



Authorship equity in global health research: who gets the credit at University of California, San Francisco?

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ABSTRACT

Authorship inequity exists in global health research and can be representative of unequal partnerships. Previous studies showed that low-income and middle-income country (LMIC) authors are under-represented in publications from global collaborative research between LMIC and high-income countries (HIC). However, there are little data on trends for how specific HIC institutions are performing concerning equitable authorship. We used Web of Science to find published articles affiliated with the University of California, San Francisco (UCSF), where an LMIC was referred to in the title, abstract or keywords from 2008 to 2021. The country affiliation of each author for all included articles was grouped based on World Bank data. A total of 5805 articles were included. On average, 53.6% (n=3109) of UCSF affiliated articles had at least one low-income country (LIC) or LMIC author; however, this number increased from 43.2% (n=63) in 2008 to 63.3% (n=421) in 2021. Overall, 16.3% (n=948) of UCSF affiliated articles had an LIC or LMIC researcher as the first author, 18.8% (n=1,059) had an LIC or LMIC researcher as second author, and 14.2% (n=820) had an LIC or LMIC researcher as last author. As long as manuscripts produced by UCSF have no LIC or LMIC authors included the university's commitment to authentic equity is undermined. Global health partnerships cannot be equitable without changing authorship trends between HIC and LMIC institutions.

INTRODUCTION

Authorship imbalances in global health research reflect unequal partnerships.^{1–5} Previous reviews of published literature demonstrate that high-income country (HIC) institutions do not consistently include or credit low-income countries (LIC) or low-income and middle-income country (LMIC) authors as equals when working as research partners.^{1–6} Previous studies looking at authorship data in collaborative research involving an African country indicated that collaboration between HICs and LMICs favours the HIC researcher in publications.^{1,2} In a review of over 7000 publications on health in sub-Saharan Africa, where the research took place, or in collaboration, 50% of authors

SUMMARY BOX

- ⇒ Previous studies have shown that low-income country (LIC) and low-income and middle-income country (LMIC) authors are under-represented in publications from global collaborative research with high-income countries (HICs).
- ⇒ There are no baseline quantifiable variables on how specific HIC academic institutions are performing. This analysis provides a sentinel measure of authorship imbalance at an HIC institution working extensively in global health, University of California, San Francisco (UCSF).
- ⇒ This study indicates that HIC institutions, such as UCSF, should consider how to incentivise researchers to relinquish senior authorship roles. Journals that focus on global health research may set quotas requiring a standard amount of literature published from collaborative research partnerships to have senior authorship with LIC or LMIC representation.
- ⇒ Other academic institutions may consider evaluating their authorship data. If certain schools are found to be performing better than others, it is a call to explore the policies and environments fostered at that institution to inform better practices on a larger scale.

were from outside the local country. Moreover, local collaborators were less likely to be listed at all, or particularly as first authors, on a paper with top 10 HIC research programmes.¹ Authorship differentials were decreased when collaborations occurred between LMICs institutions, which could indicate power differentials in global health research that may reflect global health's colonial roots and the primacy of western epistemologies in global health research.^{1,6,7} Authorship on paediatric research found that there was a relationship between author affiliation and income group, with LIC and LMIC institutions having the least included affiliations: 41.7% of authors were upper-middle-income country (UMIC), 32.7% were HIC, 15.5% were from LMICs and 5.4% were from LIC.³ Another study on publication inequity in global reproductive health



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found that 42% of the first authors were from HICs.⁴ The last author's position also reflected imbalances, with 48% of the last authors being affiliated with an HIC.⁴ Authorship imbalances reflect the 'gaze' of global health and asymmetrical partnerships across HIC and LMIC institutions.⁶ Without valuing individuals from LMIC institutions input as equal in academia, global health will never reflect the actual needs of the population and will see the world from an outsider's view.^{5 6}

AUTHORSHIP IMBALANCES AT UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Why look at authorship trends for specific academic institutions?

Academic institutions in HICs, such as the University of California, San Francisco (UCSF), are taking steps to acknowledge the legacy of coloniality in their global work and even taking steps to address its deleterious impact.⁸ Previous studies have shown that LIC and LMIC authors are underrepresented in publications from global collaborative research. However, there are no baseline quantifiable variables for how academic institutions perform on a specific measure of global health inequity. We propose authorship imbalances as a sentinel measure to inform how academic institutions in HICs may need to change their practice. This study aims to explore an HIC institution working extensively in global health, UCSF.⁹ Without addressing the power differentials that undermine equity in academic authorship, global health will never reflect the actual needs of the population it seeks to serve.^{2 5 6} Understanding trends in authorship in global health research at UCSF can inform the universities' agenda for advancing global health equity but also may serve to illustrate if authorship imbalances remain a problem despite the university's commitment to advancing health equity worldwide. Additionally, this can serve as a call to action for other universities to explore their data.

Database search

To gather institutional authorship data, we used Web of Science to find published articles affiliated with UCSF. An advanced search was used to query articles affiliated with UCSF 'AND' LMICs. Classification and titles for the LMICs were based on World Bank data.¹⁰ Affiliation with UCSF was the first searched query. Next, this was combined with a query search that listed all LMICs as a topic search, searching fields such as title, abstract and keywords. The search strategy excluded books, conference proceedings and meeting abstracts as they may not have exemplified global health research partnerships between UCSF and LMIC institutions. All articles that fell within the time period of 2008–2021 were included. Exclusion before 2008 was determined based on the lack of consistent information about an author's institutional affiliation before this year.¹¹ Exclusion after 2021 was determined due to the need for a full year of publications

to compare over time accurately. All data were extracted on 11 May 2022, to avoid changes that may have occurred. Data were downloaded in Excel format, including information such as the article title, author names, address, affiliation and number of citations for all articles in the search.

Reported outcomes and analysis

The proportion of articles with (A) at least one author from an LIC or LMIC from 2008 to 2021 was reported. Additionally, the proportion of articles where there was a (B) first author from an LIC or LMIC, (C) a second author from an LIC or LMIC and (D) a last author from an LIC or LMIC for each year from 2008 to 2021 was reported. First, second and last authorship were also reported in a disaggregated format based on each specific World Bank classification.¹⁰ Frequency tables were created using Stata. Excel was used to create graphs representing publications over time. Bar and line graphs were used to report data in the results.

Data were analysed by developing an algorithm that separated the country affiliation of each author for all included articles using Stata (Stata V.17) and identified them as HIC, UMIC, LMIC or LIC using World Bank classification data.¹⁰ For authors with multiple affiliations, the affiliation listed first on a given article was used.

Scope of the data

A total of 5805 articles were included. On average, each article was cited 37.6 times. From 2008 to 2021, there was an increase in publications over time (table 1). The most publications were in 2021 at 11.7% (n=685). The most common journal for publication was *PLOS ONE* 6.9% (n=402), followed by *Aids and Behavior* 4.0% (n=236) and *Malaria Journal* 2.8% (n=165). The most common institutional affiliations outside of UCSF were Harvard

Table 1 Number of articles published by year

Publication year	No of published articles
2008	155
2009	204
2010	239
2011	267
2012	320
2013	374
2014	412
2015	413
2016	479
2017	457
2018	564
2019	582
2020	674
2021	665
Total	5805

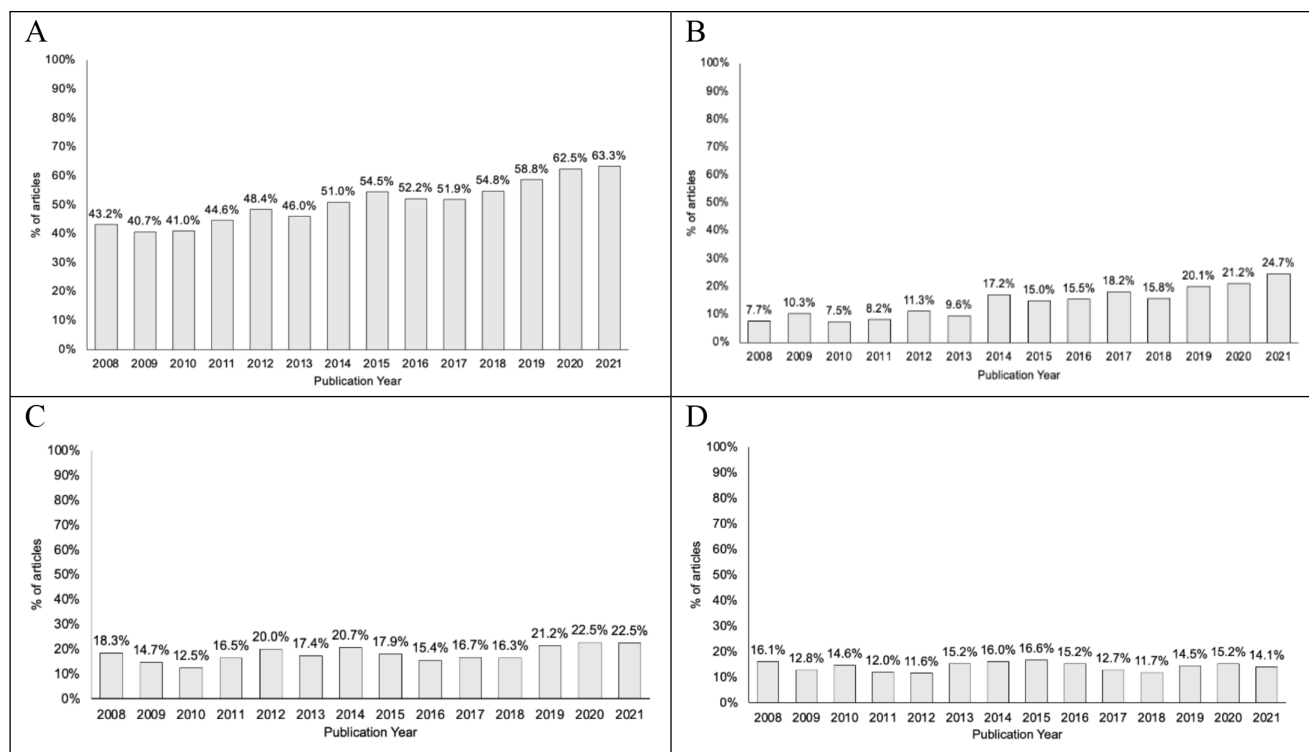


Figure 1 Per cent of articles with authors from an LIC or LMIC (A) any author from an LIC or LMIC, (B) first author from an LIC or LMIC, (C) second author from an LIC or LMIC, (D) last author from an LIC or LMIC. LIC, low-income country; LMIC, low-middle-income country.

11.8% (n=708), Makerere University 9.2% (n=582), University of London 9.2% (n=552) and John Hopkins University 8.5% (n=509).

What trends can be seen in UCSF data?

Figure 1 shows the percentage of articles with (A) at least one author from an LIC or LMIC, (B) a first author from an LIC or LMIC, (C) a second author from an LIC or LMIC and (D) a last author from an LIC or LMIC for each year from 2008 to 2021. Figure 2 shows (A) the first authorship by income group, (B) the second authorship by income group and (C) the last authorship by income group. Please see online supplemental figure 1 for an alternative way to aggregate the data by income group.

Summary of the findings

Any author from LMIC

From 2008 to 2021, 53.6% (n=3109) had any author at all from an LIC or LMIC (figure 1). Most recently, this number is 63.3% (n=421) for 2021.

First author

Between 2008 and 2021, the average percentage of UCSF affiliated articles with an LIC or LMIC researcher as the first author was 16.3% (n=948) (figure 1). Most recently, in 2021, that number was 24.7% (n=164). The total average for the first authors from an HIC was 72.3% (n=4194), while 11.4% (n=663) came from a UMIC, 9.2% (n=534) came from an LMIC and 7.1% (n=414) came from an LIC (figure 2).

Second author

From 2008 to 2021, LIC and LMIC authorship in the second position averaged 18.8% (n=1059). This number reached 22.5% (n=148) in 2021 (figure 1). The average number of second authors from an HIC was 68.9% (n=3891), 12.4% (n=701) from UMIC, 10.6% (n=597) from LMIC and 8.1% (n=321) from an LIC (figure 2).

Last author

The average per cent of the last authors from an LMIC on UCSF affiliated articles from 2008 to 2021 was 14.1% (n=820) (figure 1). In 2021, this number was 14.1% (n=93). Overall, 76.6% (n=4266) of the last authors were from an HIC, 9.2% (n=534) were from a UMIC, 8.6% (n=499) were from an LMIC and 5.6% (n=321) were from an LIC (figure 2).

CONCLUSION

As found through this analysis, the lack of representation and inclusion of LIC and LMIC authors persists as a problem even in 2021. This analysis found that LMIC researchers are listed, on average, less than 60% of the time as authors at all. Moreover, first and last authorship affiliation still reflect LIC and LMIC representation as less than 25% and 15%, respectively, as of 2021. Lastly, this research found a direct decrease in first, second and last authorship credit by income group, the most representation being HIC and generally descending to follow as UMIC, LMIC and then LIC.

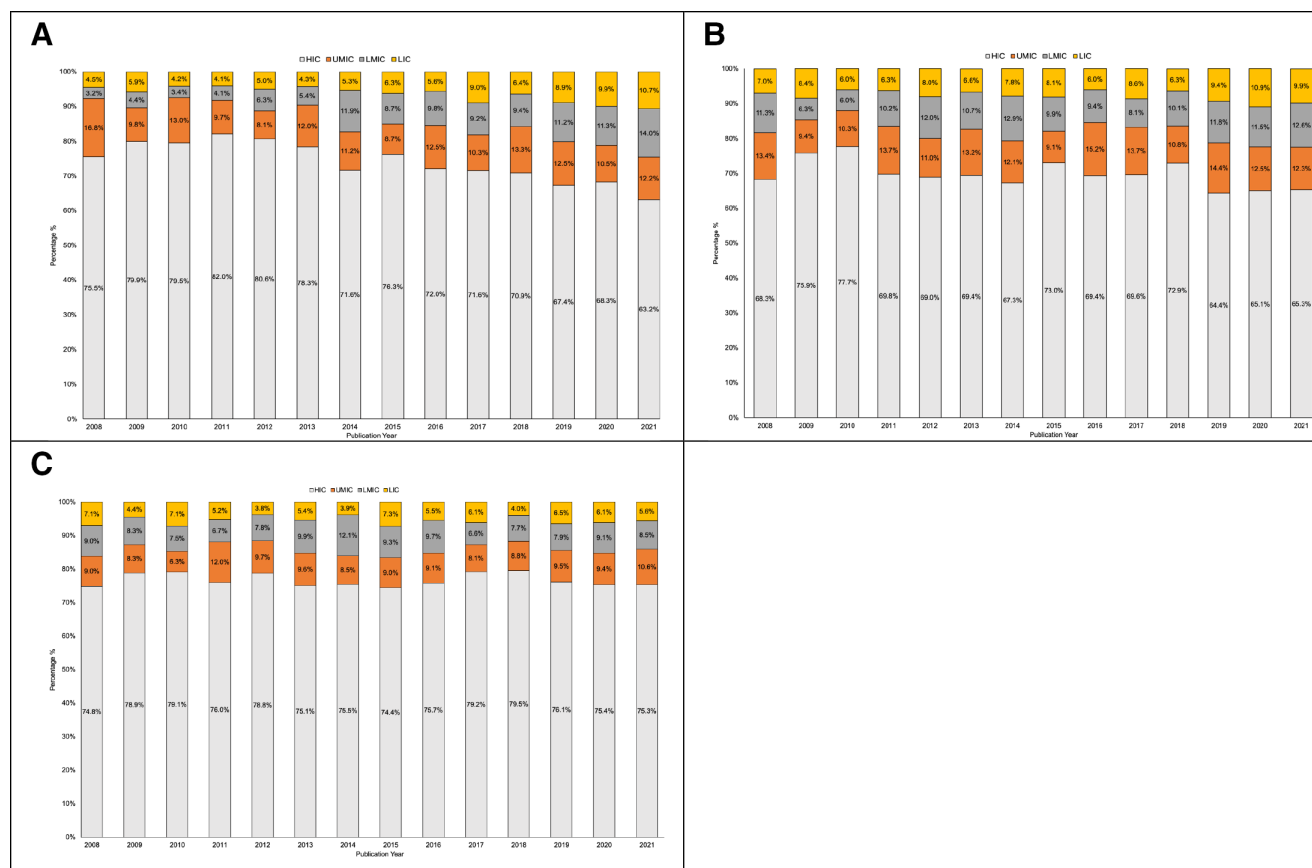


Figure 2 Authorship for articles by disaggregated income group. (B) first authorship of articles by income group, (C) second authorship of articles by income group, (D) last authorship of articles by income group.

The lack of representation in senior authorship positions for researchers from LICs and LMICs conveys a perplexing framework about how the research enterprise at UCSF functions, especially since, typically, the senior author leads the projects, sets the research agenda and guides collaboration with local partners.^{6 12} These findings raise questions about epistemology—who is asking the questions that inform the research?^{6 12–15} If senior authorship on most of these papers is from HICs, how can we be sure that the papers really answer the priorities for local partners?^{5 6 12 14} Questions about commitment to authentic global health equity also arise; although there are trends towards increasing first authorship and last authorship representation in the analysis, the lack of change in senior authorship raises questions about the institution's commitment to authentic global health equity.

If greater representation is critical to achieving global health equity, then policy has a role in creating incentives that work towards greater representation.^{13 16} While individual researchers play a role in educating themselves and making conscience decisions towards representation equity, HIC institutions, such as UCSF, should consider how to incentivise researchers to relinquish senior authorship roles.^{13–15} IRBs at HIC institutions play a role in this by advocating for greater representation and institutional reflexivity.¹⁷ Academic journals can

follow similar pathways to address authorship representation and larger scale publication biases.^{15 18} Journals that focus on global health research may set quotas requiring a standard amount of literature published from collaborative research partnerships to have senior authorship with LIC or LMIC representation.

This study provides UCSF and other HIC institutions a clear indication that change is necessary for equitable partnership; however, this analysis provides no information on how funds from the research were disbursed. It is possible that most of the research money was spent in an LIC or LMIC, even if author representation does not reflect that. However, trends in National Institute of Health funding would suggest that the vast majority of money probably did not reach LIC or LMIC partners.¹⁹ Greater transparency with respect to funding would help identify to what extent funds track with authorship or not.¹⁹ Additionally, this analysis provides no information on how research may have informed local policies.²⁰ There is the hope that collaborative research generated knowledge and informed local priorities.²⁰ Looking at local policy impact to convey the impact of global health is an alternative additional analysis to characterising patterns in authorship. Another limitation is basing authorship on the first listed affiliation for authors with dual affiliation. This affiliation does not account for the authors' positionality or an author's potential to be from an LMIC but

publishing through an HIC institution.^{12 13} This analysis cannot be extrapolated to other HIC academic institutions. While UCSF is a leader in global health research and may represent what data could look like at other schools, more research must be done to explore unique data at other major academic institutions.⁹ If certain schools are found to be performing better than others, it is a call to explore the policies and environments fostered at that institution to inform better practices on a larger scale.

Overall, this study found that at UCSF, authorship imbalances exist in collaborative research. Progress has been made over time, decreasing the percentage of articles with no authors from an LIC or LMIC and increasing the representation of first authors from an LIC or LMIC. However, there are still significant inequities. Institutions such as UCSF need to work towards greater equity in authorship when collaborating with LICs and LMICs. Researchers at HIC institutions must evaluate how they practice global health and be cognizant of crediting collaborators.^{6 14} Publication inequity only exemplifies one specific measure of power imbalances in global health but says a great deal about whose narratives are reflected in academia.^{5 6 12 14 15} More research is needed to provide further insight into authorship credit and equity in global health research partnerships between HICs and LMICs. Manuscripts produced by UCSF that present research from or with an LIC or LMIC partner but do not have an LIC or LMIC author included undermine the university's commitment to authentic equity in research. Global health partnerships cannot be equitable without changing authorship trends between HIC and LMIC institutions.^{6 12 14 15}

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