Scientific publications on systematic review and meta-analysis from Chinese authors: a 10-year survey of the English literature

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Abstract Systematic reviews and meta-analyses are playing an increasingly important role in clinical research and practice. This study aimed to measure the scientific production of systematic review and meta-analysis from the three major regions of China: the Mainland (ML), Hong Kong (HK), and Taiwan (TW). English articles on systematic review and meta-analysis from ML, HK, and TW from 2001 to 2010 were retrieved from the PubMed database. The total number of articles, impact factors (IF), and articles published in high-impact journals were conducted for quantity and quality comparisons among the three regions. There were 1 587 published articles from ML (1 292), HK (203), and TW (92) during the past ten years. The annual total numbers of articles in the three regions increased significantly from 2001 to 2010 (from 13 to 677). The number of articles from ML has exceeded that from TW since 2001, and surpassed that from HK in 2003. The accumulated IF of articles from ML (3 488.24) was higher than those from HK (493.16) and TW (216.39). HK had the highest average IF of 3.31, followed by ML of 2.90 and TW of 2.85. Researchers from HK published a larger proportion of papers in high-impact journals than those from ML and TW. The Cochrane Database of Systematic Reviews was the most popular journal in China. Chinese authors have been very active to enhance the systematic review and meta-analysis research over the past ten years, especially in ML. The gap between ML and the other two regions has been narrowed. But there is still considerable room for Chinese authors to improve their studies on systematic review and meta-analysis.

Keywords systematic review; meta-analysis; China; Chinese; impact factor

Introduction

Systematic reviews and meta-analyses are playing an increasingly important role in clinical research and practice [1]. They are defined as overviews developed with the application of scientific strategies that limit bias by the systematic assembly, critical appraisal, and quantitative or qualitative synthesis of all the relevant studies on a particular topic [2]. Recent data suggest that at least 2 500 new systematic reviews reported in English are indexed in MEDLINE annually [3]; however, the scientific publications on systematic review and meta-analysis by Chinese authors have not been reported. The aim of this study was to reveal the contribution of Chinese authors in three major regions of China — the Mainland (ML), Hong Kong (HK), and Taiwan (TW) — to the scientific production in the field of systematic review and meta-analysis.

Methods

Search strategy

A computerized literature search was conducted in the PubMed database on 8th May 2011. We used a search strategy developed by Shojania and Bero who created the systematic reviews subset on PubMed to retrieve systematic review articles [4]. In addition, meta-analysis articles were identified by the publication type in PubMed. Articles published in English from ML, HK and TW from January 2001 to December 2010 were elicited. The bibliographic search terms used were “systematic [Subset] OR meta analysis [Publication Type]” AND “2001/01/01’
[Publication Date]: ‘2010/12/31’ [Publication Date]” AND “English [Language]” AND “Hong Kong [Affiliation],” “Taiwan [Affiliation],” and “China [Affiliation] NOT Hong Kong [Affiliation] NOT Taiwan [Affiliation],” respectively. Articles that showed the first author’s affiliation with the three regions were considered as research output from the regions. In addition, the articles from the top five countries or regions (USA, Japan, Germany, England, of UK, and France) besides China were also searched [5]. The number of articles in the field of randomized controlled trials (RCT) from the three regions was generated according to the publication type for a horizontal contrast.

Data extraction

Search results were screened for eligibility by two independent reviewers (Z.Y. and Q.W.) using titles and abstracts. Citations were excluded from further consideration if they were not a systematic review or meta-analysis, were not an original report (overviews, guidelines, commentaries, and editorials were excluded), did not include humans, or did not address a health care question [6]. Disagreements were resolved by consensus.

To examine the productivity of the institution where the research had been carried out, data were derived from the affiliation field and classified into one of these categories: Universities, Hospitals and Others (Pharmaceutical Companies, Professional Associations, Health Bureaus, etc.). Universities Hospitals were included in the Hospital category [7].

Two methods were used to compare publication quality. First, the accumulated and average impact factors (IF) were generated based on the Journal Citation Reports (JCR) of the years studied by the Institute for Scientific Information (ISI). Second, the distribution of articles in relation to IF was examined for the three Chinese regions. Two-tailed tests and P values of less than 0.05 were considered significant. All the statistical analyses were performed using SPSS 17.0 (SPSS Inc., Chicago, IL, USA).

Results

Total number of articles

After the initial search, a total number of 103 868 articles were published from 2001 to 2010 worldwide. There were 2 406 articles (2 406 of 103 868, 2.3%) from ML, HK, and TW of China. The USA published the most number of articles from 2001 to 2010 (36 293 of 103 868, 34.9%). In addition, there were 3 539, 1 929, 1 076, 584 articles from Germany, France, Japan, and England of UK, respectively. According to Fig. 1, the annual total number of articles from Chinese regions exceeded all the other countries except for the USA in 2010.

After screening for the exclusion criteria, ML published more articles (1 292 of 1 587, 81.4%) than HK (203 of 1 587, 12.8%) and TW (92 of 1 587, 5.8%) (P = 0.007) over the ten-year period. The annual total number of articles in the field of systematic review and meta-analysis increased significantly from 2001 to 2010 in the three regions (ML: 4 to 605, P < 0.001; HK: 8 to 42, P < 0.001; TW: 1 to 30, P < 0.001; Fig. 2). The number of articles from ML has exceeded that from TW since 2001, and surpassed that from HK in 2003.

The total quantity of published RCTs seemed to have no disparity among the three regions (ML: 2 432; HK: 1 046; TW: 1 503; P = 0.048) during the same study period. The ratios of systematic review and meta-analysis articles to the total number of RCT papers in ML, HK, and TW were 1:2, 1:5, and 1:16, respectively.

Institution contributions

The largest number of contributions came from Hospitals,