ORIGINAL ARTICLE

The contribution of authors from low- and middle-income countries to top-tier mental health journals

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Abstract

Background: Low- and middle-income countries (LMICs) have been consistently under-represented in the pool of contributors to academic journals on health. For the past two decades, prominent voices within the psychiatric profession have called for better representation of LMICs in the interest of advancing the understanding of mental health globally and benefiting health systems in these countries.

Objective: To investigate the absolute and relative representation of authors affiliated to institutes from LMICs in the most influential journals on mental health in 2019.

Method: Thirty top-ranking journals on mental health based on Scimago Journal Rank were selected, and all papers other than correspondence and letters to the editor published in those journals in 2019 were examined to extract the country of affiliation of each of their authors and their position (corresponding author, first author, second author).

Results: Of the 4022 articles examined, 3720 articles (92.5%) were written exclusively by authors from high-income countries (HICs); 302 (7.5%) featured one or more authors from a LMIC along with those from HICs; 91 (2.2%) featured authors only from one LMIC; and only 3 (0.07%) featured authors from more than one LMICs but without any co-author from a HIC. The ratio of articles by contributors from LMICs to all the articles published in 2019 in a given journal ranged from 0% to 19%. Of 1855 individual contributors from 45 LMICs, 1050 (56%) were from China.

Conclusion: Despite the growth of the global health movement and frequent calls for academic inclusivity, LMICs were significantly under-represented among the authors of papers published in top-ranking journals on mental health in 2019.

Keywords: Affiliations of authors, bibliometric analysis of health journals, inter-country collaboration in research

Introduction

The growth of research capacity in low and middle-income countries (LMICs) has been identified as a global public health priority for decades.[1] Research in LMICs is essential to strengthen health systems for the benefit of local populations, who make up more than 80% of the world's population.[2] To include local researchers in trials carried out in these countries has been described as a moral and ethical duty.[3,4] Despite the efforts to bridge, or at least to reduce, the wide gap between high-income countries (HICs) and LMICs in research productivity, LMICs continue to lag behind, mostly due to lack of resources.

Studies of authors who contribute to academic journals consistently reveal a disproportionate representation skewed in favour of HICs irrespective of the subject domain or discipline. In a bibliographic analysis carried out in 2018 and spanning a century of research output on health and human rights, nearly 80% of more than 6500 published articles were from HICs, with USA alone accounting for 28% of them.[2] A survey of articles published in *The Lancet Global Health* between 2013 and 2017 noted that 35% of the contributions were from LMICs.[5] An analysis of editorial boards of 12 global health journals revealed that only a third of their members were based in LMICs, and even fewer of such members occupied senior leadership positions.[6] Even in papers on studies

conducted within LMICs and on populations from those countries, authors from HICs generally occupied more prominent positions in the list of authors than did authors from LMICs.[7,8] Also, authors from institutions in LMICs were less likely to feature either as the first author or as the corresponding author.[7] A study on paediatric research carried out in multiple LMICs found that in 66 (40%) of a total of 165 articles, at least one country in which the research had been conducted was not represented in the affiliations of their authors.[9] In the welcome increase in publications on communicable diseases such as malaria, HIV/AIDS, and tuberculosis conducted in LMICs, publications in which the first author was affiliated to any of the LMICs made only a modest contribution.[10]

The situation is no different in psychiatry journals. Patel and co-workers found that authors from LMICs were grossly under-represented in six high-impact psychiatric journals over three preceding years in two separate studies.[11,12] One of those two studies also reported that journals from the United States were less likely than those from Europe to feature authors from LMICs.[12] Attempts, often led by research institutes from HICs, to support researchers from LMICs have produced mixed results.[13] Ongoing efforts to reduce the gap in research on mental health have focused on four priorities, one of which is building research capacity.[14]

It is against this background that we set out to assess the proportion of authors from all LMICs in the most influential journals in the fields of psychiatry and mental health in 2019. This study comes more than a decade since the last analysis and attempts to assess whether the calls for action and the efforts mentioned earlier have been sufficient to increase the contributions of authors from LMICs to global scholarship on mental health.

Methods

Sample

We included all articles published in 2019 in 30 top-ranking journals in psychiatry and mental health as ranked by the SCImago Journal Rank database (SCImagoJR), a globally recognized portal that relies on information provided by Scopus. The following parameters defined our search of the SCImagoJR platform: 'Medicine' was selected in the 'All subject areas' tab; 'Psychiatry and Mental Health', in the 'All subject categories' tab; 'All regions/ countries' was left as is, 'Journals' was selected in the 'All types' tab; and '2019', in the year tab.[15]

We chose 2019 because it was the most recent completed academic year and capped the number of journals at 30 based on resources and on the assumption that such a number would be representative of the top tier of academic literature relevant to psychiatry and mental health. The 24th journal in the list, *Dialogues in Clinical Neuroscience*, had ceased publication in 2019; therefore, we included *Bipolar Disorders*, which was the 31st journal in the list. All the volume(s) of the journals published in 2019 were selected and each issue in those volumes was examined. Articles in every issue were retrieved individually as spreadsheets (Microsoft Excel). The following data were collected for each article: total number of authors, the number of authors affiliated to institutions in LMICs, names of the LMICs, the number of authors affiliated to institutions in non-LMICs, the names of these non-LMICs, and the affiliation of the first author (whether from a LMIC or from a non-LMIC). The names of the LMICs were noted along with the number of authors showing institutional affiliations to each LMIC. We used the World Bank country classification to categorize a country as one of the LMICs.[16] For China, we therefore excluded authors based in Hong Kong, which is classified separately by the World Bank as a HIC.

Data extraction

Journals differed in how they recorded the affiliation and contributions of authors. We used a unified algorithm to ensure maximum consistency in keeping with the spirit of the study. For authors with more than one affiliation, we chose the first. When more than one author was identified as the first or the corresponding author, we included all of them in our database. Correspondence, supplementary issues, and extras such as posters, abstracts, book covers, images, and videos were excluded from the study, as were articles that carried no author or affiliation information. However, for articles with several authors among which only one carried no affiliation, the author was counted for the 'total number of authors' but could not be accounted for in the affiliation category. If the corresponding author was not identified, the first author was considered the corresponding author. Data from the *American Journal of Psychiatry* were collected differently because it was difficult to match the names of authors to their affiliations.

Results

The majority of the journals analysed in our study were officially listed as published from the United Kingdom (N = 17) or the United States (N = 10); of the remaining three, two were published from Switzerland and one, from the Netherlands.

The thirty journals provided a total of 4022 articles, of which 3720 (92.5) featured no author from any LMIC; 302 (7.5%) featured at least one author from a LMIC; 146 (3.63%) showed their first author to be from a LMIC; and 143 (3.56%) showed the corresponding author to be from a LMIC. Of the articles with authors from LMICs 211 (69.9%) also included authors from non-LMICs, whereas the remaining 30.1% (N = 91) were written exclusively by authors from LMICs. These 91 articles represented only 2.3% of the total number of articles published across all 30 journals in 2019.

A closer look at the selected journals showed an uneven distribution of contributions by authors from LMICs: articles with at least one author affiliated to a LMIC accounted for 0%–19% of the total, with a median of 6% (Figure 1). *Bipolar Disorders* and *NPJ Schizophrenia* featured the most articles with at least one author from a LMIC.
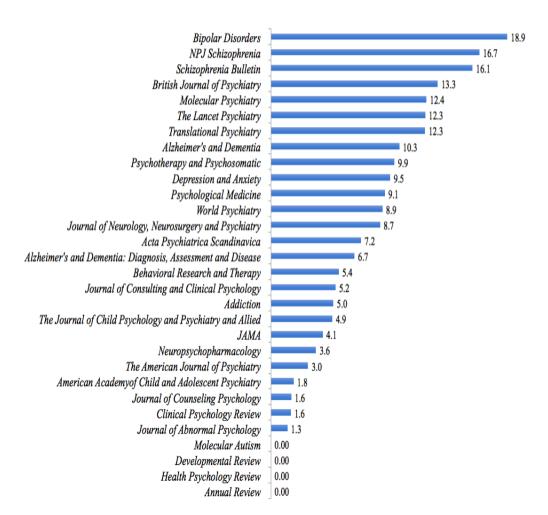
Figure 1. Journals ranked by the proportion (%) of articles with at least one author from a low- or medium-income country.

Of the total number of articles at featured LMIC authors (N = 302), in 269 (89%) each author-affiliation showed only one LMIC and in 33 (11%), the affiliation featured two or more LMICs. Of the 91 articles published exclusively by LMIC authors, only 3 articles (3.3%) were the result of collaboration between authors from two or more LMICs. The authors affiliated to LMICs were based in 45 countries, with China, with 1050 contributions, topping the list (Table 1).

Table 1. Low- or middle-income countries ranked by the number of articles published in top 30 mental health journals in 2019

Rank	Country	No. of articles (% of 4022 articles)		Rank	Country	No. of articles (% of 4022 articles)
				16	Algeria	3 (0.16)
1	China	1050 (56.60)			D R Congo	
2	Brazil	232 (12.51)			Iraq	
3	Argentina	78 (4.20)		17	Bangladesh	2 (0.11)
4	India	74 (3.99)			Bulgaria	
5	Russia	58 (3.13)			Costa Rica	
	South Africa				Egypt	
6	Turkey	52 (2.80)			Georgia	
7	Lebanon	37 (1.99)			Moldovia	
8	Nigeria	35 (1.89)			Paraguay	
9	Iran	34 (1.83)			Peru	
10	Colombia	20 (1.08)			Senegal	
11	Pakistan	18 (0.97)			Uganda	
12	Mexico	13 (0.70)			Vietnam	
13	Serbia	10 (0.54)		18	Benin	1 (0.05)
	Sri Lanka				Guatemala	
14	Thailand	8 (0.43)			Indonesia	
	Kenya				Kazakhstan	
15	Cuba	4 (0.22)			Kuwait	
	Malaysia				Leon	
	Nepal				Qatar	
	Togo				Ukraine	
	Tunisia				Zambia	

Discussion

In the top 30 psychiatry journals, authors from LMICs contributed only 8% of all articles published in 2019. Although the journals varied a great deal among themselves in the proportion of such articles, with the exception of journals focused on bipolar and psychotic disorders, the more specialized journals and those covering psychology as a whole showed the lowest proportion. The absence of LMIC authors in specialist journals might reflect the highly specialized nature of the topic and the resources (skills, expertise, laboratories) needed to produce research of an acceptable standard. It is also possible that journals with fewer contributions from LMIC authors simply receive fewer submissions from LMICs because those authors do not expect to be published in those journals or because the topics they deal with are too HIC-centric to be relevant globally. Four of the 30 journals did not publish a single paper authored by researchers from LMICs: three of these were review journals with emphasis on theoretical underpinnings of their respective fields and the fourth was a specialist journal, *Molecular Autism*.

Several factors might explain these low proportions. Low- and medium-income countries make up a diverse group of 142 countries with very different social, economic, and political realities. Nonetheless, a feature they all share is limited resources for academic and health-related requirements. Our list of the 45 LMICs was dominated by China, which accounted for more than half (56%) of the papers. This is consistent with the sharp rise in publications emanating in full or in part from China noted across the range of health topics. In 20 years this has been estimated at fifty -fold. [17] Other high scorers were Brazil and Argentina, representing South America; South Africa and Nigeria stood out as major contributors from Africa; and Lebanon and Iran strongly represented the Middle East and North Africa. India, despite its large population, was grossly under-represented, with only 4% of the total contributions by authors from LMICs. All other countries in the list contributed only a few articles each. We also noted a marked intra-regional variation, with a few LMICs from each continent producing the bulk of the research output. For example, in an analysis of mental health research productivity from the Arab world published in 2020, 80% of output was mostly from only five countries: Egypt, Saudi Arabia, Lebanon, Tunisia, and the United Arab Emirates.[18] Earlier attempts at correlating research output with population size or gross domestic product (GDP) have been inconclusive. One suggestion was to use the number of researchers in a country as an indicator.[19] It is difficult to establish any conclusive relationship between funding and academic output, especially in the absence of consistent and reliable country-level data on research expenditure.[20] Authors from mainland China were relatively well represented in our sample, but not in proportion to the country's share in the global population. Despite well-documented growth in China's scientific productivity since the turn of the century, Chinese authors still

face challenges, not least among them being a level of international mistrust in China's research governance framework.[21] On the other hand, links with the Chinese diaspora, including those who return home from studies abroad, could be a positive element.[22] A factor that needs further consideration is intra-country variation in productivity: although this was beyond the scope of present study, some understanding of how a few prolific authors or dedicated research institutions within a country could be skewing the numbers, for example through wide-ranging network collaborations headed by HIC researchers, can guide future initiatives to improve the contributions of authors from LMICs.

One reason for the under-representation of LMIC authors is that they are inadequately equipped in term of resources, skills, or interest to carry out significant research. Another is the language bias: although English is often the language used at work in many countries, such use does not help when it comes to academic writing, which is more demanding in terms of the quality of English—a demand that most non-native speakers find difficult to meet. Although data on how often manuscripts are rejected based on poor language are hard to obtain, this aspect is certainly emphasized by reviewers and has been the subject of controversy in the academic sphere.[23,24] Conscious or unconscious bias from editors or reviewers cannot be ruled out either, especially if influenced by the above-mentioned assumptions on the abilities of researchers and the quality of research undertaken.[25]

Another factor is the trend towards open-access publishing, which has witnessed sustained growth over the last decade.[26] Of the 30 journals in our list, 5 were open access but we found no broad correlation between the status of the journal (whether open access or requiring a subscription) and the number of contributions from LMICs. However, despite the discounts offered by some open-access journals to authors from LMICs, the article-processing charges remain prohibitive for the majority in absence of any institutional support.[27]

A noteworthy finding is the significant proportion of articles with both LMIC authors and HIC authors. Although we neither computed the ratio of authors from the two categories at the article level nor analysed the identity and the role of each contributor, it would be interesting to investigate the dynamics of collaborations between authors from LMICs and from top academic centres in HICs. It is possible that the topic of a given article is one that requires the involvement of authors from LMICs for credibility or validity. Less common was collaboration between authors from two or more LMICs *without* any HIC author to serve as a bridge. Similar findings have been reported in other health-related fields.[28] Encouraging collaboration between LMIC researchers that share mutual interests, with or without the participation of an external party, is one way of pooling scarce resources and building global research capacity.

Despite the difference in methodology and scope between our study and the one by Saxena et al. in 2006,[29] the findings are similar. This suggests the '10/90' divide between LMICs and HICs has not changed in more than a decade despite the global mental-health movement and pledges for increased inclusivity and collaboration. The International Classification of Diseases - 11 Revision process that lasted from 2009 to 2018 is an example of effective globalization. In a historical first, mental health researchers and clinicians from over 64 countries were included in real-world validation of the proposed classification.[30] This format should become the norm, with emphasis on encouraging autonomy for LMICs while providing them with outlets for disseminating the results of their research without compromising on quality.

Increasing the representation of authors from LMICs in global academic and clinical publishing remains a complex objective that requires a clear understanding of factors that contribute to unequal representation. Assuming that all stakeholders agree to accord priority to that objective, the means to achieve it need to be based on evidence and honest dialogue between journal editors, who are overwhelmingly affiliated with institutions in HICs, and representative interlocutors from LMICs, driven by data, and drawing inspiration from anecdotal success stories of authors from LMICs who have managed to break the glass ceiling preventing proportional contribution to global authorship in mental health. The aim should be to increase the quality of original-research-based submissions from LMICs to established influential psychiatric journals while removing any systemic or personal bias. Mentoring, funding, and fair involvement of locations from LMICs in multi-centre trials are all workable solutions that could make a radical difference within a decade.

Limitations

The study limited itself to the top 30 journals as ranked by only one scientific measure and to only one year. Yet another major limitation lay in how those journals listed the authors and matched their names to their affiliations; in many instances, the system adopted by the journal for doing so required some detective work to triangulate and interpret information. Exploring the type of articles published (for example, original research *vs* editorials) was another aspect worth exploring but beyond the scope of the present research.

Conclusion

Authors from LMICs remain under-represented in top-tier academic literature of psychiatry despite repeated calls for greater inclusivity and some targeted investment in supporting researchers and institutions in LMICs. Research conducted exclusively in HICs is not always generalizable beyond that setting, whereas research conducted in LMICs should be driven by local priorities and involve local researchers equitably. More efforts are required to develop the academic potential of clinicians and academics in LMICs not only for the benefit of the specific populations they serve but also for advancing global health.

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