Better methods and search words to improve bibliometric studies

Zou and Sun[1] have mentioned that 'We downloaded data on the publications from the Web of Science Core Collection (WoSCC) and set the period as "January 2001 to December 2018".' On-line retrieval was performed using a keyword 'health informatics'.

The WoSCC citation index include: (1) Science Citation Index Expanded (SCI-EXPANDED) (1900–present); (2) Social Sciences Citation Index (SSCI) (1900–present); (3) Arts & Humanities Citation Index (A&HCI) (1975–present); (4) Conference Proceedings Citation Index – Science (CPCI-S) (1990–present); (5) Conference Proceedings Citation Index – Social Science & Humanities (CPCI-SSH) (1990–present); (6) Book Citation Index – Science (BKCI-S) (2005–present); (7) Book Citation Index – Social Sciences & Humanities (BKCI-SSH) (2005–present), and (8) Emerging Sources Citation Index (ESCI) (2015–present).

The WoSCC chemical index includes: (1) Current Chemical Reactions (CCR-EXPANDED) (1985–present) and (2) Index Chemicus (IC) (1993–present).

The WoSCC was initially designed for researchers to find the relevant literature, but instead they have used it for bibliometric studies[2,3]. No publication can be found in IC and CCR-EXPANDED. It is clear that Zou and Sun[1] have used an inappropriate database for their study. In addition, using the different levels of databases in WoSCC is inappropriate for bibliometric studies[2,3].

Zou and Sun[1] also noticed that 'In total, 6077 publications were identified on health informatics research from 2001 to 2018'. Using the same method in the original paper[1] with search word 'health informatics' resulted in 6824 documents, including 3980 articles and 468 reviews. Using the same method in the original paper[1] with search word 'health informatics' resulted in 2446 documents, including 1165 articles and 127 reviews. It is clear that Zou and Sun[1] did not use 'health informatics' but 'health informatics', i.e. health and informatics to search documents from the database[4,5].

According to the search word used in the original paper[1], more related keywords such as 'health informatics', 'health informatic', 'health informaticists', 'healthcare informatics', 'healthcare informaticists', 'healthcare informatician', 'health informatician' and 'health informaticians' were searched on the topic using SCI-EXPANDED and SSCI from 2001 to 2018. A total of 1351 documents were found in SCI-EXPANDED and SSCI. Furthermore, it is necessary to have pre-treating data, but not use the original data directly from WoSCC. In order to find related publications from WoSCC to a specific topic for bibliometric studies, a filter called 'front page' (including the document title, the abstract, and the author keywords) was proposed by Ho and his group[6,7]. A total of 32 documents (2.4% of 1351 documents) are not related to 'health informatics', for example, the highly cited reviews entitled 'Primary care physicians' use of an electronic medical record system: A cognitive task analysis'[8], and 'A framework for analyzing the cognitive complexity of computer-assisted clinical ordering'[9]. This problem has been recently highlighted in medical journals[10–13]. Similar comments were also published in other medical journals[3,14–16].

Zou and Sun[1] have used an inappropriate method and search words in their study. This may result in misleading readers of the journal[2,17–19]. Thus authors must use accurate methods in their publications; reviewers have the responsibility to point out the relevant mistakes, and finally, journal editors have to pay more attention to such problems in manuscripts that are being accepted for publication[20].

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Response

We thank Yuh-Shan Ho for his comments on our article.

Ho mentions that the WoSCC was initially designed for researchers to find the relevant literature, but instead they have used it for bibliometric studies. Also that using the different levels of databases in WoSCC is inappropriate for bibliometric studies.

The literature collected in SCI-E and SSCI (components of WoSCC) has undergone rigorous peer review, including more prestigious journals than non-core collections. SCI-E and SSCI articles are more representative than other collections. In practice, more scholars have carried out bibliometric analysis on SCI-E and SSCI documents[1–3]. Also, several papers of Ho[4–6] have used SCI-E databases for literature analysis.

With regard to the use of search filters and the quantity difference between results of the two search filters, WoSCC (SCI-EXPANDED, SSCI) often updates its database. The search result is often biased at

different time zones. The search methods could include accurate search ('health informatics') and fuzzy search (health informatics). Both methods have advantages and disadvantages. The accurate search may miss some important articles; the fuzzy search may expand the search range, but it can find all the relevant articles. Therefore, we chose the fuzzy search.

Ho also mentions that due to biases from WoSCC, the filter 'front page' proposed by Ho's group can avoid introducing unrelated articles for analysis.

We agree that the 'front page' is more desirable. Nevertheless, VOSviewer is effective in constructing and visualizing scientific landscapes. It has a powerful function in an easy-to-interpret way of co-citation and co-authorship analysis. CiteSpace is another computer program which can visualize abrupt changes and emerging trends in specific fields within a designated period of time. Each method has its advantages. The titles and abstracts can also identify articles that are used by data visualization tools (VOSviewer and CiteSpace).

We again thank Ho for his useful comments, which have provided an opportunity to enhance our collective understanding on scientometrics.

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Wasteland or degraded land – the dilemma continues

Land degradation (LD) is one of the major concerns of the 21st century. It can be attributed to both natural and anthropogenic factors. The article by Sreenivas *et al.*[1] is a commendable effort to envision integration of ecological services from the perspective of human sustenance. The foundation of a food-production system is good land, i.e. soil. Definition of a land according to Food and Agriculture Organization (FAO) is as follows: 'Land is a delineable area of the earth's terrestrial surface, encompassing all attributes of the Biosphere immediately above or below this surface, including near-surface climate, the soil and terrain forms, the surface hydrology (including shallow lakes, rivers, marshes and swamps), the near-surface sedimentary layer and associated groundwater reserve, the plant and animal populations, the human settlement pattern and physical results of past and present human activity (terracing, water storage or drainage structures, roads, buildings, etc.)[2].' Technically, there may or may not be any difference between land and soil. However, productivity of the land is determined by the ability of the soil to supply nutrients and sustain biological activities. In any scenario, the significant concern of any stakeholder will be the extent of possible utilization of a given piece of land. For agriculturists, food production per unit of land will be the focus, while for a mineralogist or geologist it will be the mineral deposit per unit of land. Irrespective of the various perspectives, the agenda of focus is always on the productivity per unit of land. Thus, the land is an invaluable resource, especially fertile soil or land for food-production systems. In this context, the above-mentioned article highlights the significance of land and the difficultly in preventing as well as reclaiming degraded land given the population increase in India[1]. For instance, in India over the past 10 years, only 0.1 million ha of land has been recovered from degradation. One noteworthy argument of the article is the discontent in land statistics data, especially degraded land statistics by different agencies.

As readers, we too perceived the confusion. For instance, the article exclusively deals with degraded land and states that 91.20 m ha of land is degraded in India. Recently, the Department of Land Resources, Ministry of Rural Development, Government of India released the Wasteland Atlas of India – 2019, which specifies that 55.76 m ha of land falls under 32 categories of wasteland; this is not discussed in the above-mentioned article[1]. The authors, however, have mentioned a previously published Wasteland Atlas in table 1. The matter of concern here is not only the difference in the land area values, but also in the terminology – 'wasteland' and 'degraded land'. Do both terminologies mean the same? The integrated wasteland development programme webpage under the Ministry of Rural Development, GoI, defines wasteland as 'Degraded land which can be brought under vegetative cover, with reasonable effort, and which is currently underutilized and land which is deteriorating for lack of appropriate water and soil management or on account of natural causes' (https://dolr.gov.in/integrated-wasteland-development-programme). Irony abounds here. Furthermore, the article states that 27.77% of land is degraded in India, but does not mention the total geographical area used for this computation[1].

Also, the article provides the Land Degradation Map of India 2015–16, which portrays the need for revamping our efforts to achieve 'LD neutrality', as quoted. It would have been worthy if the authors had mentioned whether they had included the recorded forest area (71.22 m ha) of India in their analysis to evolve the land degradation map. This could have helped unveil the degradation level even in the recorded forest land and protected area network, which would give insights into the challenges and opportunities for ecosystem restoration per se. Notwithstanding, there are increasing concerns for creating maps at the regional and local scales; the effectiveness of these maps can be ascertained only if some clarity on the intricate details is given, as stated earlier.

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