Gender Differences in the Authorship of Original Research in Pediatric Journals, 2001-2016

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Objectives To examine the gender of authors of original research in 3 high-impact pediatric journals between 2001 and 2016, given the importance of publishing on academic promotion, and to compare authorship gender with the percentage of women on editorial boards and with academic faculty composition.

Study design We assessed the prevalence of female first and senior (last-listed) authorship of original research articles published in 3 pediatric-focused journals Pediatrics, JAMA Pediatrics (entitled Archives of Pediatric and Adolescent Medicine until 2013), and The Journal of Pediatrics. We also examined the gender breakdown of the main editors and the broader editorial boards of these journals. In addition, we examined whether junior female faculty co-authored with male or female senior faculty.

Results Of 3895 original articles, 22 were excluded because the gender of either the first or senior author could not be determined from the name. An analysis of authorship by year showed increasing female representation across the selected journals in both first (39.8% in 2001, 57.7% in 2016) and senior (28.6% in 2001, 38.1% in 2016) authors, respectively. Editorial boards also showed increasing female representation (17.8% in 2001 to 39.8% in 2016). Junior female faculty were more likely to co-author with senior female women (female first and last author); the gap remained unchanged despite the increasing number of women entering pediatrics.

Conclusions Women are underrepresented as authors and editors, although the gap is closing. Junior women are less likely to co-author with senior men, which may be a disservice given current gender disparities in promotion and leadership. (J Pediatr 2017;191:244-9).
We assessed the prevalence of female first authorship and senior
(last-listed) authorship of original research articles pub-
lished in 3 high-impact general pediatric-focused journals Pe-
diatrics, JAMA Pediatrics (entitled Archives of Pediatric and
Adolescent Medicine until 2013), and The Journal of Pediatrics
as well as the gender congruence between first and senior
authors. We also examined the gender breakdown of their main
editors and their broader editorial board.

All original articles published in the years 2001, 2006, 2011,
and 2016 were included in the data set. For each article, the
time of publication (year and month) and the gender of the
first and senior author (female, male, unknown) were col-
clected. Articles by a study group only with no listed authors
were not recorded. We used the methods described in previ-
sous studies examining this question in other specialties and/
or other time periods. The gender of both the first and senior
author was determined by inspection of their first name.
If the name was indeterminate, further attempts were made
to determine the gender by visiting institutional websites, social
media accounts (such as LinkedIn), and internet search engines
(such as Google). Any author’s gender not clearly identifi-
able was labeled as “unknown,” and the article was excluded
from further analysis. Articles were double coded by 2 of us
to further assure accuracy of this assignment. Manuscripts with
only 1 author were listed as a first authored article only.

The composition of each of the journal’s editorial boards
(in January for each of the listed years) was also reviewed using
the same methods. Main editors included editor and associ-
ate editors, as well as statistical editor and section editors for
JAMA Pediatrics; deputy editor, consulting editors, assistant
editors, and editorial associates for Pediatrics; and editor and

We also collected data about the geographic location of the
authors’ institution. Manuscripts in which both first and last
author were at US institutions were classified as US. Manuscripts
in which at least 1 of the 2 authors were at non-US institu-
tions were classified as non-US and were excluded from the
analysis in which we compared author gender with faculty rank
at US medical school. We classified junior faculty as those who
were identified as instructors and assistant professors and senior
faculty as associate professors and full professors. Normative
academic behavior presupposes that a last author holds a more
senior academic rank compared with the first author. As such,
we compared first author gender against junior faculty rank
status and last author gender against senior faculty rank status.
Data for academic rank of female pediatricians from the years
2001, 2006, 2011, and 2016 were obtained from the AAMC da-

tabase books.

**Statistical Analyses**

The data were coded and stored in a Microsoft Excel data-
base and analyzed using SPSS (v 24.0; IBM Corp, Armonk, New
York) to determine the distributions of the gender of first and
senior authors in the selected journals. Comparisons between
journals, in addition to the effect of senior author gender on
first author gender, were examined with χ² tests. The Cochr-
Armitage trend test was used to evaluate for trend over time.
A P value of .05 was taken as significant.

The University of Chicago Institutional Review Board ex-
empted this research and waived the need for informed consent
as it used only publically available databases.

**Results**

Data on a total of 3895 original articles were collected. Of these,
22 (0.6%) were excluded because of an inability to de-
terminate the gender of the first or senior author. There were
173 (4.5%) articles with a single author, coded as first author.
The Table shows the percentages of female first and senior

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**Table. Representation of women among first authors, senior authors, and on editorial boards across 3 pediatric journals**

<table>
<thead>
<tr>
<th>Variables</th>
<th>2001</th>
<th>2006</th>
<th>2011</th>
<th>2016</th>
<th>P value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number/total number (percent)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>First author</td>
<td>396/996 (39.8)</td>
<td>529/1063 (49.8)</td>
<td>473/883 (53.6)</td>
<td>537/931 (57.7)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Senior author</td>
<td>266/930 (28.6)</td>
<td>347/1029 (33.7)</td>
<td>329/858 (38.3)</td>
<td>336/883 (38.1)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Editorial board</td>
<td>16/90 (17.8)</td>
<td>28/93 (30.1)</td>
<td>38/105 (34.3)</td>
<td>41/103 (39.8)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>J Pediatr</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>First author</td>
<td>136/372 (36.6)</td>
<td>103/221 (46.6)</td>
<td>161/304 (53.0)</td>
<td>267/468 (57.1)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Senior author</td>
<td>84/328 (22.6)</td>
<td>59/197 (29.9)</td>
<td>92/282 (32.6)</td>
<td>149/421 (35.4)</td>
<td>.003</td>
</tr>
<tr>
<td>Editorial board</td>
<td>5/32 (15.6)</td>
<td>12/31 (38.7)</td>
<td>11/36 (30.6)</td>
<td>14/35 (40.0)</td>
<td>.07</td>
</tr>
<tr>
<td>JAMA Peds</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>First author</td>
<td>65/133 (48.9)</td>
<td>58/97 (59.8)</td>
<td>65/120 (54.2)</td>
<td>65/111 (58.6)</td>
<td>.21</td>
</tr>
<tr>
<td>Senior author</td>
<td>47/126 (37.3)</td>
<td>39/97 (40.2)</td>
<td>48/118 (40.7)</td>
<td>46/111 (41.4)</td>
<td>.51</td>
</tr>
<tr>
<td>Editorial board</td>
<td>6/25 (24.0)</td>
<td>6/23 (26.1)</td>
<td>9/27 (33.3)</td>
<td>9/23 (39.1)</td>
<td>.21</td>
</tr>
<tr>
<td>Pediatrics</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>First author</td>
<td>195/491 (39.7)</td>
<td>368/745 (49.4)</td>
<td>247/459 (53.8)</td>
<td>205/352 (58.3)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Senior author</td>
<td>135/476 (28.4)</td>
<td>249/735 (33.9)</td>
<td>189/458 (41.3)</td>
<td>141/351 (40.2)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Editorial board</td>
<td>5/33 (15.2)</td>
<td>10/39 (25.6)</td>
<td>16/42 (38.1)</td>
<td>18/45 (40.0)</td>
<td>.01</td>
</tr>
</tbody>
</table>

*P value represents significance of trend.
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