Postprint: International Comparative Study on Major Citation Indicators of Chinese ESCI-Indexed Journals

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Abstract

【Purpose】 To comprehensively understand the international ranking and overall level of citation metrics of ESCI-indexed journals in China, which can provide a strong reference basis for accurately evaluating the status and influence of Chinese ESCI-indexed journals on the international stage and help further explore strategies for developing world-class journals. Methods This study utilized the WoS database to collect and comparatively analyze the main citation metrics of ESCI-indexed journals from China and G7 countries (including the UK, France, USA, Japan, etc.) as well as emerging economies such as India and Russia in 2022. Results: Chinese ESCI-indexed journals demonstrated outstanding performance in impact factor, 5-year impact factor, immediacy index, citing half-life, and average references per review article, ranking first among the 11 countries; in terms of number of journals, number of articles, total citations, Eigenfactor, Article Influence Score, and average references per original article, China ranked fourth, following only the USA, UK, and Germany; Chinese ESCI-indexed journals had relatively longer publication cycles and shorter cited half-lives. Conclusion: For Chinese ESCI-indexed journals to further enhance their international academic influence and enter the ranks of SCI journals at an early date, efforts should be focused on the following directions: promptly adjusting publication strategies, enhancing the visibility and recognition of journal articles, and effectively increasing citation counts; adopting English as the publication language and engaging in deep cooperation with international publishers to attract high-quality global research achievements; actively inviting internationally renowned experts and scholars to serve as editors-in-chief and editorial board members, thereby improving the internationalization level of editorial boards and further enhancing the international influence of journals.

Full Text

Comparative Study of Main Citation Indicators of Chinese ESCI-Indexed Journals in an International Context

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Abstract

Objective: To comprehensively understand the international ranking and overall level of citation indicators of China's ESCI-indexed journals, providing a robust reference basis for accurately assessing the status and influence of Chinese ESCI-indexed journals on the global stage and informing strategies for developing world-class journals.

Methods: This study utilized the Web of Science (WoS) database to collect and compare the main citation indicators of ESCI-indexed journals from China and G7 countries (UK, France, USA, Japan, etc.) as well as emerging economies (India, Russia, etc.) for the year 2022.

Results: China's ESCI-indexed journals ranked first among the 11 countries in impact factor, 5-year impact factor, immediacy index, citation half-life, and average citations per review article. In terms of journal count, article count, total citations, Eigenfactor, article influence score, and average citations per original article, China ranked fourth after the USA, UK, and Germany. Chinese ESCI-indexed journals exhibited relatively long publication cycles and short cited half-lives.

Conclusion: To further enhance their international academic influence and advance into the SCI journal ranks, Chinese ESCI-indexed journals should: (1) adjust publication strategies promptly to increase visibility and citation rates; (2) adopt English as the publication language and establish deep cooperation with international publishers to access high-quality global research; and (3) actively invite renowned international experts to serve as editors and editorial board members to enhance editorial internationalization and further boost

global impact.

Keywords: ESCI database; journal management strategy; citation indicator; international comparative study; academic influence

Introduction

ESCI (Emerging Sources Citation Index), introduced to the Web of Science database in 2015, represents a new citation index that serves as a supplementary resource to SCIE, SSCI, and A&HCI. Often regarded as a "pre-SCI" or reserve pool for SCI, ESCI aims to capture academic journals with potential or those gaining attention from other databases, including emerging disciplinary fields and regional publications. Its core purpose is to expand the coverage and evaluation scope of the Web of Science database, providing rich journal data resources to support research assessment and analysis. ESCI's primary characteristics include openness, inclusivity, and diversity, making it a key evaluation standard for emerging academic journals. Currently, SCIE includes 9,502 journals while ESCI encompasses 8,214 journals, among which 19 Chinese journals were recently included in SCI and 116 in ESCI.

As China's academic research accelerates its international expansion, scholars and institutions increasingly value ESCI's evaluative role. Domestically, Wang Jihong et al. [1] examined the relationship between ESCI and WoS databases and ESCI's impact on journal development. Fu Zhongjing [2] analyzed the academic influence of 19 Chinese journals included in ESCI in 2016. Peng Lin et al. [3] investigated publication cycles, cooperation with international publishers, inclusion in other databases, proportion of international editorial board members, and citation impact for 31 Chinese ESCI-indexed journals in 2017. Concurrently, Chinese government agencies and universities have implemented policies encouraging scholars to publish in ESCI-indexed journals to enhance China's international research influence. Journal establishment and management have gained increased attention, with ESCI inclusion serving as an important marker of successful journal launch [4].

While domestic scholars have compared the influence and competitiveness of Chinese international journals with those of other countries, these studies have not fully encompassed global multi-country data [5]. Additionally, comparisons with other internationally renowned journal evaluation systems remain insufficient [6]. Some scholars have explored strategies for cultivating top-tier journals, providing valuable guidance for Chinese ESCI-indexed journals to enter SCI ranks, which holds profound significance for promoting healthy development and enhancing international influence of Chinese academic journals [7]. However, existing research on the international status of Chinese ESCI-indexed journals remains limited. Therefore, to more accurately evaluate their global status and influence, this study compares the main citation indicators of Chinese ESCI-indexed journals with those of other countries, aiming to further

enhance the academic influence of Chinese journals and inform future journal management strategies.

1. Materials and Methods

1.1 Data Collection

This study collected major bibliometric indicators of ESCI-indexed journals from China (excluding Taiwan Province) and emerging economies (South Korea, India, and Russia) alongside G7 countries (USA, UK, France, Germany, etc.)—totaling 11 countries—for the year 2022. The compared indicators included article count, citation frequency, publication language, publication frequency, immediacy index, Eigenfactor, impact factor, 5-year impact factor, citation half-life, cited half-life, article influence score, average citations per original article, and average citations per review article.

1.2 Data Acquisition

All data were sourced from the ESCI database under the Web of Science platform. We accessed the Web of Science database and navigated to the Journal Citation Reports interface for precise data retrieval. Retrieval conditions specified "JCR Emerging Sources Citations Index 2022" and utilized the "View a group of journals by Country/Territory" function to obtain bibliometric information for the 11 target countries. Retrieved data were subsequently filtered, processed, and analyzed in Excel, with standardization and normalization performed to facilitate comparative analysis.

1.3 Statistical Processing

Statistical analysis of processed data was conducted using SPSS 17.0 software. Non-parametric tests were employed to determine the international standing of main citation indicators for ESCI-indexed journals, helping to understand the overall bibliometric profile of Chinese ESCI-indexed journals and their gaps with international counterparts. Visualization through charts and graphs was used to intuitively reveal differences between Chinese and international ESCI-indexed journals.

2. Results

2.1 General Parameters of Chinese ESCI-Indexed Journals

In 2022, ESCI indexed 657 Chinese journals. Table 1 compares their article count, citation frequency, and publication language parameters with G7 countries and emerging economies.

As shown in Table 1, ESCI included 31,032 journals globally by October 2022, with 657 being Chinese journals. While China ranks among the top in total journal count, it still lags significantly behind the USA (9,285 journals), UK (7,098

journals), and Germany (1,699 journals). Compared with the three emerging economies, China leads in total ESCI-indexed journals, substantially exceeding South Korea, India, and Russia. In terms of total articles indexed, the USA, UK, and Germany occupy the top three positions, with China following closely in fourth place. Within Asia, China's ESCI-indexed journal count has surpassed Japan (467 journals), South Korea (386 journals), and India (361 journals), demonstrating China's leading position in the region.

Further analysis reveals that Chinese ESCI-indexed journals average 115.04 articles per journal, ranking below the USA (136.79), UK (130.89), and Germany (126.13). Given the global leadership of these three countries in academic research, China's substantial gap in journal count and articles per journal is understandable. Therefore, Chinese journals already indexed in ESCI should maintain their advantages and continue striving for SCI inclusion, while those not yet indexed must continuously improve quality and academic standards to enter ESCI ranks. This sustained effort will promote significant progress for Chinese academic journals on the international stage.

Total citation frequency is a key metric measuring how often a journal's articles are cited by other journals in the WoS database during a specific reporting year. For newly launched or early-stage journals, citation performance is crucial for ESCI inclusion. Table 1 shows that the USA, UK, and Germany lead with average citations per journal of 8,628.24, 7,344.47, and 6,968.41 respectively, while China's average of 3,357.61 ranks fourth. To accelerate ESCI inclusion, Chinese journal management units and relevant departments should focus on citation performance, regularly tracking and monitoring citation rates in WoS core journals to accurately simulate key metrics such as Eigenfactor and citation indicators. Based on these data, domestic journals should adjust management strategies promptly, enhance visibility and recognition, and effectively increase citation frequency through content optimization, strengthened academic communication, and expanded publication channels, thereby strengthening the global position and influence of Chinese ESCI journals.

Additionally, Table 1 demonstrates that English-language journals dominate ESCI coverage. Except for Italy and France, nine non-English-native countries including China, Germany, South Korea, and Japan have over half their ESCI-indexed journals published in English, with China, Japan, and South Korea showing particularly high proportions of 604 journals (91.93%), 403 journals (86.3%), and 335 journals (86.79%) respectively. Globally, many renowned publishers are transitioning journal publication languages to English, exemplified by Germany's Thieme Publishing Group. Before 2004, their journal *Ultraschall in der Medizin* had an impact factor fluctuating around 1.0, but since gradually shifting from German to English in 2004, its impact factor has risen steadily from 2.394 in 2008 to 4.389 in 2017. This illustrates that adopting English as the publication language can enhance Chinese journals' visibility, academic impact, and international discourse power.

International cooperation not only helps journals better comply with interna-

tional editorial practices but also facilitates adoption of international submission and peer-review systems, thereby attracting submissions from scholars worldwide. ESCI selection considers author internationalization a key evaluation criterion. However, Chinese English-language journals currently lack widespread promotion and publication platforms, and Chinese publishing institutions have not yet independently entered the international stage. Therefore, for journals not yet indexed in international databases, particularly those seeking ESCI inclusion, proactive and deep engagement with established international publishers is essential. Leveraging international submission and review systems for manuscript processing while adopting English as the publication language may facilitate ESCI database inclusion.

2.2 Publication Frequency of Chinese ESCI-Indexed Journals

Table 2 presents the international comparison of publication frequencies for Chinese ESCI-indexed journals in 2022.

Publication frequency refers to the number of issues published within a specific timeframe, including weekly, monthly, quarterly, and annual formats. Generally, lower publication frequency corresponds to longer publication cycles. Liu Xueli et al. [16] demonstrated that shortening publication cycles can effectively enhance impact factors, as shorter cycles mean richer manuscript sources and greater information capacity. Data show that for China, G7 countries, and emerging economies, ESCI-indexed journals concentrate in frequency ranges of 0–4, 5–8, and 9–12 issues per year, with minimal representation at other frequencies. Notably, the proportion of Chinese ESCI-indexed journals publishing more than 12 issues per year is relatively low. Ren Shengli et al. [17] further indicated a positive correlation between publication cycle and citation frequency, with shorter-cycle journals tending to receive more citations. Therefore, Chinese ESCI-indexed journals with sufficient manuscript sources should consider shortening publication cycles and increasing frequency to enhance quality and academic influence.

Comparative analysis of publication frequencies across 11 countries reveals that Chinese ESCI-indexed journals have relatively long publication cycles, particularly compared to journals from the UK, USA, and Germany. This reflects insufficient manuscript sources that limit cycle shortening. To address this, Chinese ESCI-indexed journals should actively solicit contributions from renowned domestic and international experts and scholars while cooperating with international publishers. Inviting internationally recognized experts as editors or editorial board members can increase manuscript volume and publication frequency. Simultaneously, establishing efficient review systems, shortening review times, and improving publication efficiency are crucial for ensuring timeliness and novelty, accelerating dissemination of research findings, meeting international academia's urgent demand for rapid access to latest results, and thereby enhancing the global influence of Chinese ESCI journals.

2.3 Impact Factor and Immediacy Index of Chinese ESCI-Indexed Journals

Table 3 compares impact factors, immediacy indices, and related metrics between Chinese ESCI-indexed journals and G7 countries plus South Korea, Russia, and India in 2022.

Impact factor, a crucial journal quality metric, reflects the average citation rate of journal articles. Higher impact factors typically indicate greater influence among professional readers. Table 3 data clearly show that Chinese ESCI-indexed journals rank first among the 11 countries in both impact factor and 5-year impact factor, significantly leading other nations. This demonstrates that Chinese ESCI-indexed journals publish papers of exceptionally high academic value with broad influence in their fields. In recent years, China's scientific and technological capabilities and academic influence have improved substantially, with numerous high-quality research achievements gaining international recognition, partially driving the rise in impact factors. However, compared with developed countries, Chinese ESCI-indexed journals' impact factors remain relatively modest. Therefore, Chinese journal publishing departments and relevant institutions must continue enhancing academic standards and international influence through strengthened international academic exchange and cooperation, improved global dissemination capacity, and attraction of more outstanding research for publication in Chinese ESCI journals, while continuously improving evaluation systems to ensure objective and fair reflection of true journal quality.

The immediacy index intuitively demonstrates a journal's ability to rapidly attract public attention, its timeliness, and its immediate impact, revealing the journal's value and position in academic interaction. Table 3 shows that Chinese ESCI-indexed journals lead the 11 countries in immediacy index, indicating high citation rates in the current year and demonstrating broad dissemination and strong recognition of Chinese research achievements. However, maintaining and further improving this performance requires sustained effort and meticulous maintenance by journal teams. To preserve and enhance the immediacy index, Chinese ESCI-indexed journals must continue strengthening quality control and academic influence construction, promoting publication of more high-quality research achievements to elevate China's international research status and influence.

Citation half-life is a key standard for evaluating journal quality and influence, revealing the temporal distribution of literature citations and reflecting how recently journal authors utilize literature. It is commonly used to assess the recency of journal references. Generally, shorter citation half-life indicates newer, more cutting-edge cited papers and higher influence and attention. Table 3 data show that Chinese ESCI-indexed journals have a citation half-life of 7.482, significantly lower than those of the USA (9.803), UK (9.811), and Germany (10.74), representing the minimum among the 11 countries. This fully demonstrates that Chinese ESCI-indexed journal author groups are adept at utilizing

recent literature, producing papers with strong academic frontiers and considerable international influence. This undoubtedly affirms China's research strength and academic journal development, and Chinese journal publishing departments should continue maintaining and further strengthening this advantage to ensure steady progress in China's research fields and journal development.

Cited half-life primarily evaluates journal aging rate. Table 3 indicates that Chinese ESCI-indexed journals have a cited half-life of 4.024, significantly lower than those of France, Japan, Russia, and others, ranking last among the 11 countries. This shows that Chinese ESCI-indexed journals have high citation timeliness and substantial short-term influence, but also reflects rapid aging and relatively insufficient long-term impact of academic papers. Zhou Erqiang et al. [19] noted that high-impact-factor journals typically have shorter cited half-lives, while journals with high total citations or long citation half-lives tend to have longer cited half-lives. Chinese ESCI-indexed journals exhibit high impact factors, relatively low total citations, and short citation half-lives, which may correlate with their short cited half-lives. Therefore, journals seeking to increase cited half-life can adopt strategies including setting reasonable publication cycles, multilingual publishing, and actively publishing innovative domestic and international research achievements.

2.4 Eigenfactor and Article Influence Score of Chinese ESCI-Indexed Journals

Table 4 compares Eigenfactor, article influence score, and average citations per original article and review article between Chinese ESCI-indexed journals and G7 countries plus emerging economies in 2022.

Eigenfactor precisely measures journal quality and influence within academic core fields. Zhao Xing [20] noted strong correlations between Eigenfactor and both total citations and article count. In 2022, Chinese ESCI-indexed journals had an Eigenfactor of 0.0035, lower than the USA (0.0075), Germany (0.0071), and UK (0.0067). Given these three countries' world-leading academic journals with far superior total citations and article counts, China's lower Eigenfactor is unsurprising. Compared with other countries, China's Eigenfactor substantially exceeds India, Canada, and Italy, indicating that these countries' ESCI-indexed journals frequently cite Chinese ESCI journal articles, reflecting relatively high recognition and influence of Chinese ESCI-indexed journals in the academic community.

Article influence score, introduced by Thomson Reuters in the 2009 enhanced Journal Citation Reports, evaluates journal influence through each academic article to assess relative importance. Mi Jia et al. [22] indicated strong correlation between article influence score and impact factor. Table 4 shows that among the 11 countries, only China, the UK, and the USA have article influence scores exceeding 1, with Chinese ESCI-indexed journals showing minimal difference from the UK and USA, likely related to their high impact factors. These

data demonstrate that articles in Chinese ESCI-indexed journals possess considerable influence and importance in academia, already reaching world-leading levels that should be maintained.

Post-text citations refer to literature referenced by authors during writing. Proper citation usage enhances article quality and value while demonstrating authors' academic literacy and research capability. In 2022, Chinese ESCI-indexed journals ranked third in average citations per original article, behind only the USA and UK, while ranking first in average citations per review article, far exceeding the other 10 countries. This indicates outstanding performance by Chinese ESCI-indexed journals in citing high-quality literature, with high value and quality of published articles that help enhance Chinese journals' international influence.

3. Discussion

Journals serve not only as platforms for displaying and disseminating research achievements but also fulfill multiple functions including advancing scientific progress, demonstrating research capacity, stimulating academic discussion, and facilitating scientific communication. With deepening academic research, journal citation indicators have become key standards for evaluating national research levels and international influence. To comprehensively understand the ranking and overall standing of Chinese ESCI-indexed journals internationally, this study compared main citation indicators between China and G7 countries (UK, France, USA, Japan, etc.) and emerging economies (India, Russia, etc.) for 2022 ESCI-indexed journals. The aim was to provide robust reference bases for Chinese ESCI-indexed journals to accurately assess their international status and influence, adjust future management strategies, and offer guidance for advancing into SCI journal ranks.

Results show that Chinese ESCI-indexed journals exhibit outstanding performance in impact factor, 5-year impact factor, immediacy index, citation half-life, and average citations per review article, ranking at the forefront internationally. However, compared with traditional academic journal powers such as the USA, UK, and Germany, gaps remain in journal count, articles per journal, and total citation frequency.

To further enhance international academic influence and enter SCI journal ranks, Chinese ESCI-indexed journals should pursue the following directions: (1) Publishing high-quality academic papers is crucial for enhancing international influence. Chinese ESCI-indexed journals should adjust management strategies based on current paper influence, strive to attract high-quality research achievements, improve paper visibility and recognition, and effectively increase citation frequency. (2) Strengthening cooperation with international publishers positively promotes international visibility and access to global research achievements. To facilitate such cooperation, Chinese ESCI-indexed journals should adopt English as their publication language and utilize international

submission and review systems for efficient processing of domestic and international manuscripts, thereby enhancing immediate paper influence and attracting excellent submissions. (3) Optimizing editorial boards, particularly their international composition, is an effective measure for Chinese ESCI journals to obtain high-quality overseas manuscripts. Therefore, Chinese ESCI-indexed journals should actively solicit contributions from renowned domestic and international experts and scholars, proactively inviting senior international scholars to serve as editors or editorial board members to expand international editorial teams and broaden overseas author and readership groups.

In conclusion, Chinese ESCI-indexed journals should further strengthen international academic exchange and cooperation, enhance global dissemination capacity, attract more valuable research papers, and continuously improve evaluation systems to ensure objective and fair reflection of true journal quality.

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Note: Figure translations are in progress. See original paper for figures.