Barriers to the registration and conduct of Cochrane systematic reviews of traditional East Asian medicine therapies

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Abstract

Introduction: Traditional East Asian medicine (TEAM) is widely used in Asia and increasingly in the West. Systematic reviews (SRs) are the best summaries of the potential benefits or harms of interventions, and Cochrane is a leading international SR organization. Cochrane perspectives on the barriers to the initiation and completion of Cochrane SRs of TEAM therapies were solicited.
Methods: Cochrane Review Groups (CRGs) were identified from the online listing of CRGs at cochrane.org and a link to an online survey was e-mailed to the primary contact for each CRG.
Results: Forty-eight responses were received on behalf of 49/53 (92%) CRGs. Most CRGs had experience producing TEAM reviews, primarily in acupuncture or herbal medicine. The main barriers to taking on a new TEAM review were difficulty in understanding and assessing the intervention, and the low priority of TEAM topics. Problems with the quality and accessibility of randomized trials in TEAM were cited as a major concern. CRGs suggested that the quality and accessibility of randomized trials should be improved, that the methodological and language expertise of authors should be enhanced, and that further peer review expertise should be made available to CRGs.
Conclusions: TEAM topics are covered in Cochrane reviews but are often considered low-priority. This survey highlights Cochrane concerns about the quality of the underlying evidence base and the training of the author teams as barriers to successful SR completion. Specific approaches are proposed to increase the number of TEAM reviews and address the limitations of TEAM research processes within Cochrane.

Keywords: Traditional East Asian medicine, systematic reviews, Cochrane, survey

Wordcount: 3790

Background

Traditional East Asian therapeutic approaches such as acupuncture, herbal concoctions, dietary therapies, massage (tui na) and mind-body exercise (qi gong, tai chi) were developed over a period of centuries in China, Korea, and Japan and are still used widely there. These traditional East Asian medicine (TEAM) therapies are used at lower rates in Western countries such as the US, the UK, and Europe, however this usage has increased over the last 10-15 years [1-5]. There is worldwide interest in a range of traditional medicine therapies, and the World Health Organization has stated that it seeks to integrate safe and effective TEAM therapies into health care globally [6]. It is therefore important to determine the potential for benefit and for harm from commonly used TEAM therapies.

Systematic reviews of randomized controlled trials (RCTs) of interventions are considered the best evidence on effectiveness of interventions [7]. There have been many systematic reviews of RCTs of TEAM therapies, and there is a large literature assessing the methodological limitations of these reviews as well as the component RCTs. For example, systematic reviews of TEAM have been criticized for limited searching of relevant databases [8-13] and lack of clinical applicability to the practice of TEAM [9, 14] while RCTs of TEAM have been criticized for limitations including false claims of randomization and poor overall reporting of methods [15-17].

Cochrane is a global, independent network of researchers dedicated to gathering and summarizing the best evidence from research to help people make informed decisions about health treatments. Since its

founding in 1993, Cochrane has prepared over 7000 systematic reviews of health interventions, which are published online in the *Cochrane Database of Systematic Reviews* (cochranelibrary.com). Cochrane adheres to strict methodological and reporting standards to minimize bias and maximize transparency, and when compared with non-Cochrane reviews, Cochrane reviews have repeatedly been evaluated as possessing better methodological quality [18-21]. In 2009, the Cochrane Complementary Medicine Field (CAM Field) identified 70 Cochrane systematic reviews of TEAM therapies, primarily acupuncture (n = 26) and Chinese herbal medicine (n = 42) [22] and an overview published shortly afterwards identified 58 Cochrane reviews on Chinese herbal medicine [9]. There are currently over 200 Cochrane protocols or reviews on East Asian herbal medicine or acupuncture therapies (https://cam.cochrane.org/cochrane-reviews-related-complementary-medicine). While the number of Cochrane reviews on TEAM has increased over the last 10 years, many unanswered questions about the efficacy and safety of TEAM therapies remain. In the meantime, Cochrane has further developed and systematized the methodological expectations for the conduct and reporting of Cochrane reviews [23]. The methodological expertise, time and effort required for review production have therefore increased, both for Cochrane author teams and for the Cochrane Review Groups (CRGs) that register and oversee the conduct of reviews. In January 2015, Cochrane launched a project to identify priorities for new and updated reviews, to systematize the choice of limited resources with a view to global priorities [24]. Because methodological demands have increased, and there is a limit to the ability of CRGs to address all questions of interest, there is a danger that many important questions about TEAM therapies may not be addressed through Cochrane reviews, and may instead be addressed either through lower-quality and lower-impact systematic reviews, or not be covered by systematic reviews at all.

To our knowledge, the processes underlying the initiation and conduct of systematic reviews of TEAM therapies have not been examined, and there is little understanding of the perspective of a large systematic review organization, such as Cochrane, towards these reviews. We wished to understand this perspective, with a view to enabling the conduct of future high-quality reviews of TEAM therapies. We therefore carried out a survey with three objectives: a) to identify CRG barriers to taking on a new Cochrane review of TEAM therapies; b) to determine CRG barriers to completion of a high-quality Cochrane systematic review of TEAM therapies, and c) to elicit suggestions for ways in which the TEAM research community may overcome these barriers and obstacles.

Methods

Cochrane typically uses a three-step process when selecting and carrying out systematic reviews. Potential review topics are first submitted as title proposals for the relevant CRG to consider. If the CRG agrees to register the topic, the title proposals are developed into detailed protocols, which are peer-reviewed and subsequently published in the Cochrane Library, unless they are rejected e.g. if the authors fail to reach an adequate quality threshold. Systematic reviews, which follow the steps outlined in the protocols, are then drafted and peer-reviewed and revised until they are suitable for publication in the Cochrane Library as completed reviews. Our objectives included identification of CRG barriers to the title registration of Cochrane reviews in TEAM and other CRG concerns about these reviews.

The authors, who are all involved with Cochrane and have had experience with the conduct of Cochrane reviews of TEAM as well as of non-TEAM therapies, developed a brief survey which was circulated to each CRG. The survey asked about 1) CRG scope and prior experience with carrying out TEAM

Cochrane reviews; 2) perceived barriers to registering a new Cochrane review on TEAM therapies; 3) perceived barriers to the conduct of a good-quality Cochrane review on TEAM therapies; and 4) actions that could be taken to address barriers to the registration and conduct of TEAM reviews within Cochrane (see Appendix 1). A list of all current CRGs was obtained from the Cochrane organizational website (cochrane.org). The survey was uploaded to Google forms, and on February 10th 2016 an e-mail was sent to the primary contact e-mail address for each CRG, requesting completion of the survey. Surveys were downloaded into Excel and then into Stata 10.0 (StataCorp. 2007. *Stata Statistical Software: Release 10*. College Station, TX: StataCorp LP.) for calculation of frequencies and percentages.

Results

We contacted 53 CRGs and received 48 responses on behalf of 49 of the 53 (92%) CRGs. All Cochrane CRGs are based in the UK, Europe, the Americas, Australia, or New Zealand, and responses were received from each of these areas. Responses were primarily from Managing Editors (39/48; 81%) but also from Co-ordinating Editors (7/48; 15%), one Deputy Managing Editor (1/48; 2%), and one Editorial Assistant (1/48; 2%). At the time of the survey, one Managing Editor had responsibility for two CRGs, which have since been merged into one CRG, therefore we have carried out all analyses based on 48 responses for 48 CRGs. Two authors of this paper (RB, GF) are CRG editorial staff, and one author (RB) answered the survey on behalf of her CRG.

Almost all groups (46/48; 96%) stated that at least one TEAM therapy could be considered as within the scope of their work, and almost all (45/48; 94%) reported that their group was either carrying out or had completed at least one Cochrane review of a TEAM therapy. Reviews of acupuncture and East Asian herbal medicine were each reported by 37/48 (77%) groups, while reviews of Tai Chi or Qi Gong were reported by 14/48 (29%) groups. Reviews of other types of TEAM therapies were reported by 11/48 (23%) groups. However, only 10/48 (21%) groups reported that their CRG possessed editorial or other expertise in TEAM.

The greatest reported barriers to registration of new Cochrane reviews on TEAM therapies were difficulty among CRGs in understanding and assessing the TEAM therapies (22/48; 46%) and the perception that TEAM therapies are not used in the most high-priority medical conditions within the CRG scope (21/48; 44%) (see Table 1 for all categories of barriers). Other barriers to registration volunteered by respondents that did not fit into any of our pre-specified categories included lack of expertise in the editorial group (2/48; 4%), heterogeneity of interventions (3/48; 6%), and deficiencies in methodological expertise or scientific writing on the part of author teams (3/48; 6%). Further barriers to registration volunteered by respondents were the problems that groups anticipated they would encounter while carrying out the review, including difficulty in accessing relevant literature or databases (3/48; 6%), difficulty finding translators for literature (4/48; 8%), and TEAM studies being of questionable methodological quality (4/48; 8%).

When respondents were asked what factors might make them more likely to register a TEAM review, the most common answer was that the author team has good methodological and language expertise (10/48; 21%), followed by the intervention being high priority (8/48; 17%), there being high quality studies on the intervention (7/48; 15%), access to relevant databases (3/48; 6%), access to translators and other specialist support (3/48; 6%), access to expert referees (1/48; 2%), and access to RCTs in English (1/48; 2%).

When survey respondents were asked to rate the extent to which they agreed with various potential obstacles to the completion of high quality TEAM reviews, the factors with the greatest level of agreement were that TEAM therapies are insufficiently characterized, and that it is often difficult to draw review conclusions (31/48; 65%), although lack of good quality trials, and difficulty in identifying content peer reviewers, were also endorsed by more than half of respondents (see Table 2). Several respondents commented that many trials in the literature are not truly randomized (5/48; 10%), that it is difficult to check the literature and data extraction from non-English-language studies (3/48; 6%), that authors of TEAM reviews lack objectivity (1/48; 2%), and that their CRG feels generally ill-equipped to take on a TEAM review (1/48; 2%).

Respondents identified improving the quality and reporting of RCTs of TEAM therapies as the most important action that could be taken to remove barriers to registration of TEAM reviews and to improve their quality (39/48; 81%) (See Table 3). Providing easier access to databases of RCTs, furnishing English-language support to authors, and making available experienced peer reviewers were also identified as highly useful actions. Increasing funding was identified by only 11/48 (23%) of respondents. Two respondents volunteered additional suggestions: provide training in critical appraisal and clinical epidemiology (n=1) and encourage trialists to better define the TEAM interventions (n=1).

Discussion

When Cochrane groups consider whether to take on a systematic review of a TEAM therapy, the CRG ability to understand and assess the therapy, and the overall perceived priority of the topic question are the primary issues that prospective authors must address in persuading the CRG to register the review. Cochrane groups also consider the availability of methodologically sound trials (admittedly beyond the control of the author team) and the methodological and language expertise of the author team to be important for conducting high-quality reviews, and these points should be addressed when proposing a TEAM review topic. Although more funding for systematic reviews is always welcome, improving funding was not emphasized as a potential solution. However, many of the actions that could assist both CRGs and authors in carrying out good-quality TEAM reviews, such as providing TEAM support to CRGs, providing English-language support to authors or making RCTs in TEAM easier for reviewers to access, could be facilitated by targeted funding.

The most frequently endorsed barrier to registering a Cochrane review on TEAM was that the components and proposed mechanisms of TEAM therapies were unclear or difficult to understand. This was also mentioned as a general problem with the clinical relevance of TEAM reviews. Many TEAM interventions are carried out as part of a whole systems approach which has diagnostic schema and mechanisms of health and disease that differ from the standard model of Western medicine. This approach often does not translate well to Cochrane reviews, which are based on standard Western classifications of disease and understandings of mechanisms. Advances in trial and review methodology may make whole systems approaches more viable in the future. In the meantime, it is important that authors delineate the possible biological mechanisms underlying TEAM approaches and clarify the rationale for grouping multiple therapies (e.g., acupuncture and related interventions, a set of herbal interventions) in a single review. When interventions are variable across studies (e.g., a non-standard herbal concoction) it is particularly important to state what intervention components are required for inclusion and what components, if any, are excluded. A clear delineation of the characteristics of the

TEAM intervention will allow the authors to draw specific and clinically relevant conclusions that are understandable to CRGs. These can then inform implications for research that go beyond the general need for more and better-quality trials. The recruitment to CRG bases of expert advisors on TEAM interventions could help ensure that CRGs and TEAM researchers produce reviews that are good quality and useful from both Cochrane and external TEAM perspectives.

The other major barrier to registering a Cochrane review on TEAM is the perception by CRGs that TEAM therapies are not used in the most high-priority medical conditions within their scope. Since 2015, topic priority has become an increasingly explicit factor in allocation of CRG resources, and formal prioritization exercises are increasingly required by CRGs to justify taking on review topics. No CRG editorial bases are located in East Asia, therefore prioritization exercises may not include East Asian audiences, and the academics, clinicians, and funders associated with CRGs may be unaware of the burden of the medical condition and the prevalence of TEAM therapies to address a particular condition on a global basis. Authors may need to emphasize the burden of disease in East Asia and the widespread use of these therapies in the region, as well as the use of TEAM interventions worldwide, and advocate for Cochrane to take a global, equity-oriented approach to prioritization of review topics. When the exact mechanisms of a TEAM intervention are unclear, it is particularly important to justify the examination of the topic by clarifying that the therapy is widely used for a high-priority medical condition.

Issues in the conduct and reporting of Chinese and other East Asian RCTs are viewed by CRGs as a general problem with the conduct of TEAM reviews. If there are few, or no properly conducted trials available on a topic, the effort involved in carrying out a Cochrane review may well highlight a gap in the evidence base but be of limited clinical use. This may not be a good use of resources for the authors or the CRG, unless the topic has been demonstrated to be extremely high priority, as mentioned above under barriers to registration. In particular, when authors wish to characterize a broad class of interventions (e.g. TEAM herbal interventions) for a condition for which there are likely to be few trials that are appropriate to group in a meta-analysis, it may be more appropriate to conduct a non-Cochrane overview or scoping review of the available evidence. Advocating for a review topic should include communicating that a sufficient number of good-quality RCTs are available to address the review question, such that the question may be answered in a clinically-relevant fashion.

With the increasing methodological requirements of Cochrane reviews, and the limitations of CRG time and resources to support authors, concerns about the methodological capacity of author teams are not limited to TEAM reviews. However, given the difficulties that CRGs experience in understanding and assessing TEAM interventions, it is particularly important that CRG editorial staff can be confident that the author team can handle the methodological demands of a Cochrane review and that lead authors in particular should be experienced authors. Cochrane should consider providing additional training that is targeted at capacity building in regions specializing in TEAM interventions and using TEAM intervention examples. This would ensure that TEAM authors are proficient in the latest Cochrane review methods.

Removing barriers to the registration of Cochrane reviews in TEAM will include both short- and long-term initiatives. CRG understanding of TEAM interventions could be improved by closer working relationships between East Asian authors and CRGs. For example, a few CRGs have hosted an East Asian student who has dedicated funding to work on TEAM reviews at their editorial base. An

experience of at least 3-6 month allows the CRG to expose the student to Cochrane methodology and review processes in an intensive manner and provides the CRG with a contact who has expertise in TEAM interventions as well as Cochrane reviews. Identification of TEAM priorities could be enhanced by extending current prioritization exercises to non-Western audiences, or East Asian researchers could use targeted funding to carry out their own prioritization exercises, the results of which can be brought to Cochrane in support of their review topics. Further exploration of approaches to address these barriers to Cochrane reviews of TEAM therapies is warranted, and targeted funding could prove useful.

Eighty-one percent of CRGs agreed that improving the conduct and reporting of RCTs in TEAM would remove barriers to completion of Cochrane reviews of TEAM therapies and improve the quality of those reviews. This is clearly a long-term goal, and recent projects to improve the conduct and reporting of RCTs in TEAM will undoubtedly improve the quality of these trials over time [25-28]. In the short term, authors of TEAM reviews can mitigate the influence of poor-quality trials by implementing procedures to check included trials for key methodological aspects, such as randomization, when these are incompletely reported [16]. Two-thirds of CRGs agreed that making it easier for review authors to access RCTs in TEAM would help address problems with Cochrane reviews of TEAM therapies. The specific challenges in accessing TEAM RCTs were not described by respondents, but may include the fact that although SinoMed, which is the largest Chinese database of biomedical research (with approximately 6 million records compared to 25 million in MEDLINE) is indexed for retrieval of randomized controlled trials and uses both standard MeSH terms and TEAM topics [29, 30], there is little English-language research describing the characteristics of this or other East Asian databases [31, 32]. In any case, it is difficult for CRGs to evaluate the quality and comprehensiveness of Asian database searches when CRG staff cannot understand the search strategies. A number of approaches could improve this situation, including better reporting of East Asian trials, enhanced indexing of East Asian databases, and additional research on the specificity and sensitivity of searching East Asian databases for RCTs. In the short term, the inclusion on the author team of a qualified information specialist with language and topic expertise for searching East Asian databases would be helpful. All of these initiatives could benefit from additional funding. In the meantime, the Cochrane CAM Field has partnered with the Beijing University of Chinese Medicine to identify and translate the titles and abstracts of TEAM trials, and upload the titles and keywords to CENTRAL, and several thousand Chinese records of TEAM trials from databases and paper journals have been added to CENTRAL since 2008 [33].

Almost seventy percent of respondents agreed that providing English-language support for authors would be helpful for TEAM Cochrane reviews. This may be addressed by CRGs requiring that at least one member of the author team have native or near-native fluency in written English as well as methodological or content expertise. Some CRGs use protocol templates pre-filled with suggested text and these documents may save time, increase consistency, and assure adherence to standards for review content. If necessary, review funding could be sought to pay for language expertise on projects that do not have participation of authors with fluency in written English.

Almost two-thirds of CRG respondents stated that making peer reviewers experienced in TEAM more available to CRGs would improve the process of conducting TEAM reviews. Many CRGs turn to the CAM Field to identify peer reviewers experienced in TEAM, and the CAM Field should ensure that all CRGs are aware of this resource. The CAM Field should also work with the TEAM research community to increase the number of suitable peer reviewers for TEAM topics.

Almost half of CRG respondents endorsed providing more training on systematic review methods to authors on TEAM topics. With the continual development of methodological standards for Cochrane reviews and updating of standard methods such as the Cochrane risk of bias tool, improved training of authors is a Cochrane-wide goal. Potential review authors should make themselves aware of opportunities for review methods training provided by Cochrane Centers in China, Korea and Australia, and the CAM Field should play a role in publicizing these opportunities to the TEAM research community. Additional funding could be dedicated to providing more intensive training in Cochrane methods (e.g. multi-day workshops) to East Asian authors.

Strengths and limitations of the research

One strength of this research is the high response rate; over 90% of the target population completed the survey. However, a limitation is that the survey was not blinded, and the authors and CRG respondents all have group roles within Cochrane and thus are colleagues to some extent (while one author was even a respondent). This collegial relationship could have led to guarded replies on the survey or to greater frankness about the topic, and it is not possible to know whether either or both of these reactions were present. In addition, the research is limited by being a snapshot in time, as both Cochrane and the TEAM research community continue to evolve and the answers to the survey questions may change over time. Furthermore, the topic was limited to a predefined set of TEAM therapies and so does not directly address reviews of traditional therapies from other regions of the world, or reviews of other types of complementary therapies. However, we believe that the same general principles of relevance, rigor, and applicability apply across time and research topics. Finally, a major limitation of this study is that none of the respondents were based in East Asia or had TEAM research expertise. Therefore, the study considers only the perspective of Cochrane and does not address whether TEAM researchers and practitioners consider Cochrane systematic reviews in TEAM to be useful in assessing the potential benefits and harms of TEAM therapies. For example, the role of pattern diagnosis, which has been a recent focus of TEAM herbal medicine reporting guidelines [34], was not addressed in this study. Future research should explore development of a research agenda that is credible and clinically relevant to both Western biomedical and TEAM audiences.

Conclusions

Author teams that approach Cochrane with a priority topic, involving a clearly characterized intervention for which multiple methodologically sound trials are available, may be more likely to have their review registered with a CRG. The author team will need to demonstrate good clinical, methodological and English language expertise. These considerations apply to any good-quality English-language systematic review, not only to Cochrane reviews in the area of TEAM, however we have outlined several specific barriers that authors of TEAM reviews may encounter in registering and preparing a Cochrane review. We have provided some short- and long-term suggestions for approaches to improve the registration and conduct of TEAM reviews within Cochrane, and we endorse further efforts to improve the situation, including funding to support database access, development of information retrieval expertise, translation and other language assistance activities, and training in systematic review methods specific to TEAM. We hope that these approaches may provide opportunities for well-conducted reviews to reach reliable and relevant conclusions and advance the understanding of the potential benefits and harms of TEAM interventions. Finally, we hope that future research initiatives

may explore how TEAM perspectives and Western biomedical perspectives (exemplified by Cochrane) may be united to produce and present clinically useful evidence on TEAM interventions to broad audiences.

Author contributions

All research was done by the authors. All authors contributed to study design. LSW implemented the survey and carried out the data analysis. All authors contributed to drafting and revising the manuscript and approved the final version.

Conflicts of interest

None.

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