-quality information.

The ultimate goal of the group is to contribute to a permanent improvement of the quality of interventions within society. The Belgian Campbell group is only a modest partner. To realize this goal, many stakeholders in many different levels have to be mobilized. Currently, the enthusiasm is the main drive of the group.

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