

## ORIGINAL RESEARCH

## PEDIATRIC CARDIOLOGY

# Editorial Board Composition Among Pediatric Cardiology Journals



## Time to Cast the Net Wider

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## ABSTRACT

**BACKGROUND** No data currently exist on the diversity of editorial board members (EBMs) of pediatric cardiology journals.

**OBJECTIVES** The objective was to investigate the editorial boards of 5 pediatric cardiology journals to assess the composition of these boards in terms of the geographical, gender, and economic representation of their members.

**METHODS** Information on EBMs was collected directly from 5 journal websites accessed in February 2022. The following data were collected: country of practice (including World Bank geographical and income classification), institution of practice, role on editorial board, and whether an individual held a role on 1 or more of the boards included.

**RESULTS** A total of 455 EBMs were identified. A total of 369 (81%) were male. All editors-in-chief were male, and 4 were from the United States. EBMs practicing in North America accounted for 278 individuals (61%) of the editorial boards reviewed. The next majority of EBMs are practicing within Europe and Central Asia (23%, n = 103), East Asia and Pacific (7%, n = 31), Middle East and North Africa (4%, n = 18), and Latin America and Caribbean (4%, n = 16). Less than 2% (n = 9) practice in Sub-Saharan Africa and South Asia. Over 90% (n = 415) practice in high-income countries. There was no representation from low-income countries.

**CONCLUSIONS** Women and pediatric cardiologists practicing in countries outside of Europe and North America were underrepresented on the editorial boards of the journals studied. Diversifying composition of editorial boards may provide greater representation of underserved areas and encourage broader avenues of investigation and research. (JACC Adv 2022;1:100137) © 2022 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

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**ABBREVIATIONS  
AND ACRONYMS****EBM** = editorial board member**GNI** = gross national income

Editorial boards and editors-in-chief have a unique role within their respective fields. Such boards typically consist of the most accomplished, respected, and prominent members of a specialty, so-called “thought leaders” or “leaders in the field.” These individuals have a pivotal role in defining the trajectory of a specialty, identifying topics of interest, attracting submissions, and reviewing manuscripts.<sup>1</sup>

This places editorial board members (EBMs) in a position of power and responsibility where publications are the currency of career development and, more importantly, drive progress within the field. The peer-review process is a fundamental tenet of the scientific process and should ensure a fair, robust, and honest appraisal of submitted work. Other industries have recognized the importance of cognitive diversity in their board composition and in leadership positions.<sup>2</sup> Therefore, not only is there a moral or ethical imperative to supporting greater inclusivity of editorial board membership but this is also associated with journal success in the scientific field.<sup>3</sup> Other medical specialties have recognized these dividends and are striving to improve the gender and geographical representation in senior positions.<sup>4</sup>

Previous research on the editorial board composition of health care journals has consistently shown underrepresentation of women and individuals from low-income countries.<sup>5-9</sup> This is mimicked in leadership positions as editors-in-chief are overwhelmingly men with a ratio of 4:1 among the top 10 international medical journals.<sup>10</sup>

Congenital and acquired heart diseases in childhood have a significant global health burden affecting all countries regardless of geographic location or economic stage. As the global south accounts for a higher percentage of the population, the burden of disease will disproportionately affect these countries.

To our knowledge, the composition of editorial boards in pediatric cardiology has not yet been examined. Our hypothesis was that in line with previous research, there would be a lack of female, economic, and geographic representation. Therefore, the objective of this study was to ascertain the female or male, geographical, and economic composition of the editorial boards and of editors-in-chief of 5 prominent pediatric cardiology journals.

**METHODS**

The editorial boards of 5 subspecialty pediatric cardiology and congenital heart disease journals were investigated. These journals were *Pediatric*

*Cardiology*, *Cardiology in the Young*, *Congenital Heart Disease*, *Progress in Pediatric Cardiology*, and *World Journal for Pediatric and Congenital Heart Surgery*. These 5 journals were selected due to their representation of the subspecialty and impact factors. The 2021 to 2022 impact factors were 1.838 (*Pediatric Cardiology*), 1.023 (*Cardiology in the Young*), and 2.419 (*Congenital Heart Disease*).<sup>11</sup> Those for *Progress in Pediatric Cardiology* (0.385) and the *World Journal for Pediatric and Congenital Heart Surgery* (1.083) were retrieved from [academic-accelerator.com](https://academic-accelerator.com) which was accessed on the July 17, 2022. These journals are produced by 5 different publishing houses including Elsevier, Springer, Cambridge University Press, Tech Science Press, and Sage. The journals are based in Ireland, the United Kingdom, and the United States. The details of EBMs from these journals were retrieved from their official electronic homepages in February 2022.

Data collected on EBMs included name, role on the editorial board, academic institution, state (if from the U.S.), and country of practice. If the information was not available on the journal’s website, an internet search was conducted. Individuals’ academic affiliation and current country of practice were identified either through their current academic institution webpage or ResearchGate profile. Roles on editorial board were classified as editor-in-chief, senior/deputy editor, associate editor, EBM, advisory board member, or other (this included emeritus editor, supplements editor, senior advisory consultant). Data on individuals with multiple roles in 1 journal or roles in more than 1 journal were also collected.

Information on the representation of editorial boards was collected acknowledging accepted definitions of sex and gender. Sex is defined by the Institute of Medicine as “being male or female according to reproductive organs and the functions assigned by chromosomal complement (XX for female and XY for male).”<sup>12</sup> Gender can be defined as “a social, rather than biological construct, and varies with the roles, norms and values of a given society or era.”<sup>13</sup> The Genderize.io software was used to collect information on the male and female representation on editorial boards as explicit data on this metric were missing from 4 of the 5 journal websites.

Genderize.io is an application programming interface that uses first names to predict whether an individual is male or female. The data underlying the software are collected from social networks in 79 countries encompassing 89 languages. The result from the Genderize.io was accepted if there was a >95% probability that the name was associated with a specific sex. In instances where the probability

was <95%, we carried out an internet search of the ResearchGate profile or affiliated institution webpage of the individual. Gender could be assigned on the basis of an individual's pronoun use and biography.

Data on the geographical and income composition of the countries where EBMs currently practice were retrieved from the World Bank data help desk homepage in February 2022. Definitions of low-, lower-middle, upper-middle, and high-income economies are on the basis of prespecified gross national income (GNI) per capita ranges (the GNI divided by the midyear population).<sup>14</sup> A GNI per capita of \$1,045 or less in 2020 is associated with a low-income economy. Lower-middle-income economies have a GNI per capita between \$1,046 and \$4,095, and upper-middle-income economies have a GNI per capita between \$4,096 and \$12,695. High-income economies have a GNI per capita of \$12,696 or more.<sup>14</sup>

Data were collected on an Excel (Microsoft) document. Descriptive statistics were used to report the findings.

## RESULTS

A total of 455 EBMs were identified in total. A total of 142 (31%) of these individuals were on the board of a surgical journal, and the remainder were on pediatric cardiology journal boards.

All editor-in-chiefs (n = 5) were male, and 80% (n = 4) practiced in the U.S. (Central Illustration). Of senior and associated editors (n = 15), 80% (n = 12) were male, and 53% (n = 8) were based in the U.S. Among the 75 associated editors, 69% (n = 52) were male, and 61% (n = 46) were based in the U.S. (Table 1).

Six individuals had more than 1 position on the same journal. Thirty-six individuals had a role on more than 1 editorial board. Over 88% (n = 32) of these individuals were male, and 58% (n = 21) were practicing in the U.S.

There was representation from 51 countries on the 5 editorial boards reviewed (Figure 1, Table 2). World Bank geographical classification identified the majority of EBMs (61%, n = 278) were practicing within North America (including the U.S. and Canada). A total of 103 EBMs practiced in Europe (including the United Kingdom) and Central Asia. Sub-Saharan Africa was represented by only 5 EBMs (1%), all of whom were members of the same board. South Asia accounted for <1% (n = 4) of EBMs (Table 3).

EBMs practicing in high-income countries accounted for 91% (n = 415) of all members. Twenty-nine

(6%) practiced in upper-middle-income countries and 11 (2%) in lower-middle-income countries. No EBMs practicing in low-income countries were represented on the editorial boards reviewed in this study.

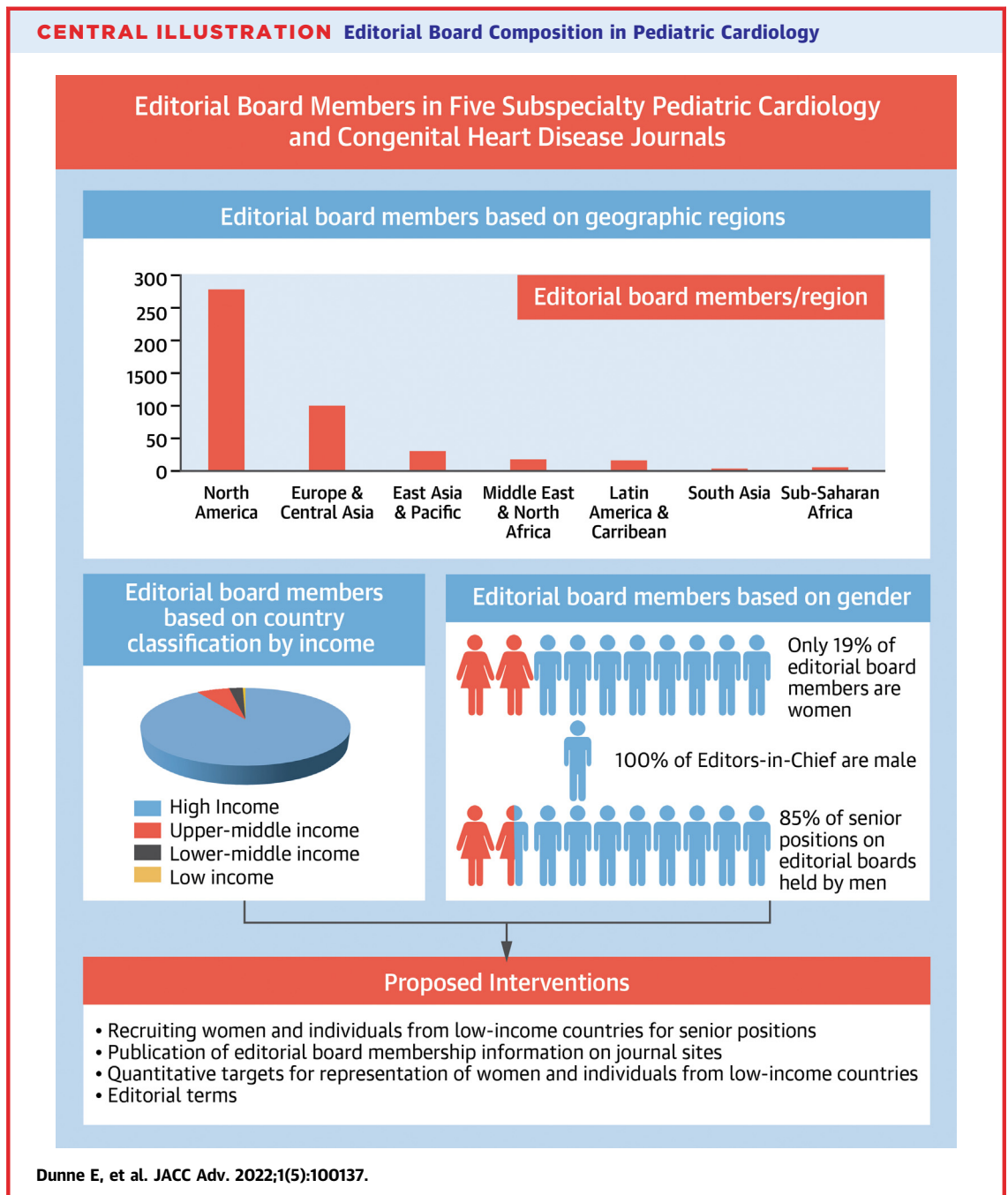
## DISCUSSION

The purpose of this study was to examine the editorial board composition of 5 prominent pediatric cardiology journals. Our study results were consistent with the literature on editorial board composition in other specialties. EBMs of pediatric cardiology journals were mostly men and members practicing within wealthy countries (predominantly the US). While these journals are labelled as “global” and “international,” there is a distinct discrepancy in representation from low- and middle-income countries among both the leadership and editorial board membership in general.

**GENDER INEQUITY.** In this study, only 19% (n = 86) of EBMs were women. No global data exist on the number of female pediatric cardiologists, but recent work within the US reported that they accounted for 51.9% of trainees within the specialty from 2017 to 2018.<sup>15</sup> Disparity in the male and female representation among senior cardiologists may reflect the increased male prominence we identified among board members (particularly in those at a senior level).

**GEOGRAPHICAL AND ECONOMIC INEQUITY.** The scale of geographic and economic homogeneity among EBMs is striking. Most EBMs (n = 381, 84%) were affiliated with countries in North America, Europe, or Central Asia. Representation from Sub-Saharan Africa, Latin America, and South Asia was particularly lacking, cumulatively accounting for only 5% (n = 25) of EBMs. Even more disconcerting is the fact that 91% of EBMs are affiliated with high-income countries. A paltry number practiced in middle-income countries, and there were no practitioners affiliated with low-income countries. Given the unique insights of individuals working in these countries, further efforts need to be made to encourage broader international representation. This is particularly important when one considers that over 90% of the children in the world with a congenital heart disease are born in low- and middle-income countries.<sup>16</sup>

**SENIORITY AND LEADERSHIP POSITIONS.** All editors-in-chief were male and practicing in the U.S. The homogeneity of these editorial boards may be hampered by the lack of diversity seen within leadership roles.

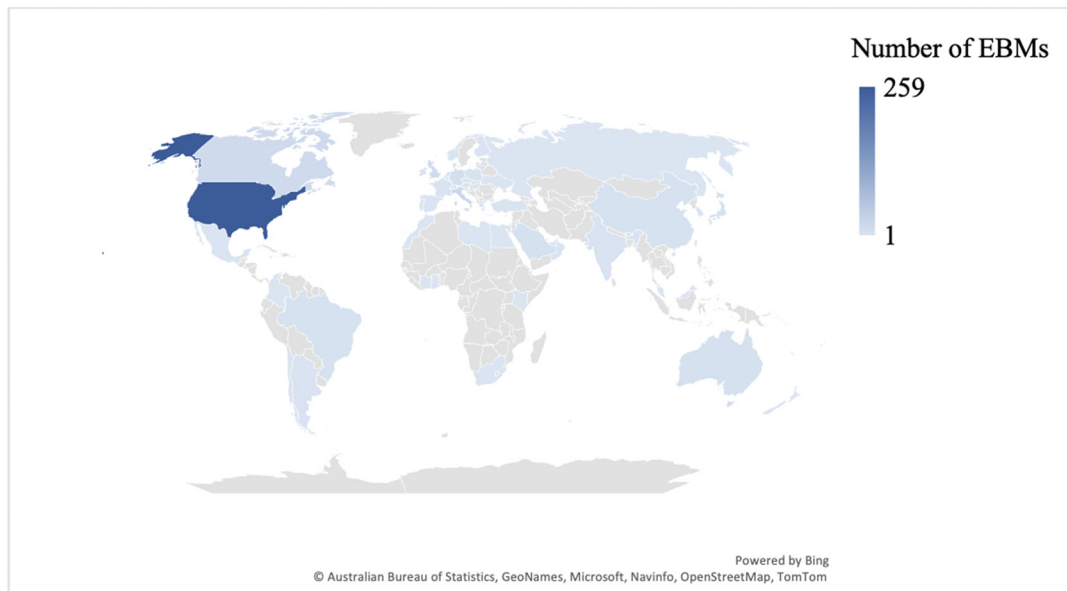


**TABLE 1 Gender and Geographical Representation of Senior Editorial Staff**

Position	N	Percentage Male	Percentage from the U.S.
Editors-in-chief	5	100% (n = 5)	80% (n = 4)
Senior associate editors	15	80% (n = 12)	53% (n = 8)
Associate editors	75	69% (n = 52)	61% (n = 46)
Editorial board members/ advisory board members	352	83% (n = 293)	55% (n = 195)
Other	8	88% (n = 7)	75% (n = 6)

**REASONS FOR UNDERREPRESENTATION.** The reasons for the lack of diversity observed are manifold. There are no published data on the number of pediatric cardiologists practicing in low-income countries, but data are available on the disparity in pediatric cardiac surgeons and cardiac centers worldwide. A 2019 study found that in Sub-Saharan Africa, there were only 0.08 pediatric cardiac surgeons per million population compared to 2.08 per

**FIGURE 1** Number of Editorial Board Members per Country



Illustrates the number of editorial board members per country ranging from 0–259 editorial board members (total number of editorial board members in journal studies = 455)

million in North America.<sup>17</sup> This difference is also observed in cardiac centers with more than 4,000 centers worldwide but <1 center per million in low- and middle-income countries.<sup>18</sup> It may follow that low-income countries have less dedicated pediatric cardiologists, which may partially reflect their lack of representation on journal editorial boards.

Another reason for the underrepresentation of certain regions in the editorial board composition of the journals reviewed may be their geographic location. The 5 journals reviewed in this article were all based in high-income countries either in Europe (United Kingdom and Ireland) or the U.S. No data exist on whether the location of a journal affects the representation of different nationalities on the editorial board.

Many further practical barriers exist for practitioners in low- and middle-income countries including a lack of a culture that values research, not having English as a first language, limited funding, lack of access to international journals, publication fees, and poor technological infrastructure.<sup>19</sup> Poor representation of individuals from low- and middle-income countries at an editorial board or leadership level within journals undoubtedly means these issues are not given sufficient

attention.<sup>20</sup> Individuals practicing in low-middle income countries may be more concerned with the provision of health care in provider-limited services, whereas practitioners within high-income countries may have additional time and capacity to deliver research output in addition to patient care.<sup>19</sup> There are notable exceptions to this hypothesis with several highly academic pediatric cardiologists practicing in limited-resource environments.

**WHY IS IT IMPORTANT?** The lack of diversity in representation may have implications for the type of research being published, with the potential for research rooted in North America, Europe, and other high-income locations being overrepresented, to the detriment of research based in less-affluent parts of the world. Previous work on publishing in a variety of different scientific disciplines has shown that representation of a nationality on an editorial board correlates positively with research output from the same country.<sup>21</sup>

The production of contextual evidence, particularly from low- and middle-income countries, is of the utmost importance as that is where the majority of patients with congenital heart diseases live.<sup>16</sup> Ignorance of this reality is to the detriment of the

**TABLE 2** Number of Editorial Board Members Per Country (N = 455)

Country	Number of Editorial Board Members
Argentina	4
Australia	9
Austria	2
Belgium	2
Brazil	7
Canada	19
Chile	2
China	7
Colombia	1
Cote D'Ivoire	1
Czech Republic	1
Denmark	1
Egypt	1
Finland	2
France	3
Germany	12
Ghana	1
Greece	1
Hungary	1
India	4
Ireland	4
Israel	2
Italy	26
Japan	9
Kenya	1
Libya	1
Lithuania	1
Malaysia	1
Mexico	2
Morocco	1
Oman	1
The Netherlands	9
New Zealand	1
Norway	1
The Philippines	1
Poland	6
Portugal	1
Russia	1
Qatar	3
Saudi Arabia	8
South Korea	2
Spain	2
South Africa	2
Switzerland	4
Taiwan	1
Turkey	3
United Arab Emirates	1
Ukraine	1
United Kingdom	19
United States	259

global specialty. Bias, whether conscious or otherwise, may be more of an issue when the members of an editorial board share a common gender and geography. A broader and more diverse board is likely to

**TABLE 3** Geographical Representation of Editorial Board Members by World Bank Region (N = 455)

	n	Percentage of Total Number of EBMs
Latin America and Caribbean	16	4%
South Asia	4	<1%
Sub-Saharan Africa	5	1%
Europe and Central Asia	103	23%
Middle East and North Africa	18	4%
North America	278	61%
East Asia and Pacific	31	7%

EBM = editorial board member.

publish a wider variety of research that is truly representative of the field.

**FUTURE DIRECTIONS/SOLUTIONS.** There are a number of potential solutions to increasing diversity on journal editorial boards. EBMs, as previously discussed, are often leaders within their specialties. A necessary part of improving representation of individuals from low- and middle-income countries on editorial boards is supporting research within these regions to develop the lead researchers that can go on to populate editorial boards. Although more extensive reviews by individuals working within low- and middle-income countries cover this broad topic in greater detail, we will discuss some steps toward this goal.<sup>19</sup> First, health care professionals conducting research in low- and middle-income countries could be supported in applying for research grants.<sup>19</sup> External sources account for 90% of resources for research in these countries.<sup>22</sup> These bodies may have different priorities to local researchers. Coaching for grant applications could be done through mentorship programs. Successful examples of this within the biomedical research sphere already exist.<sup>23</sup> Second, growing links between academics and academic institutions in high-income countries and those in low- and middle-income countries could be another strategy. This could be accomplished through fellowship positions, postdoctoral programs, master's degrees, or formal links with academic institutions in these nations.<sup>19</sup> The aim of these programs should be to foster autonomous researchers within low- and middle-income countries.<sup>24</sup> The participation of researchers from low- and middle-income countries should also be encouraged in international databases, registries, and collaborations.<sup>19</sup> We know that researchers from low- and middle-income countries are underrepresented in the academic literature compared to their peers from high-income countries.<sup>25</sup> Practical interventions that could be utilized include mentorship programs for writing



academic papers (examples include the Pre-Publication Support Services).<sup>26</sup> Peer-review continues to be an important part of the publication process. Some researchers have called for this process to be blinded, particularly among high-tier journals, to reduce potential bias toward more diverse authors.<sup>23,27</sup>

There are actions that journals themselves could consider to improve the diversity of their editorial boards. Transparency should be an important component of this. Journals could publish statistics on their editorial board composition on their website, as being done on the homepage of *Progress in Pediatric Cardiology*. Quantitative targets or quotas for a proportion of the editorial board to be made up of women or individuals from low-income or diverse geographical regions is one possible approach, but care must be taken to avoid tokenism. Editorial board terms or limiting the number of roles an individual can have on 1 journal is another method. Seeking out editors or guest editors from different geographic regions would also seem a progressive strategy. Journals could adopt a policy of including in each edition a paper on a subject relevant to pediatric cardiology in low- and middle-income countries, inviting a guest editor from that same geographical region.

**STUDY LIMITATIONS.** We recognize several limitations to this study. First, we did not examine all pediatric cardiology journals. The 5 journals selected were chosen to try to provide an accurate representation of the current state of the field. We recognize that by choosing these high-impact journals, we may have overestimated the geographical disparity among EBMs. Many high-impact journals are combined adult and pediatric cardiology journals (*Circulation*, *Journal of the American College of Cardiology*, *Heart*), but we declined to study these editorial boards given the potential for misrepresentation of cardiologist background. Data on male/female representation and country of affiliation were limited to the availability of information on journal and institutional webpages. Our assessment of biological sex using Genderize.io and further internet research to identify gender identity may have misclassified individuals' gender or gender identity. We were unable to examine other indicators of diversity including ethnicity and race.

It is possible that journals have invited members from underrepresented areas, but participation was declined. We did not examine whether the editorial board composition impacted the number of papers

chosen from specific countries. We recognize the enormous workload which editors, associate editors, board members, and reviewers undertake to ensure a high-quality journal, and this work was not intended to undermine those laudable efforts but to start a conversation on greater inclusivity and how journals can recruit members from these underrepresented populations.

## CONCLUSIONS

To our knowledge, this is the first study investigating the editorial board composition of prominent pediatric cardiology journals. Although there is multinational contribution to all the boards studied, there is room for greater participation by pediatric cardiologists from low- and middle-income countries and greater involvement of women. Future work is required to determine solutions to promoting greater inclusivity, thereby ensuring we hear the voice of those countries where the majority of children with congenital heart diseases live.

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The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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## PERSPECTIVES

**COMPETENCY IN MEDICAL KNOWLEDGE:** This research paper identifies a gender, economic, and geographical gap among editorial board members of dedicated pediatric cardiology journals. The lack of diversity in representation may have implications for the type of research being published, with the potential for research in high-income locations being overrepresented, to the detriment of research based in other parts of the world.

**TRANSLATIONAL OUTLOOK:** Additional research is required to further investigate the reasons behind the reduced representation for women and individuals from low- and middle-income countries. Further work is required to solve this problem.

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