Authorship Inequity in Global Health Research Conducted in Low- and Middle-Income Countries and Published in High-Income Country Family Medicine Journals

Alyssa Vecchio, MD[1,2*]
Bridget Nandawula, MPH[3*]
Kelsey Sawyer, MS[2*]
James Akiruga Amisi, MBChB, MMed[4**]
Daria Szkwarko, DO, MPH[2**]
Kathy Z. Chang, MD, MPH[1**]

[1]University of New Mexico, Albuquerque, New Mexico

[2]The Warren Alpert Medical School of Brown University, Providence, Rhode Island

[3]Engeye, Inc, Albany, New York

[4]Moi University School of Medicine, Eldoret, Kenya

*These authors contributed equally as co–first authors.

**These authors contributed equally as co–senior authors.

MORE ONLINE
www.annfammed.org

Conflicts of interest: authors report none.

CORRESPONDING AUTHOR

Alyssa Vecchio
Department of Family Medicine
The Warren Alpert Medical School of Brown University
111 Brewster St
Providence, RI 02860
alyssa_vecchio@brown.edu

ABSTRACT

PURPOSE The current structures of global health research and academic authorship have resulted in underrepresentation of authors from low- and middle-income countries. Although authorship inequity has been shown in other specialties, the current status of authorship in family medicine has not been examined.

METHODS We conducted a bibliometric analysis of World Organization of Family Doctors (WONCA) journals based in high-income countries for articles describing research conducted in low-income countries, lower-middle-income countries, and upper-middle-income countries from 2018 to 2023. Descriptive statistics were computed to summarize the proportion of first and senior authors by the articles' study location and publication characteristics.

RESULTS We retrieved 1,030 articles through our comprehensive search. A total of 431 articles from 16 family medicine journals remained after abstract and full-text review. Over time, there was an increase in publication of research articles from low- and middle-income countries in the family medicine journals, with the majority of the studies conducted in upper-middle-income countries (55.9%). The proportion of senior authors from high-income countries was highest in articles with research conducted in low-income countries (50%) compared with those reporting research done in lower-middle-income countries (37%) and upper-middle-income countries (21%).

CONCLUSIONS About one-quarter of articles with research conducted in low- and middle-income countries and published in family medicine journals have first and/or senior authors from high-income countries; this representation is even higher when analysis is restricted to research done in low-income countries. To support authorship equity, family medicine researchers should reconsider the definition of authorship criteria, promote culturally humble mentorship, and encourage institutions to adapt promotion criteria to empower equitable global health partnerships.

Ann Fam Med 2025;23:223-230. https://doi.org/10.1370/afm.240431

INTRODUCTION

Although there have been calls to increase the inclusion of researchers from low- and middle-income countries (LMICs) and to promote bidirectional partnerships in global health research, there has been slow progress toward author representation from these countries.[1-4] As stated by Juliane Chaccour in a *Lancet Global Health* editorial, authorship in collaborative research can be a proxy for research leadership.[5] Authorship equity can therefore be a measure of strengthened research capacity in LMICs and a step toward global health equity.[6,7] Although publication disparities between LMICs and high-income countries (HICs) have been found in other specialties, authorship representation in family medicine journals has yet to be analyzed.[2,8,9]

Bibliometric analyses have found that authors from LMICs are underrepresented in global collaboratives conducted in the author's own country, especially in the more prominent first and last (senior) authorship positions.[10-12] In global emergency medicine, reproductive health, and oncology, nearly one-half (47% to 48%) of the senior authors are from HICs.[8,9,13] The disparity is particularly evident in journals that have high impact factors and that are published in HICs.[2,11,14] This pattern influences the research's dissemination, noted by the higher relative citation ratio of articles with authors from countries having a high income.[15] LMIC authorship is

also less likely when the research has funding from HICs.[7,8] With the majority of the funding originating from institutions in countries having a high income, global health priorities and research agendas are often influenced by those institutions' research leaders and eventual authors.[16]

The number of publications and prominent authorship positions can contribute to researchers' promotions and the ability to secure future funding.[17,18] Subsequently, the disproportionate opportunities for researchers from HICs, including time allotted for research, funding sources based in these countries, editorial bias for western authors, and the academic pressures noted above, can exclude the advancement of researchers from LMICs.[12,19] Academic institutions, funding agencies, and journals should be held accountable for the promotion of equitable research partnerships to ensure that the LMIC researcher can be a main stakeholder in the research agenda and publication for the work completed in their country.[11,20,21] As Kaufman et al wrote in the conclusion of their bibliometric analysis of global health research, "Global health partnerships cannot be equitable without changing authorship trends between HIC and LMIC institutions."[10]

To explore the current status in a field not yet studied, we investigated authorship inequities for research that was conducted in LMICs and published in family medicine journals based in HICs.

METHODS

Study Design and Journal Selection

We undertook a bibliometric analysis of journals listed on the World Organization of Family Doctors (WONCA) Global family doctor website focused on low-income countries, lower-middle-income countries, and upper-middle-income countries, as classified by the World Bank, from January 1, 2018 to December 31, 2023.[22] The starting date was chosen to align with the World Health Organization Astana Declaration for universal health coverage.[23] We selected for analysis journals with editorial offices in HICs. The included journals were searched in Ovid MEDLINE combining a journal title search, a combination of terms related to low-income countries and LMICs, and a publication date limit of 2018-2023 (see Supplemental Appendix for full search strategy). All authors reviewed the resulting records to identify research articles published in English. Institutional review board approval was not necessary as this was a study on previously published articles.

Article Inclusion and Exclusion Criteria

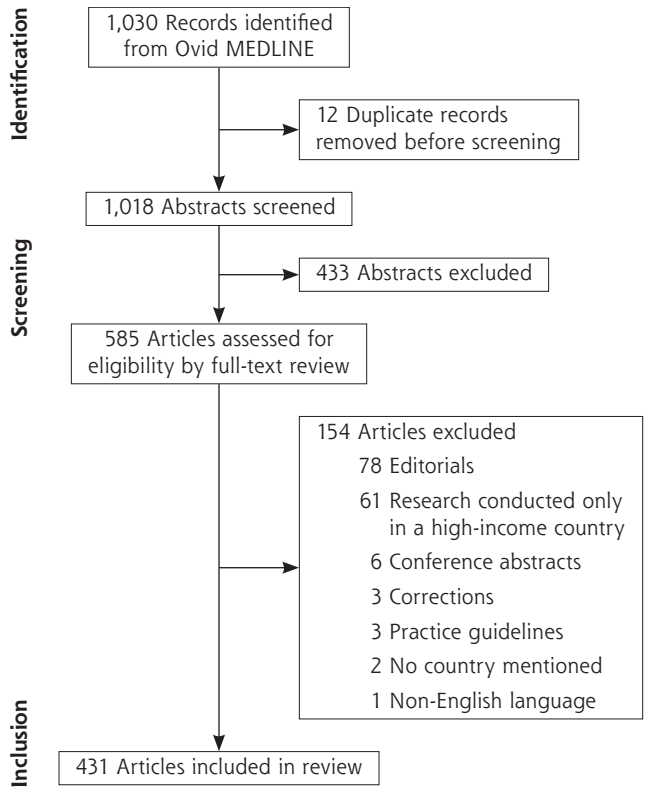
We searched for the subset of HIC titles from the journals of interest identified by WONCA (most recently updated in 2022) in MEDLINE (Supplemental Appendix). The search criteria included publication year (2018-2023), LMICs defined by the World Bank,[22] and low-resourced or underresourced terms and synonyms defined by the Cochrane Effective Practice and Organisation of Care (EPOC).[24] We uploaded the identified articles to Covidence systematic review software (Veritas Health Innovation) where they underwent dual blind review at the title/abstract and full-text level. Conflicts were adjudicated by at least one other member of the study group.

The articles were initially assessed for inclusion criteria: (1) reported research conducted in an LMIC, (2) were available in the English language, and (3) had human study participants. The full-text review used the same inclusion criteria and additionally focused on the exclusion criteria: (1) articles that reported research conducted only in an HIC, (2) editorials, clinical guidelines, and opinion pieces that did not share new data, and (3) conference abstracts.

Data Extraction and Analysis

We retrieved article metadata from the final included references from Clarivate's Web of Science database via a PubMed Identifier (PMID) search. We uploaded the Web of Science–exported metadata to OpenRefine (Code for Science & Society), where we extracted country affiliation from the author address field for each author. We manually reviewed references that were not indexed in Web of Science for author affiliation, funding, and other characteristics. Data were organized and cleaned in Microsoft Excel (Microsoft Corp) and analyzed in Stata (StataCorp LP).

Figure 1. PRISMA Flow Diagram for Article Identification, Screening, and Inclusion



PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Note: Diagram is based on the PRISMA 2020 statement.[25]

RESULTS

Article Selection and Characteristics

A total of 14,707 articles were published in the HIC journals between 2018 and 2023, of which 1,030 articles mentioned low-income countries or LMICs, or Cochrane Review low-resourced or underresourced terms (Figure 1).[25] Twelve duplicate articles were removed. A total of 1,018 article abstracts from 17 journals were reviewed for inclusion and exclusion criteria. Of the 585 articles that underwent full-text review, 154 were removed, most often because they were editorials. One journal, *American Family Physician*, did not have any articles that met the final inclusion criteria.

This process left 431 relevant articles published in 16 family medicine journals with editorial offices in HICs (Table 1). The United States (6 of 16 journals) and Australia (3 of 16 journals) were the top 2 locations for the journals' editorial offices. The median impact factor of the journals in 2023 was 2.0, with a range from 1.1 to 5.3. More than one-half of the articles reported studies conducted in upper-middle-income countries (55.9%) with the large majority of first authors and last (senior) authors coming from LMICs (78% and 68%, respectively). Less than one-half of the articles (44.1%) were funded.

Publication and Author Trends

Over time, there was an increase in publication of articles focused on research conducted in LMICs in family medicine journals (Figure 2, left and right panels). There were corresponding increases in representation of first authors from these countries from 2018 (59%) to 2023 (85%) (left panel), and also in representation of senior authors from these countries from 2018 (55%) to 2023 (74%) (right panel).

Article and Authorship Country Associations

Only 22 articles reported research conducted in low-income countries. Uganda was the most represented country in this category; the other countries, including Malawi and Ethiopia, are shown along with upper-middle-income countries in

Table 1. Article Characteristics by Family Medicine Journal (N = 431 Articles)

Journal	Editorial office	Impact factor[a]	No. of articles	Study country income level, No. (%)				Authors from LMICs, No. (%)	
				Low	Lower middle	Upper middle	Multiple	First authors	Senior authors
Annals of Family Medicine	United States	4.4	9	0	0	7	2	6 (67)	4 (44)
Asia Pacific Family Medicine	Japan	NA[b]	6	0	2	4	0	5 (83)	4 (67)
Australian Journal of General Practice	Australia	1.6	13	0	4	9	0	12 (92)	9 (69)
Australian Journal of Rural Health	Australia	1.9	11	0	4	7	0	10 (91)	8 (73)
BMC Primary Care	United Kingdom	2.0	106	8	39	51	8	90 (85)	80 (75)
British Journal of General Practice	United Kingdom	5.3	8	0	4	3	1	4 (50)	6 (75)
Canadian Family Physician	Canada	2.4	5	0	0	1	4	0 (0)	1 (20)
European Journal of General Practice	Netherlands	2.3	12	0	2	6	4	9 (75)	8 (67)
Family Medicine	United States	1.8	6	0	1	2	3	1 (17)	4 (67)
Family Medicine and Community Health	United States	2.6	39	4	16	13	6	28 (72)	23 (59)
Family Practice	United States	2.4	60	1	12	46	1	55 (92)	47 (78)
Journal of General and Family Medicine	United States	1.8	5	0	3	1	1	3 (60)	3 (60)
Journal of Primary Health Care	New Zealand	1.1	1	0	0	1	0	1 (100)	1 (100)
Journal of the American Board of Family Medicine	United States	2.4	5	0	0	5	0	5 (100)	4 (80)
Rural and Remote Health	Australia	2.0	144	9	40	85	10	107 (74)	92 (64)
Scandinavian Journal of Primary Health Care	Sweden	1.9	1	0	0	0	1	0 (0)	0 (0)
Overall	...	...	431	22 (5.1)	127 (29.4)	241 (55.9)	41 (9.5)	336 (78)	294 (68)

LMIC = low- or middle-income country (includes low-income, lower-middle-income, and upper-middle-income countries).

[a] As of 2023. Number of times journal's articles are cited in the last 2 years divided by total number of publications in journal in those 2 years. Higher values indicate greater yearly mean number of citations of articles published.

[b] *Asia Pacific Family Medicine* ceased to be published by BioMed Central on December 31, 2018.

Figure 3, left and right, top maps. Articles in this category had the highest proportion of first and senior authors from HICs when only single country income levels were considered (Figure 4).

Research conducted in lower-middle-income countries accounted for about one-third of the articles, but less than one-quarter of the first and senior authors (Table 2). India, Iran, and Nigeria were the most represented in study location among lower-middle-income countries (Figure 3, left, top map). With respect to senior authorship, Australia, Iran, India, and the United Kingdom were the countries most represented (Figure 3, left, bottom map).

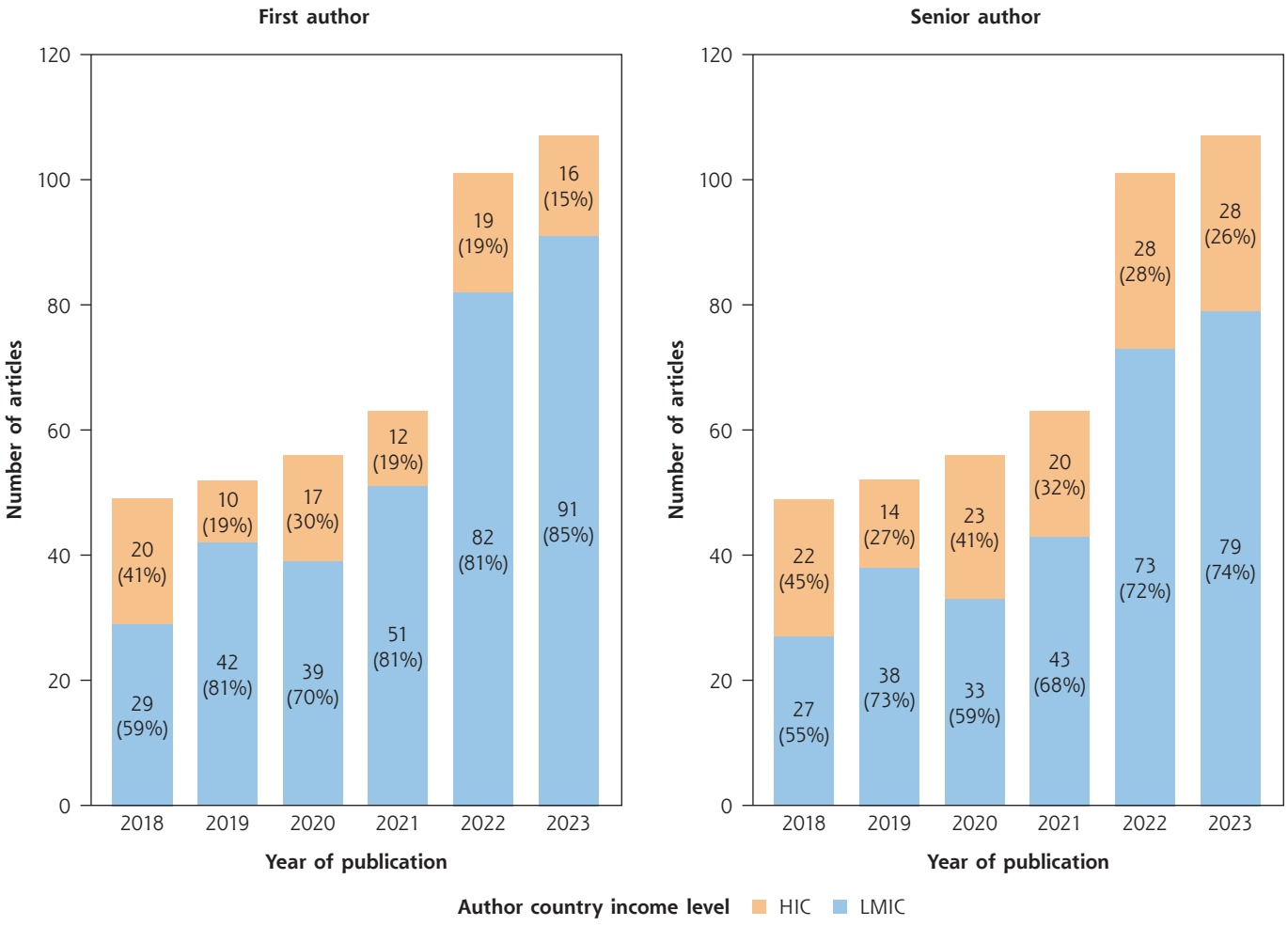
Most of the research and authors were from upper-middle-income countries (Table 2). China, Brazil, South Africa, and Turkey were the most represented in both study location and first authorship (Figure 3, right, top and middle maps). The United States, however, was in the fourth spot for most-represented senior author's country affiliation after China, Brazil, and Turkey (Figure 3, right, bottom map).

There did not appear to be any association between research funding status and authorship (Table 2). But there was a trend toward higher average citation rate for articles having HIC first and senior authors compared with articles having LMIC first and senior authors.

DISCUSSION

Our bibliometric analysis of research conducted in LMICs published in family medicine journals provides an objective assessment of authorship equity within global family medicine research. HIC first and senior authors were represented in about one-quarter of the research conducted in LMICs overall and published in family medicine journals, and this representation was even higher for research done in low-income countries and lower-middle-income countries. Articles with HIC first and senior authors were cited more times on average than those with first and senior authors in LMIC countries. These findings are consistent with those of other studies

Figure 2. Trends in First and Senior Author Representation Over Time

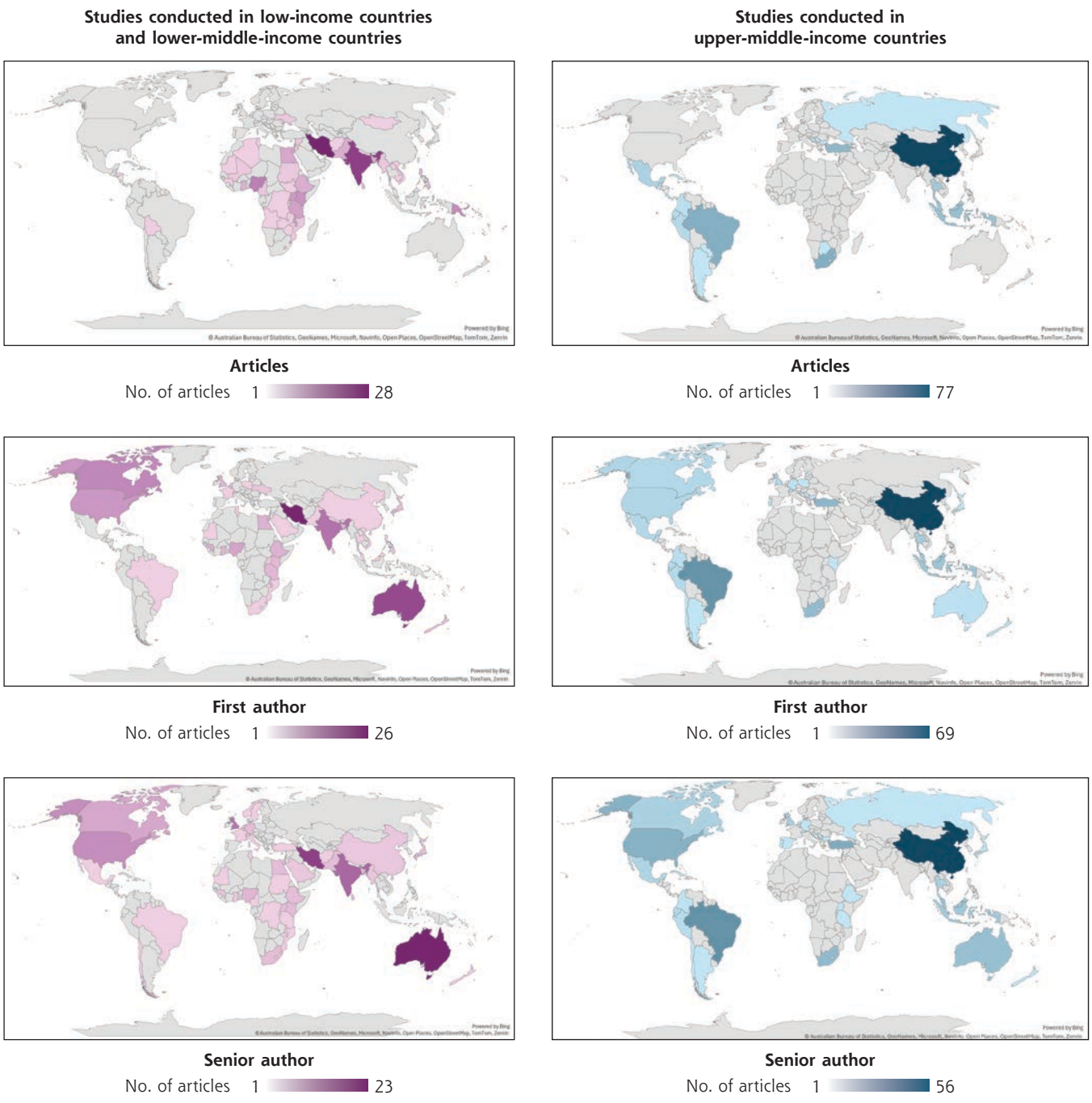


HIC = high-income country; LMIC = low- or middle-income country (includes low-income, lower-middle-income, and upper-middle-income countries).

that examined authorship equity among research published in other specialties and by other institutions and national research agencies.[8,15,19,26]

Compared with studies of LMIC author representation in medicine generally and in specific specialties,[8,11,12,14,27] our study found a higher rate of LMIC author representation in family medicine journals. Authorship equity and publication of research conducted in LMICs increased over time, trends that have been seen in other studies as well.[2,10] There are also shared trends of disparities, however, including a paucity of

Figure 3. Heat Maps of Study Country Income Level With the Country Income Level of the Associated Articles' First and Senior Authors



Studies conducted in low-income countries and lower-middle-income countries

Note: Powered by Bing (Microsoft Corp). Copyright Australian Bureau of Statistics, GeoNames (Unxos GmbH), Microsoft Corp, NavInfo (China Siwei Surveying & Mapping Technology Co, Ltd), Open Places, OpenStreetMap (OpenStreetMap Foundation), TomTom (TomTom NV), Zenrin (Zenrin Co Ltd).

articles conducted in low-income countries, lower authorship representation by country income level, greater HIC authorship representation on multicountry studies, and an association of HIC authorship with higher rates of citation.[2,13,15] We did not find a trend between funding status and authorship representation in family medicine journals, but more than one-half of the studies were unfunded, a situation that differs from that for other specialties.[8,18]

As other authors have highlighted, authorship is a complex topic that incorporates many factors. With respect to senior authorship, our study did not find as large of a change over time when compared to first authorship. As described by Kaufman et al[10] in a bibliometric analysis of global health research published out of University of California San Francisco, the "institutional research enterprise" functions in such a way that senior authorship is often a reflection of the research agenda itself. As the authors suggested, institutions could consider incentivizing authors to relinquish or share research leadership, and therefore senior authorship. Furthermore, it is important to recognize and name the industrial complex of academic dissemination as a problematic system that continues to perpetuate authorship inequity and ultimately leadership inequity in research collaborations. Journals have become intertwined with the institutional expectations for faculty promotion criteria and funders' expectations for open access publications, which also benefits the journals themselves.

Some suggested solutions include joint authorship, which would encourage HIC authors to ensure that their partners are collaborating on the dissemination process and that teams are creating early dissemination plans.[28,29] More importantly, though, HIC authors need incentives to relinquish control of research collaborations and to ensure that the research question, study design, and dissemination process are led by the local partner. Many HIC authors aim to collaborate equitably; however, their institutional promotion requirements prioritize first and senior authorship positions as well as lead roles on grants awarded. One solution, therefore, is for HIC authors to work with their institutions to change promotion criteria to reward individuals who transition away from their traditional leadership roles and who recognize the value of mentorship and facilitation roles.[17] Finally, equitable research collaboration will also require HIC authors dedicating time to ensuring research mentorship is available for local partners. This will require culturally humble mentorship, however, to create a space that (1) promotes local partners speaking up when research structures do

Figure 4. First and Senior Author Country Income Level by Study Country Income Level

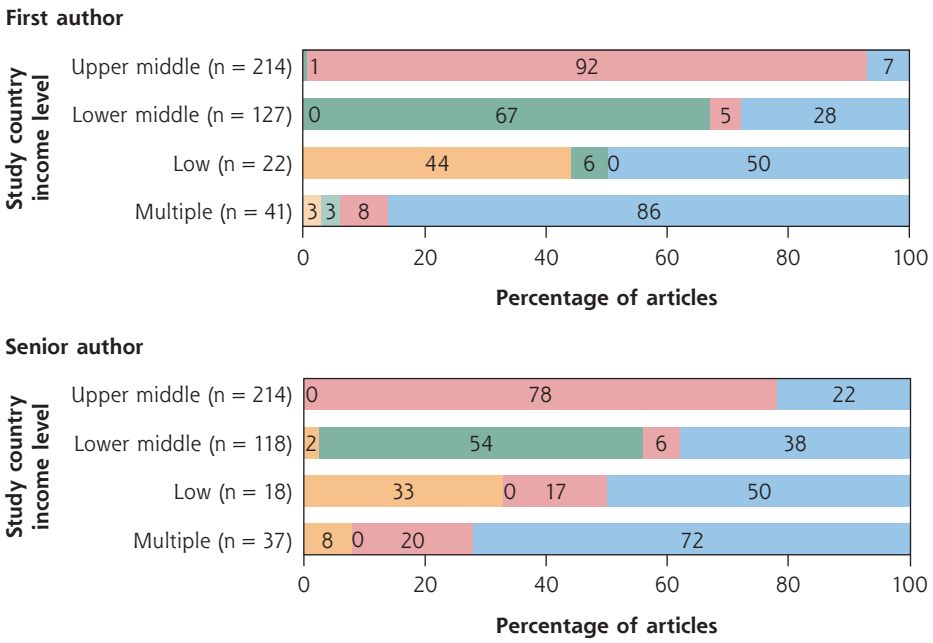


Table 2. Article Characteristics by Author Country Income Level

Author country income level	All Articles, No. (N = 431)	Study country income level, No. (%)				Funded, No. (%)[a]	Average times cited
		Low (n = 22)	Lower middle (n = 127)	Upper middle (n = 241)	Multiple (n = 41)		
First author							
Low	11	10 (45)	0 (0)	0 (0)	1 (2)	7 (64)	5.5
Lower middle	0	3 (14)	87 (69)	2 (1)	1 (2)	33 (35)	4.4
Upper middle	0	0 (0)	6 (5)	221 (92)	5 (12)	113 (49)	4.8
High	0	9 (41)	34 (27)	18 (7)	34 (83)	37 (39)	8.8
Senior author							
Low	15	8 (36)	3 (2)	0 (0)	4 (10)	9 (60)	5.4
Lower middle	72	0 (0)	70 (55)	2 (1)	0 (0)	22 (31)	5.7
Upper middle	207	3 (14)	7 (6)	189 (78)	8 (20)	96 (46)	4.9
High	137	11 (50)	47 (37)	50 (21)	29 (71)	63 (46)	7.9

[a] Of articles by author country income level.

not fit the local context and (2) encourages HIC authors to recognize when traditional research structures may be promoting harm and when they need to step back and listen.[30,31] Other recommendations for HIC researchers to promote allyship can be found in a recent publication by Pai et al[16] on shifting power in global health.

Our study has several major limitations. Most importantly, we recognize the irony that most of the authors on this article are based at HIC institutions, and these authors have been first or senior authors on collaborative global health research. This project was conceptualized at a global health conference located in an HIC, demonstrating how the industrial complex of academic dissemination continues to perpetuate inequity in global health research collaboration. Furthermore, we have had additional training in scholarly work, have access to a strong institutional library with individuals who can support bibliometric analyses, and ultimately have more time than our LMIC collaborators. As a result, we are defining inequity from an HIC lens. Second, the articles included in this bibliometric analysis were all written in English given that it was the shared spoken language of our team. Ten out of the 27 WONCA journals with editorial offices in HICs were in non-English languages (eg, French, Portuguese, German) and therefore not analyzed here. The WONCA website was last updated in January 2022, so some new journals may have been excluded (e-mail communication, Diarmuid Hayes, WONCA Senior Communications Officer; Nov 12, 2024).[31] We also excluded articles about refugees from LMICs living in HICs, which could have excluded authors from those countries as well. Although this study focused on authorship equity, we did not account for or investigate equity within the country and regions mentioned. After initiating a bibliometric analysis for all family medicine journals, regardless of editorial office location, we recognized the need for a more nuanced discussion to account for other regional authorship inequities (eg, other identity considerations such as tribe, gender, race); therefore, we focused here only on HIC journals to clarify the current state of equity in authorship within the academic industrial complex with its disproportionate opportunities and pressures specific to HICs. Future studies should include additional investigators from LMICs to further analyze articles published in journals from these countries with consideration to regional inequities, as well as expand on inclusion of other languages.

Read or post commentaries in response to this article.

Key words: low-middle-income countries; developed country; developing country; global health; global health research; international cooperation; authorship equity; publications; medical journals; primary care; family practice

Submitted September 2, 2024; submitted, revised, December 9, 2024; accepted January 29, 2025.

Author contributions: All authors were equal contributors to the design, implementation, writing, and revision of this article. The co–first authors may list their name first on their curriculum vitae; the co–senior authors may list their name last on their curriculum vitae.

Disclaimer: The views expressed are solely those of the authors and do not necessarily represent official views of the authors' affiliated institutions.

Previous presentation: The abstract of this article was presented at the Society of Teachers in Family Medicine (STFM) Annual Spring Conference; May 5, 2024; Los Angeles, California.

Supplemental materials

References

1. Dimitris MC, Gittings M, King NB. How global is global health research? A large-scale analysis of trends in authorship. *BMJ Glob Health*. 2021;6(1): e003758. doi:10.3390/ijerph20043543
2. Young J, Chen R, Choi S, Hayes IB, Bain PA, May C. Evaluation of low- and middle-income country authorship in the global orthopaedic literature. *J Am Acad Orthop Surg Glob Res Rev.* 2023;17(7):e22.00168. doi:10.5435/JAAOSGlobal-D-22-00168
3. Nafade V, Sen P, Pai M. Global health journals need to address equity, diversity and inclusion. *BMJ Glob Health*. 2019;4(5):e002018. doi:10.1136/bmjgh-2019-002018
4. Olusanya BO, Mallewa M, Ogbo FA. Beyond pledges: academic journals in high-income countries can do more to decolonise global health. *BMJ Glob Health*. 2021;6(5):e006200. doi:10.1136/bmjgh-2021-006200
5. Chaccour J. Authorship trends in The Lancet Global Health: only the tip of the iceberg? *Lancet Glob Health*. 2018;6(5):e497. doi:10.1016/S2214-109X(18)30110-4
6. Abimbola S, Pai M. Will global health survive its decolonisation? *Lancet*. 2020;396(10263):1627-1628. doi:10.1016/S0140-6736(20)32417-X
7. Kelaher M, Ng L, Knight K, Rahadi A. Equity in global health research in the new millennium: trends in first-authorship for randomized controlled trials among low- and middle-income country researchers 1990-2013. *Int J Epidemiol*. 2016;45(6):2174-2183. doi:10.1093/ije/dyw313
8. Garbern SC, Hyuha G, González Marqués C, et al. Authorship representation in global emergency medicine: a bibliometric analysis from 2016 to 2020. *BMJ Glob Health*. 2022;7(6):e009538. doi:10.1136/bmjgh-2022-009538
9. Pingray V, Ortega V, Yaya S, Belizán JM. Authorship in studies conducted in low-and-middle income countries and published by Reproductive Health: advancing equitable global health research collaborations. *Reprod Health*. 2020;17(1):18. doi:10.1186/s12978-020-0858-7
10. Kaufman R, Fair E, Reid M, Mirzazadeh A. Authorship equity in global health research: who gets the credit at University of California, San Francisco? *BMJ Glob Health*. 2023;8(10):e013713. doi:10.1136/bmjgh-2023-013713
11. Rees CA, Ali M, Kisenge R, et al. Where there is no local author: a network bibliometric analysis of authorship parasitism among research conducted in sub-Saharan Africa. *BMJ Glob Health*. 2021;6(10):e006982. doi:10.1136/bmjgh-2021-006982
12. Akudinobi EA, Rietmeijer CA, Ndowa FJ, Kilmarx PH. Bibliometric analysis of authorship of publications about Sub-Saharan Africa published in the Journal Sexually Transmitted Diseases, 2011 to 2020. *Sex Transm Dis*. 2023;50(9):555-558. doi:10.1097/OLQ.0000000000001808
13. Tuyishime H, Hornstein P, Lasebikan N, Rubagumya F, Mutebi M, Fadelu T. Authorship distribution and under-representation of Sub-Saharan African authors in global oncology publications. *JCO Glob Oncol*. 2022;8:e2200020. doi:10.1200/GO.22.00020
14. Wondimagegn D, Whitehead CR, Cartmill C, et al. Faster, higher, stronger - together? A bibliometric analysis of author distribution in top medical education journals. *BMJ Glob Health*. 2023;8(6):e011656. doi:10.1136/bmjgh-2022-011656
15. Akudinobi EA, Kilmarx PH. Bibliometric analysis of sub-Saharan African and US authorship in publications about sub-Saharan Africa funded by the Fogarty International Center, 2008-2020. *BMJ Glob Health*. 2022;7(8):e009466. doi:10.1136/bmjgh-2022-009466
16. Pai M, Bandara S, Kyobutungi C. Shifting power in global health will require leadership by the Global South and allyship by the Global North. *Lancet*. 2024:S0140-6736(24)02323-7. doi:10.1016/S0140-6736(24)02323-7

17. Hedt-Gauthier B, Airhihenbuwa CO, Bawah AA, et al. Academic promotion policies and equity in global health collaborations. *Lancet*. 2018;392(10158):1607-1609. doi:10.1016/S0140-6736(18)32345-6

18. Rees CA, Keating EM, Dearden KA, et al. Importance of authorship and inappropriate authorship assignment in paediatric research in low- and middle-income countries. *Trop Med Int Health*. 2019;24(10):1229-1242. doi:10.1111/tmi.13295

19. Smith E, Hunt M, Master Z. Authorship ethics in global health research partnerships between researchers from low or middle income countries and high income countries. *BMC Med Ethics*. 2014;15:42. doi:10.1186/1472-6939-15-42

20. Shambe I, Thomas K, Bradley J, Marchant T, Weiss HA, Webb EL. Bibliometric analysis of authorship patterns in publications from a research group at the London School of Hygiene & Tropical Medicine, 2016-2020. *BMJ Glob Health*. 2023;8(2):e011053. doi:10.1136/bmjgh-2022-011053

21. Faure MC, Munung NS, Ntusi NAB, Pratt B, de Vries J. Considering equity in global health collaborations: A qualitative study on experiences of equity. *PLoS One*. 2021;16(10):e0258286. doi:10.1371/journal.pone.0258286

22. World Bank Group. World Bank Country and Lending Groups – World Bank Data Help Desk. Accessed Aug 18, 2023. https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

23. World Health Organization. *Astana Declaration: From Alma-Ata Towards Universal Health Coverage and the Sustainable Development Goals*. Global Conference on Primary Health Care; 2018.

24. Cochrane Effective Practice and Organization of Care (EPOC) Working Group. EPOC low- and middle-income country (LMIC) filters - December 2022. Published 2022. Accessed Aug 18, 2023. https://epoc.cochrane.org/sites/epoc.cochrane.org/files/uploads/epoc_lmic_filters_december_2022.docx

25. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. doi:10.1136/bmj.n71

26. Sumathipala A, Siribaddana S, Patel V. Under-representation of developing countries in the research literature: ethical issues arising from a survey of five leading medical journals. *BMC Med Ethics*. 2004;5:E5. doi:10.1186/1472-6939-5-5

27. De Oliveira-Gomes D, Guilliod C, Gebran K, et al. Equity and representation in cardiology research: a comprehensive analysis of authorship from low and low-middle income countries in cardiology journals. *Curr Probl Cardiol*. 2024;49(8):102667. doi:10.1016/j.cpcardiol.2024.102667

28. Morton B, Vercueil A, Masekela R, et al. Consensus statement on measures to promote equitable authorship in the publication of research from international partnerships. *Anaesthesia*. 2022;77(3):264-276. doi:10.1111/anae.15597

29. Amisi JA, Cuba-Fuentes MS, Johnston EM, et al. A pragmatic approach to equitable global health partnerships in academic health sciences. *BMJ Glob Health*. 2023;8(5):e011522. doi:10.1136/bmjgh-2022-011522

30. Alvarez CF. Cultural humility in international relationship research: Perspectives from an International Section Peer Mentor. *Pers Relatsh*. 2024;31(3):664-667. doi:10.1111/pere.12563

31. Duntley-Matos R. Transformative complicity and cultural humility: de- and re-constructing higher education mentorship for under-represented groups. *Qual Sociol*. 2014;37(4):443-466. doi:10.1007/s11133-014-9289-5