

The methodological and reporting quality of systematic reviews from China and the USA are similar

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Abstract

Objectives: To compare the methodological and reporting quality of systematic reviews by authors from China and those from the United States (USA).

Study Design and Setting: From systematic reviews of randomized trials published in 2014 in English, we randomly selected 100 from China and 100 from the USA. The methodological quality was assessed using the Assessing the Methodological Quality of Systematic Reviews (AMSTAR) tool, and reporting quality assessed using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) tool.

Results: Compared with systematic reviews from the USA, those from China were more likely to be a meta-analysis, published in low-impact journals, and a non-Cochrane review. The mean summary Assessing the Methodological Quality of Systematic Reviews score was 6.7 (95% confidence interval: 6.5, 7.0) for reviews from China and 6.6 (6.1, 7.1) for reviews from the USA, and the mean summary Preferred Reporting Items for Systematic Reviews and Meta-analyses score was 21.2 (20.7, 21.6) for reviews from China and 20.6 (19.9, 21.3) for reviews from the USA. The differences in summary quality scores between China and the USA were statistically nonsignificant after adjusting for multiple review factors.

Conclusion: The overall methodological and reporting quality of systematic reviews by authors from China are similar to those from the USA, although the quality of systematic reviews from both countries could be further improved. © 2017 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Keywords: Systematic review; Methodological quality; Reporting quality; Risk of bias; Validity; Evidence-based medicine

1. Background

Well-conducted systematic reviews and meta-analyses of randomized controlled trials (RCTs) provide the most valid research evidence on effects of health care interventions [1,2]. Systematic review methods (with or without meta-analysis) have been used in medicine and health research since later 1980s in developed countries [3]. The Cochrane Collaboration and other evidence-based health programs have promoted the use of systematic reviewing methods globally [4], including China [5].

It has been anticipated that systematic reviews would help address challenges due to rapid increase in clinical literature [6,7]. However, the successful production of systematic reviews during past decades has raised concerns about whether the exponential increase in published systematic reviews might have actually exacerbated information overload [7–11]. Particularly, the increased production of systematic reviews by authors from China has been considered at least partly responsible for the rapid increase in systematic reviews globally [12,13]. For example, a search in PubMed on January 8, 2016 (see [Supplementary File 1](#) at www.jclinepi.com for the search strategy), found that the number of published systematic reviews by authors from China was increased exponentially from only 19 in 2005 to 1,073 in 2014. During the same time period, the production of systematic reviews by authors from the United States (USA) was only moderately increased from 500 in 2005 to 796 in 2014.

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What is new?**Key findings**

- The overall methodological and reporting quality of systematic reviews of randomized trials by authors from China were similar to those from the United States (USA). The differences and similarities in specific quality items between China and the USA were identified.

What this adds to what was known?

- This is the first study to compare the reporting and methodological quality of systematic reviews of randomized trials by authors from China (a developing country) and the USA (a developed country).

What is the implication and what should change now?

- Considering the usefulness of systematic reviews in evidence-based practice and the development of primary research, the systematic reviewing capacity should be strengthened in China. Identified shortcomings in methodological and reporting quality of published systematic reviews should be considered in further training of authors of systematic reviews in the relevant countries.

With the rapid increase in the number of systematic reviews by authors from China, their reporting and methodological quality have been scrutinized in the previous studies [12,14–18]. These studies usually suggested that the reporting and methodological quality of systematic reviews from China were poor and needed to be much improved. However, it is unclear about the quality of systematic reviews by authors from China relative to those from other countries. There was only one previous study that compared meta-analyses of genetic associations by authors from China and those from the USA [10,12]. According to our knowledge, there were no published studies that systematically compared quality of systematic reviews of RCTs of health care interventions by authors from China and those by authors from other countries.

Identification of differences in methodological and reporting quality of systematic reviews by authors from China and developed countries may help appropriately interpret findings from systematic reviews and set priorities in training of systematic reviewers. Specifically, we consider it appropriate to compare systematic reviews by authors from China and those from the USA for the following reasons: Authors from the USA, along with authors from other high-income nations, have been traditionally the main producer of systematic reviews, and a previous study had compared genetic association

meta-analyses by authors from China and the USA [12]. Therefore, the aim of the current study is to compare the main characteristics, methodological, and reporting quality of systematic reviews of health care interventions between China and the USA. Although the reporting quality was assessed, the focus of the current study was on the methodological quality regarding the validity in the process and results of a systematic review.

2. Methods*2.1. Identification and selection of systematic reviews*

One reviewer (F.S.) searched PubMed on January 8, 2016, to identify relevant systematic reviews (see [Supplementary File 1](#) at www.jclinepi.com for the search strategy). Citations of all identified systematic reviews were downloaded to an EndNote database and then exported to a Microsoft Excel spreadsheet. Each of the originally identified records by country was assigned a random number from 0 to 1 (generated by Excel). Then, the records were ordered from the smallest to the largest by assigned random numbers, and the first 100 eligible systematic reviews from each country were selected. If a selected systematic review was not eligible, a successive record was used to replace it until the total number of included systematic reviews was 100 for each country. Included systematic reviews met the following criteria: (1) was a review article and explicitly stated as a systematic review or meta-analysis, with a formal (comprehensive or not) literature search, (2) was fully published in English in 2014, (3) included only RCTs, and (4) had a corresponding author with an affiliation in mainland China or in the USA. We did not formally calculate the number of systematic reviews required because of no information on what would be clinically meaningful differences in quality of systematic reviews between countries.

2.2. Quality assessment and data extraction

All authors involved in this study had previous experience of assessing quality of published systematic reviews. Using a data extraction sheet ([Supplementary File 1](#) at www.jclinepi.com), one reviewer (I.Z., L.G., or J.H.T.) extracted and a second reviewer (J.H.T. or F.S.) checked data on the main characteristics from included systematic reviews. Any disagreements were resolved by discussion. Data extracted from systematic reviews included the following: the journal in which a systematic review was published, type of systematic reviews (narrative or meta-analysis), the number of authors, countries which coauthors came from, whether the review protocol was registered, diseases of interest, interventions evaluated, primary outcome measures, the number of RCTs included, the number of total participants, and conclusions of the systematic reviews. Impact factors of journals in which systematic

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