

# How international are the editorial boards of leading spine journals? A STROBE-compliant study

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## Abstract

Low- and middle-income countries contribute to only a small percentage of publications in multiple medical fields. Editorial bias was reported to be an important reason for this. However, whether this trend exists in leading spine journals remains unclear. This study determined the composition of the editorial boards of leading spine journals and analyzed the international representation of editorial boards.

The editorial board members of four leading subspecialty spine journals, including *The Spine Journal*, *Journal of Neurosurgery: Spine*, *European Spine Journal*, and *Spine* were identified from the journals' websites. The countries of editorial board members were identified and analyzed according to the continent and country income categories classified by the World Bank.

A total of 608 editorial board members were identified from the four leading spine journals. The majority (91.4%) of editorial board members were from high-income countries, followed by upper-middle income countries (7.2%), and lower-middle income countries (1.3%). No editorial board members were from low-income countries. Regarding the continent of residence, 46.5% of the editorial board members were from North America, followed by Europe (38.5%), Asia (9.9%), South America (2.8%), Oceania (1.6%), and Africa (0.7%). The editorial board members came from 40 different countries, which were concentrated in North America, Western Europe, and East Asia. The largest number of editorial board members came from the United States (42.3%), followed by Germany (6.9%), the United Kingdom (6.7%), Switzerland (5.8%), and Italy (5.1%).

A lack of international representation on editorial boards exists in leading spine journals. Editorial board members from high-income countries are substantially overrepresented, while editorial board members from low- and middle-income countries are severely underrepresented. The United States is the most represented country on the editorial boards of leading spine journals.

**Abbreviations:** CSS = clinical spine surgery, ESJ = European Spine Journal, JNS = Journal of Neurosurgery: Spine, TSJ = The Spine Journal.

**Keywords:** editorial board, publication, spine

## 1. Introduction

Publications are an important result of scientific research, which is crucial in promoting research progress, providing therapeutic strategies for diseases, and even changing health policy.<sup>[1,2]</sup>

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Different countries have unbalanced contributions to scientific research productivity.<sup>[1–4]</sup> In the field of medicine, it has been reported that low- and middle-income countries publish only a small percentage of articles.<sup>[1–4]</sup> A recent study reported similar findings in leading spine journals.<sup>[5]</sup> Low- and middle-income countries, containing more than 80% of the world's population with the largest economic burden of diseases, only published <20% of spine-related articles.<sup>[5,6]</sup> This can be attributed to multiple factors such as lower financial investment, less qualified researchers, and poor English skills.<sup>[1–4]</sup>

However, researchers from less-developed countries believed that editorial bias in medical journals was a key reason for fewer publications from their countries.<sup>[3,7]</sup> As the first step in investigating the objective basis for this claim, a study on the composition of the editorial board members showed that there was an underrepresentation of editors from low- and middle-income countries in leading general medical journals.<sup>[8]</sup> Similar findings were identified in many leading subspecialty journals, including psychiatry,<sup>[9]</sup> anesthesia/critical care,<sup>[10]</sup> medical education,<sup>[11]</sup> pediatrics,<sup>[12]</sup> and pharmacy.<sup>[13]</sup>

Whether this phenomenon exists in leading subspecialty spine journals is still unclear. To our knowledge, such investigations have not been performed in this field. The objective of this study was to investigate the composition of the editorial boards in leading spine journals and to analyze the international representation of editorial board members.

## 2. Materials and methods

The Research Ethics Committee of Third Hospital of Hebei Medical University approved this study. Leading journals in certain fields usually describe themselves as international journals, which was also found to be true in the field of spine surgery.<sup>[8–13]</sup> Therefore, five high-impact subspecialty spine journals in Journal Citation Reports (JCR) for the year 2016 were included in this study,<sup>[5,14]</sup> which followed the procedure of previous similar publications.<sup>[9–13]</sup> These leading spine journals included *The Spine Journal* (TSJ), *Journal of Neurosurgery: Spine* (JNS), *European Spine Journal* (ESJ), *Spine*, and *Clinical Spine Surgery* (CSS). The editorial board members were identified using the official websites of the five journals. The country affiliations of the editorial board members were listed in all journals except CSS. Email correspondence was used in an attempt to obtain this information from the CSS journal, but no response was received. Therefore, only the other four leading spine journals were included in this study (Table 1).

In January 2018, the country affiliations of the editorial board members were identified using the official journal websites. Following World Bank income criteria, each country was classified as high-income (>\$12,236), upper-middle income (\$3956 to \$12,235), lower-middle income (\$1006 to \$3955), or low-income (≤\$1005) using the Gross National Income per capita (Fig. 1)<sup>[8–13]</sup> (<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>). The proportion of different income categories were calculated based on these data.

In order to better understand geographical distributions, we also collected and analyzed data regarding the editorial board members' continents of origin. The world map was drawn based on the number of editorial board members in each country. The objective of this study was to depict trends of editorial board members from different countries, not to test hypotheses regarding their relative importance. Therefore, only descriptive statistics, such as sum and proportion, were calculated.

**Table 1**

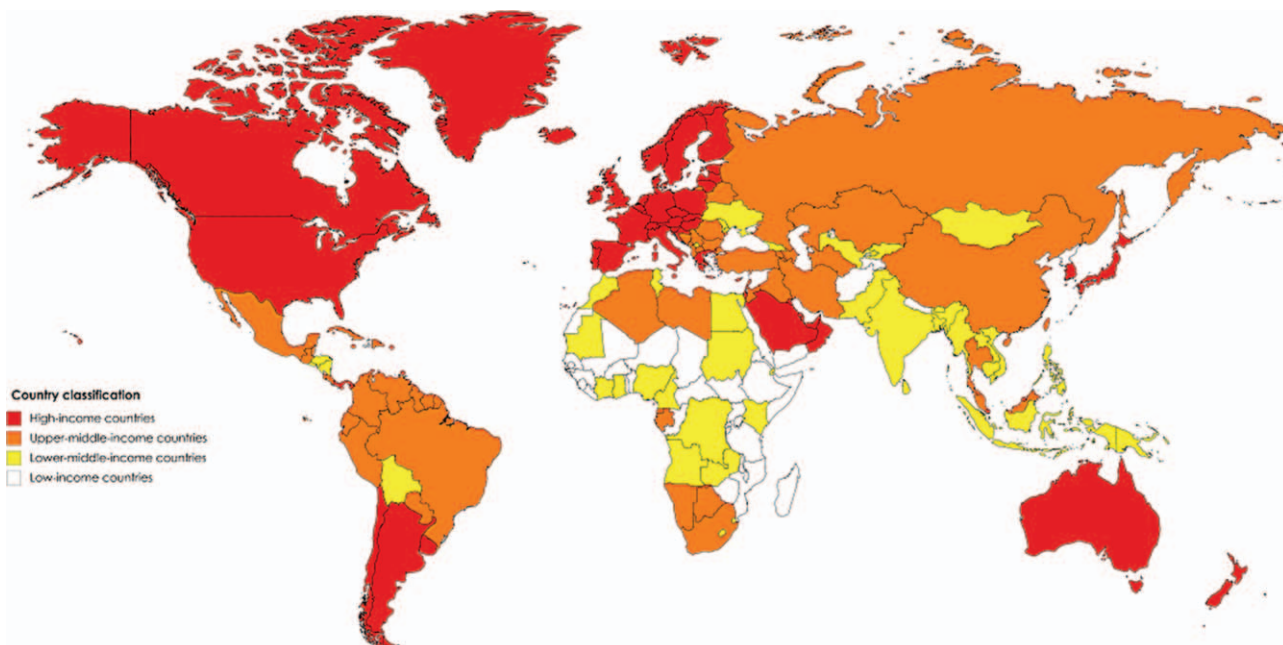
**Journals included in this study.**

Journal	Abbreviation	Impact factor
<i>The Spine Journal</i>	TSJ	2.962
<i>Journal of Neurosurgery: Spine</i>	JNS	2.696
<i>European Spine Journal</i>	ESJ	2.563
<i>Spine</i>	<i>Spine</i>	2.499

## 3. Results

A total of 608 editorial board members were identified in the four leading spine journals. The majority (91.4%) of the editorial board members were from high-income countries, followed by upper-middle income countries (7.2%), and lower-middle income countries (1.3%). No editorial board members were from low-income countries (Fig. 2). Among the four spine journals, *Spine* had the largest proportion (96.4%) of editorial board members from high-income countries, followed by TSJ (96.3%), JNS (93.3%), and ESJ (87.1%). ESJ had the largest proportion (12.9%) of editorial board members from middle-income countries, followed by JNS (6.7%), TSJ (3.7%), and *Spine* (3.6%).

The continental distribution of editorial board members is shown in Figure 3. Nearly half (46.5%) of all editorial board members were from North America, followed by Europe (38.5%), Asia (9.9%), South America (2.8%), Oceania (1.6%), and Africa (0.7%). The editorial board members of ESJ, *Spine*, TSJ, and JNS represented six, five (except Africa), four (except Europe and Africa), and three (except Europe, Oceania, and Africa) continents, respectively. The largest proportion of editorial board members (ranging from 73.7% to 91.7%) was from North America in each spine journal except ESJ, where Europe ranked first (66.7%), followed by North America (15.1%).



**Figure 1.** The world map of countries classified by World Bank income criteria.

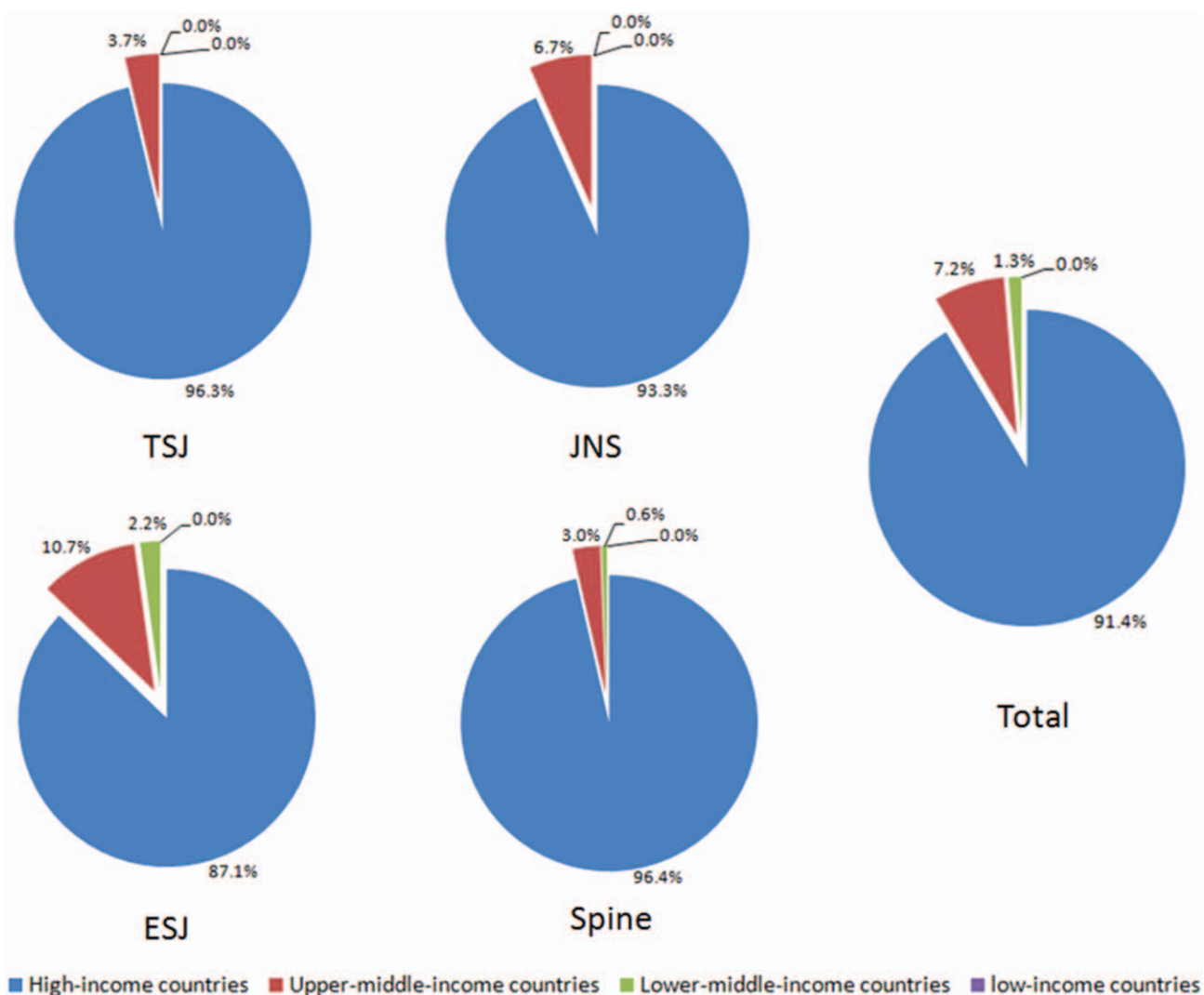


Figure 2. The editorial board members grouped by gross national income.

The editorial board members came from 40 different countries, including 28 high-income, 9 upper-middle income, and 3 lower-middle income countries. The world map shows that these countries were concentrated in North America, Western Europe, and Eastern Asia (Fig. 4). The largest percentage of editorial board members was based in the United States (42.3%), followed by Germany (6.9%), the United Kingdom (6.7%), Switzerland (5.8%), and Italy (5.1%).

#### 4. Discussion

Surgeons and researchers worldwide have the responsibility for the advancement of spine surgery.<sup>[5,14]</sup> Publications are a crucial result of their research activities.<sup>[5,9,12,14]</sup> Editorial board members control and influence the spine-related articles published in leading spine journals since they recommend authors and topics for future publications and help form the personalities and policies of their journals.<sup>[5,9-14]</sup> In the field of medicine, it has been reported that low- and middle-income countries only contributed a limited proportion of medical articles,<sup>[5,14-19]</sup> with several reasons reported for these findings.<sup>[14,18,19]</sup> However, editorial bias is gaining more and more

attention.<sup>[9,12,13,20-23]</sup> Underrepresentation of individuals from low- and middle-income countries on editorial boards has been identified in leading subspecialty journals of several fields.<sup>[9-13]</sup> However, this situation has not yet been evaluated in leading spine journals.

This study proved that the editorial boards of several leading spine journals were dominated by individuals from high-income countries. Only a few members were from middle-income countries. No members were from low-income countries. Individuals from low- and middle-income countries were underrepresented on the editorial boards of these leading spine journals. Our findings follow patterns similar to what has been shown in leading general medical journals and other leading subspecialty journals,<sup>[9-13]</sup> indicating that the editorial board members of leading spine journals mainly represented higher income countries.<sup>[9-13]</sup>

In fact, the lower income countries contain over 80% of the world's population.<sup>[5,6]</sup> These countries also have the largest worldwide number of patients receiving medical treatment, including spine surgery.<sup>[2,5,14,18,19]</sup> The very small number of individuals from low- and middle-income countries on the editorial boards of leading spine journals is most likely not

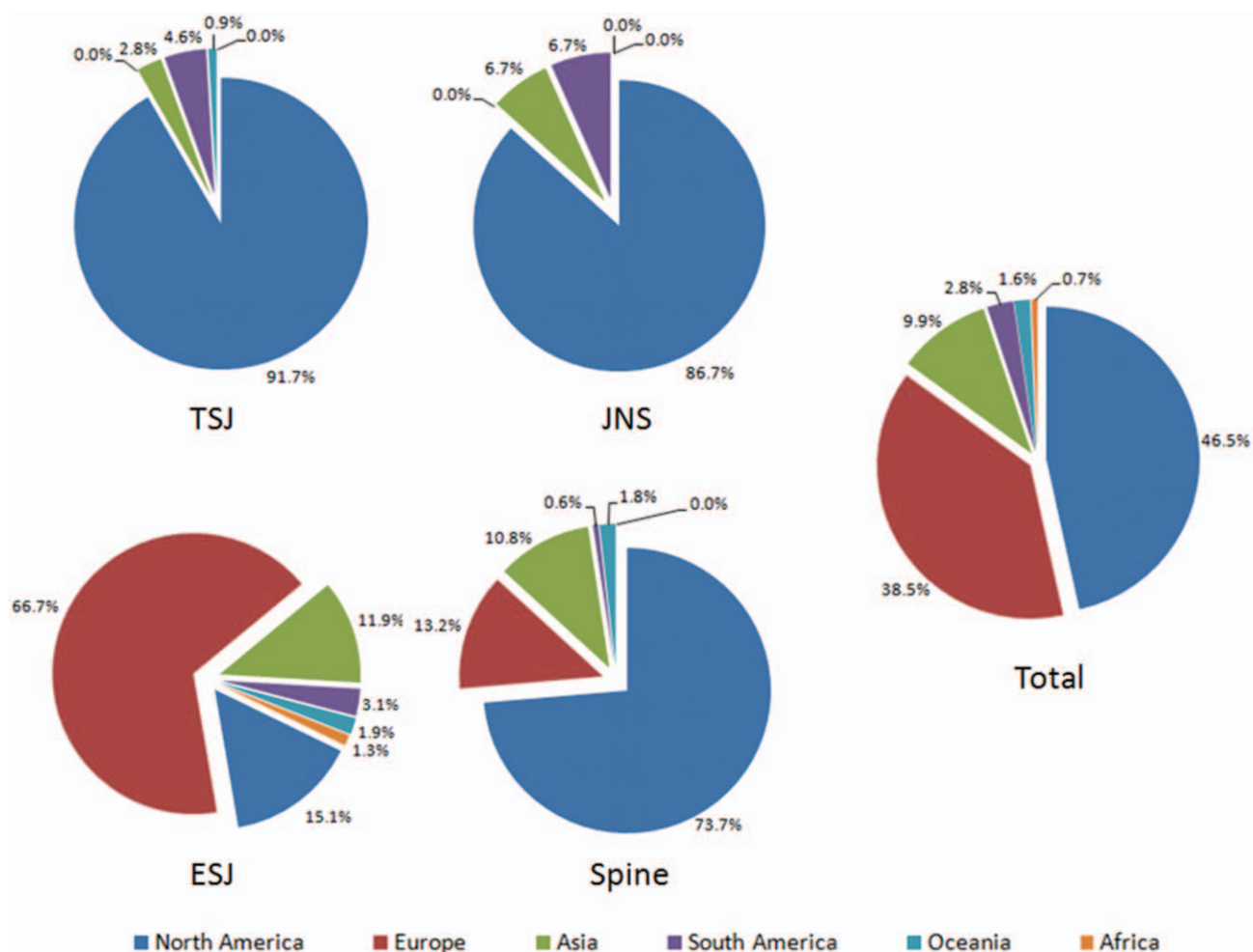


Figure 3. The editorial board members grouped by continent of residence.

encouraging to researchers and potential authors from developing countries. The fact that fewer studies from low-income countries published in international spine journals may lead to less attention given to the patients in low-income countries from the world community. This is also concerning because it may potentially have a negative effect on the dissemination of knowledge that is generated in the developing world. The fact that spine surgeons and researchers from low- and middle-income countries contribute only a small proportion of the total publications in leading spine journals may partly reflect this negative effect.<sup>[5,14]</sup> Low- and middle-income countries usually have a large population. When adjusted by their population, the underrepresentation of low- and middle-income countries in the composition of editorial boards becomes more serious.

Our study found that three of the four leading spine journals investigated originated from the United States. The majority of editorial board members of these journals were also from the United States. In the one European journal, Europe led the United States in the composition of the editorial board members. These findings might indicate that most of the editorial board members of leading spine journals were from the regions where these journals were located.<sup>[9-13]</sup>

In addition, this study demonstrated that the editorial boards of leading spine journals had an imbalanced member distribution. The North American and European journals had over 80% of all

board members with several possible reasons for this imbalanced distribution. First, most of the high-income countries were located in these two continents. Second, spine journals were published in these regions. Third, the United States and some European countries contributed to the majority of editorial board members.

We also found that the board members of the leading spine journals were concentrated in several countries and not scattered across the world. The United States, Germany, the United Kingdom, Switzerland, and Italy were the most common countries providing editorial members. These five countries dominated the editorial boards of spine surgery, with nearly 70% of all members. The United States was the most represented country with nearly half of the total members. This may indicate that the United States had the greatest power in forming the direction of leading spine journals.<sup>[5,14]</sup> Members from other countries represented only a minority of the editorial boards and were therefore underrepresented in leading spine journals. The ideal composition of editorial boards of an international journal should include diversity among their membership.<sup>[9,23]</sup> Board members should be from all over the world, with a proportional representation of low- and middle-income countries.<sup>[9-12,20]</sup> The leading international spine journals should correct this unsatisfactory situation.<sup>[23]</sup>

The existence of editorial bias claimed by some researchers is mainly due to the low proportion of members from low- and middle-income countries on editorial boards.<sup>[3,7]</sup> Whether a bias



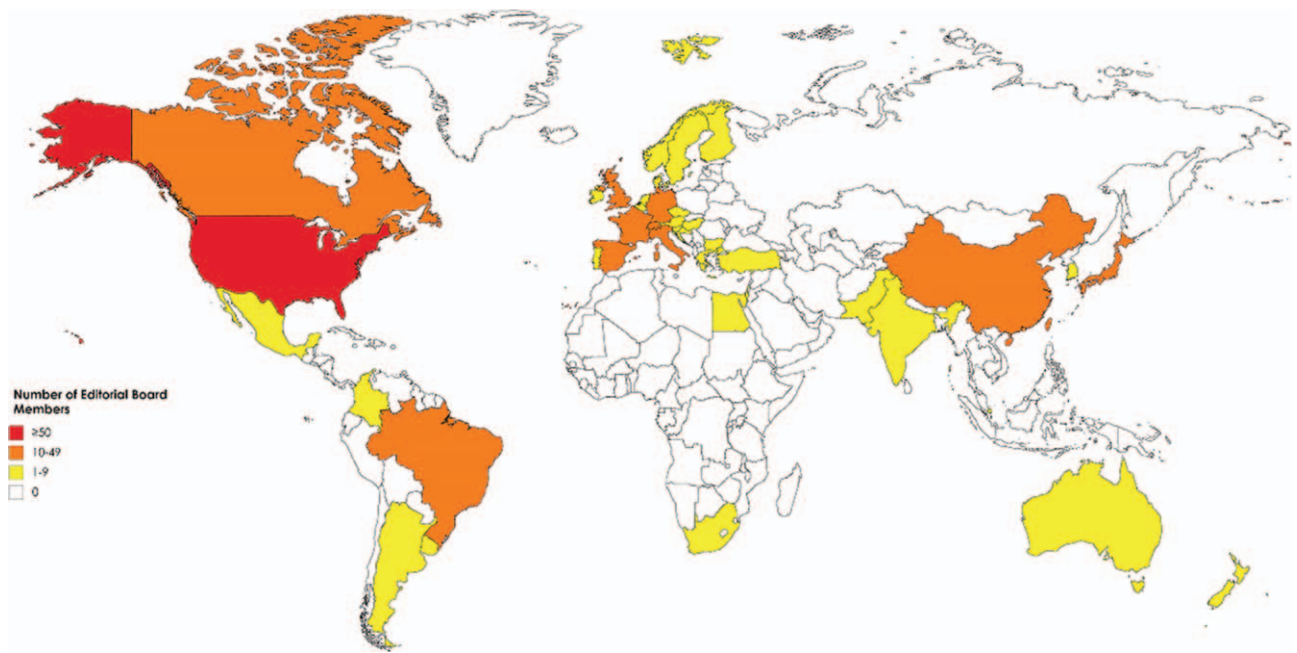


Figure 4. The world map of the editorial board members.

against manuscripts from low- and middle-income countries exists is still unclear. However, it should be noted that the country affiliation of the editorial board members may influence the editorial function, such as manuscript selection or providing peer reviews. Leading spine journals may further change the composition of their editorial boards. It would send an encouraging signal to researchers from low- and middle-income countries, and help in knowledge-sharing from less-developed countries.

This study had some limitations. First, the high-impact spine journals usually describe themselves as international journals, so this study investigated major leading spine journals, which are all published in English. Since English is the primary language used in international journals, language bias is inevitable in this study. This has also been seen in similar previous publications.<sup>[8–13]</sup> Second, only four journals were included in this study due to the limited number of leading spine journals, which is a small sample size. If more samples were selected, the findings of this study may have been more substantial. Nevertheless, the spine journals included in this study represent the major international journals in the spine surgery field and present the overall trend of the composition of editorial boards of leading spine journals. Third, this study represented cross-sectional research. The results of this study may change when the investigation is performed at another time point. Fourth, since the aim of the present study was not to compare spine journals, or to present the relative importance of the members of the editorial boards from countries with different economic standings, but to evaluate the composition of the editorial boards, only descriptive analyses such as sum and proportion were conducted due to the limitation of available data. However, this study may provide the basis for future research regarding the composition of editorial boards of leading spine journals.

### 5. Conclusion

To our knowledge, this is the first study evaluating the composition of editorial boards of leading spine journals. There is a lack of international representation in the composition of the

editorial board members of leading spine journals. The majority of the editorial board members are from high-income countries, especially the United States. Further efforts are needed to change this unsatisfactory situation.

### Author contributions

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- Visualization:** Shiji Qin.
- Writing – original draft:** Shiji Qin.
- Writing – review & editing:** Yingze Zhang, Zhihong Wang.

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