

# The Gender of COVID-19 Experts in Newspaper Articles: A Descriptive Cross-Sectional Study

**Sarah Fletcher**

University of British Columbia

**Moss Bruton Joe**

University of Calgary

**Santanna Hernandez**

University of Calgary

**Inka Toman**

University of Alberta

**Tyrone Harrison**

University of Calgary

**Shannon Ruzycski** (✉ [shannon.ruzycski@ucalgary.ca](mailto:shannon.ruzycski@ucalgary.ca))

University of Calgary

---

## Research Article

**Keywords:** gender equity, gender-based disparities in medicine, COVID-19

**Posted Date:** September 16th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-78343/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

---

**Version of Record:** A version of this preprint was published at Journal of General Internal Medicine on January 19th, 2021. See the published version at <https://doi.org/10.1007/s11606-020-06579-3>.

## Abstract

**Background:** Pre-existing gender-based disparities in academia may have worsened during the COVID-19 pandemic. There is anecdotal and peer-reviewed evidence that women in academia have been underrepresented in prestigious, pandemic-related opportunities. Being cited as an expert source in newspaper articles about COVID-19 may increase an individual's research or leadership profile. In addition, visibility in a newspaper article is an important component of representation in academia.

**Objective:** We sought to determine whether women were underrepresented as COVID-19 expert sources in print newspapers in the United States.

**Design:** We undertook a cross-sectional study of English-language newspaper articles that addressed the COVID-19 pandemic that were published in the top ten most widely read newspapers in the United States between Apr 1 and Apr 15, 2020.

**Main Measures:** We extracted the names of all people cited as expert sources and categorized each expert sources as men, women, or another gender based on pronoun usage within the article or on a business, university, or organization website.

**Key Results:** Of 2,297 expert sources identified, 35.9% (95% CI 33.9-37.8%; n=824) were women, 63.7% were men (95% CI 61.8-65.7%; n=1,464) and for 0.4%, gender could not be assigned (n=9). After removing duplicate experts, 1,738 unique individuals were cited, of which 34.6% were women (95% CI 32.3-36.8%; n=601), 64.9% were men (95% CI 62.7-67.1%; n=1,128), and 0.05% whose gender was unknown (n=9). Of articles with multiple experts referenced (n=374), 102 cited only men experts (27.3%) and 44 cited only women experts (11.8%).

**Conclusions:** Altogether, this result supports that men are overrepresented compared to women as COVID-19 experts in newspaper articles.

## Introduction

The COVID-19 pandemic has shed further light on pre-existing disparities that disadvantage women academics in representation, publication, research opportunities, and caregiving responsibilities. Anecdotal reports of the impact of increased barriers for women academics due to COVID-19<sup>1</sup> have been supported by evidence of a decrease in publications for women academics since the pandemic began.<sup>2,3</sup> Further, women are underrepresented in pandemic decision-making and leadership roles.<sup>4</sup> Altogether, this growing evidence highlights that women academics are being excluded from key opportunities during the COVID-19 pandemic. The impact of these exclusions on the career trajectories for women academics is not yet known and may not be realized for years to come.

Previous evidence suggests that only one woman scientist is quoted for every five men scientists in British news media.<sup>5</sup> This is similar to proportions of women scientists found in Canadian newspapers, where only 23.8% of experts cited were women.<sup>6</sup> Lack of visibility of women science experts in news media suggests that there are fewer opportunities for academic women and also contributes to a culture where women are less likely to see themselves represented as experts. In this cross-sectional study, we aimed to document and compare the representation of women experts versus men experts in newspaper coverage of the COVID-19 pandemic in the United States (US). With the evidence of disparities between women and men already being documented in other academic domains, we hypothesized that we would find higher proportions of men experts in newspaper coverage compared with women.

## Methods

This descriptive cross-sectional study examined the proportion of women, men, and non-binary gender experts quoted in major American newspapers in publicly-available articles referring to the SARS-CoV-2 pandemic. Institutional ethics board approval was not applicable given the study design. This manuscript is reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines<sup>7</sup> and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines when describing the systematic search strategy used to identify articles.

Factiva and the US Major Dailies databases were used to identify newspaper articles for inclusion. The full search strategy for each database was developed after consultation with a librarian and is available in Appendix 1 and 2. Newspaper articles were eligible if they were published between April 1st, 2020 and April 15th, 2020 in the English language, contained the words "COVID-19" or "coronavirus", and were found in the print version of one of the top ten most widely read newspapers in the United States (USA Today, Wall Street Journal, New York Times, New York Post, Los Angeles Times, Washington Post, Star Tribune, Newsday, Chicago Tribune, and the Boston Globe).<sup>8</sup> Online-only content, letters to the editor, advice columns, article corrections, and obituaries were excluded.

Each newspaper article was reviewed by one study team member to identify eligible expert sources. Reviewers used a standardized data extraction form that was pilot tested by all members of the study team (Appendix 3). Twenty randomly selected articles were reviewed by two study members to determine the Cohen's kappa of data extraction. The date of publication, article title, reporter(s), expert name, expert gender as determined by pronouns used within the article, expert gender as identified by another source, and expert title or position were extracted. Further, members of our research team contacted each newspaper editor a minimum of two times to determine if the newspaper had a policy on inclusion or gender related to expert sources.

All people mentioned in the text of the article were considered for inclusion as an expert source. To be included in our analysis, an expert source (1) had to be cited as an expert on health, health systems, or disease; (2) had to speak about SARS-CoV-2, COVID-19, or coronavirus disease; and (3) had to speak about human impacts or human disease (Table 1). People were not included as an expert if they were mentioned only to recount or describe events rather than provide information as an expert. In addition, people were not included as an expert if they were referenced only as a spokesperson for an agency or

organization. We excluded anonymous and unnamed sources. When a reviewer was unsure whether to include a potential expert, another member of the study team also reviewed the article and both reviewers had to agree to include the expert.

Expert gender was assigned based on pronoun usage within the text article (he/him corresponded to a man expert, she/her corresponded to a woman expert, and other pronouns such as they/them or ze corresponded to a non-binary gender expert). If the expert's pronouns were not available in the article text, the expert's name and title were used to search the internet for a university, hospital, or business website to determine the expert's gender. If an expert was mentioned in another newspaper article, the pronouns from that article could be used to assign gender. An expert's gender was categorized as unknown if there were no pronouns or gender listed within the newspaper article or on an official university, hospital, or business website for the expert. An expert was included for each article that they were cited in, but an expert was included only once per newspaper article, even if cited multiple times within the article.

We report the total number of experts and number of unique experts mentioned in newspaper articles who were men, women, or another gender with 95% confidence intervals (CI). We did not compare the proportion of men and women experts statistically because there was no established baseline of potential men and women experts.

## Results

One newspaper was not accessible through database searching and was excluded from analysis (Newsday). We therefore analyzed 4,463 newspaper articles from nine newspapers (Figure 1). Of these, 3,681 were included in our analysis and 969 articles included at least one expert source. Cohen's kappa demonstrated moderate agreement for expert source inclusion ( $n=54$ ; 0.59; 95% CI 0.33-0.86) and perfect agreement for assignment of gender ( $n=41$ ; 1.00; 95% CI 1.00-1.00). Only one newspaper (the Chicago Tribune) responded to inquiries about an inclusion policy for expert sources and that newspaper did not have such a policy.

In total, 2,297 experts were referenced, of which 35.9% (95% CI 33.9-37.8%;  $n=824$ ) were women, 63.7% were men (95% CI 61.8-65.7%;  $n=1,464$ ) and for 0.4%, gender could not be assigned ( $n=9$ ) (Table 2). There were no experts cited who used gender-neutral or alternative pronouns. The proportion of women experts was greater than 50% of all experts for only one newspaper, the Star Tribune (52.0%; 95% CI 42.1-61.9%, range 32.4%-52.0%). There were 1,738 unique individuals referenced, of which 34.6% were women (95% CI 32.3-36.8%;  $n=601$ ), 64.9% were men (95% CI 62.7-67.1%;  $n=1,128$ ) and 0.05% whose gender was unknown ( $n=9$ ). Of articles with two or more experts cited ( $n=374$ ), 102 cited only men experts (27.3%) and 44 cited only women experts (11.8%).

## Discussion

In this cross-sectional descriptive study of the proportion of COVID-19 experts cited in top American newspapers, we report that men experts outnumbered women experts by almost twofold. This relationship persisted when we examined the proportion of unique experts in COVID-19 newspaper articles. These findings support anecdotal reports that women academics have been underrepresented in newspaper coverage and evidence-based data demonstrating the exclusion of women from academic publication and leadership during the COVID-19 pandemic.<sup>1-4</sup>

The proportion of women experts cited in newspaper articles about the COVID-19 pandemic is greater than previous studies of the representation of women in news media. In a 2008 study of UK newspapers, only 16% of all quoted scientists were female.<sup>5</sup> Similarly, a 2015 study of Canadian newspapers found that 23.8% of quoted experts were female.<sup>6</sup> This may be because there are more women experts in fields related to COVID-19; for example, women comprise 41.1% of infectious disease physicians<sup>9</sup> and 73% of public health degree recipients in the United States.<sup>10</sup> Despite there being a significant proportion of women in these COVID-19 related professions, women account for only 13% of health systems CEOs<sup>11</sup> and for two of the eighteen former administrators of the Centres for Disease Control and Prevention.<sup>12</sup> This suggests that a lack of women in high-profile positions may also contribute to low representation of women experts in newspaper articles.

Our findings are limited in several ways. We were unable to reliably categorize the field of expertise for newspaper sources due to variability in how the titles of experts were reported in each article as well as redundancy of categories for each expert (e.g., physicians who had public health degrees and held health systems leadership roles). For this reason, we cannot determine if the proportion of women experts is due to bias in selection of newspaper sources, differential availability of women experts to participate in newspaper interviews, or a paucity of women with relevant expertise.<sup>13</sup> As a result of not knowing the overall gender composition of COVID-19 experts in the US and elsewhere, we were unable to statistically compare the proportions of men versus women in the articles that were examined. Equality of representation at an arbitrary 50% threshold may not be appropriate if the total proportion of women that are COVID-19 experts is significantly different, and this additionally does not address equity concerns in representation. In addition, we were unable to capture data on how other axes of discrimination, such as race, ethnicity, Indigenous status, or ability, may have impacted representation as COVID-19 experts. These data are critical to documenting the full scope of bias in academia.

Documentation of the types of disparities encountered by women in academia is important to recognize the lived experiences of discrimination and to develop interventions to address these disparities. For example, men academics may consider declining opportunities and recommending their women colleagues as an act of allyship. Academic leadership should consider how high-profile media opportunities should be counted in promotion and advancement decisions, given this evidence of potential bias that disadvantages women. The responsibility to ensure equitable representation is shared by media organizations as well. Despite recognizing this as an important issue in publishing,<sup>13</sup> only one newspaper editor responded to our requests for information on equity policies for referenced experts (which they did not have). There is conflicting literature on whether the gender of the reporter is associated with greater representation of women sources.<sup>5,6</sup> Development of such policies may provide women and non-binary people with opportunities that have primarily been given to men. Lastly, there are examples of online, topic-specific bibliographies of the contact information or research works of experts from underrepresented groups that can be

used to replace the networks of connections that tend to favor the in-group.<sup>14</sup> Academic departments could consider creating similar repositories for journalists to highlight underrepresented experts.

## Conclusion

Overall, this documented underrepresentation of women academics in COVID-19 newspaper reporting adds to the growing body of evidence demonstrating how the pandemic has affected the careers of men and women academics.

## Declarations

### Conflicts of Interest:

This project did not require ethics application due to the study design and public nature of the data. Consent was not required for participation due to the public nature of the data. Data is available from the corresponding author upon reasonable request. The authors have no competing interests to declare. This work was unfunded. All authors contributed to data collection, editing of the manuscript, and read and approve the final manuscript. S.M.R. and I.T. conceived the project. S.M.R. and T.G.H. contributed to data analysis. S.M.R. wrote the first draft of the manuscript.

Acknowledgement: Zahra Premji, for her assistance developing the search strategy.

Data Availability: Project data are available from the corresponding author upon reasonable request.

## References

1. Carr T. Coronavirus coverage and the silencing of female expertise. Undark; 2020 June 22 2020.
2. Andersen JP, Nielsen MW, Simone NL, Lewiss RE, Jagsi R. Meta-Research: COVID-19 medical papers have fewer women first authors than expected. eLife. 2020;9:e58807.
3. Gabster BP, van Daalen K, Dhatt R, Barry M. Challenges for the female academic during the COVID-19 pandemic. Lancet. 2020.
4. Rajan D, Koch K, Rohrer K, Bajnoczki C, Socha A, Voss M, et al. Governance of the Covid-19 response: a call for more inclusive and transparent decision-making. BMJ Glob Health. 2020;5(5).
5. Kitzinger J, Chimba M, Williams A, Haran J, Boyce T. Gender, Stereotypes and Expertise in the Press: How Newspapers Represent Female and Male Scientists. UK Resource Centre for Women in Science, Engineering and Technology. 2008.
6. Kangourimollahajlou A. The depiction of expert women in Canadian newspapers: University of Regina; 2017.
7. von Elm E, Altman DG, Egger M, Pocock SJ, Gotsche PC, Vandenbroucke JP, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies. Int J Surg. 2014;12(12):1495-9.
8. Solutions AP. Top 10 US Newspapers by Circulation 2020 [updated Jan 2020. Available from: <https://www.agilitypr.com/resources/top-media-outlets/top-10-daily-american-newspapers/>.
9. Colleges AoAM. Active Physicians by Sex and Specialty in 2017. AAMC; 2018 December 2017. Contract No.: Table 1.3.
10. Leider JP, Plepys CM, Castrucci BC, Burke EM, Blakely CH. Trends in the Conferral of Graduate Public Health Degrees: A Triangulated Approach. Public Health Rep. 2018;133(6):729-37.
11. Wyman O. Women in healthcare leadership 2019 Oliver Wyman2019 [Available from: <https://www.oliverwyman.com/our-expertise/insights/2019/jan/women-in-healthcare-leadership.html>.
12. Prevention CfDCa. Past CDC Directors/Administrators CDC2020 [Available from: <https://www.cdc.gov/about/history/pastdirectors.htm>.
13. Taub A, Fisher M. If only quoting women were enough. New York Times. 2018 February 9, 2018.
14. BlackComputerHER. CiteHER Bibliography BlackComputeHER2020 [Available from: <https://blackcomputeher.org/citeher-bibliography/>.

## Tables

| Question   | Example of an excluded person   | Example of an included expert   |
|--|---|---|
| Is the person included as an expert on health, health systems, or disease?     | A governor giving a daily update on case numbers.                     | A public health official giving a daily update on COVID-19 in the community.                |
| Is the person being mentioned as part of storytelling only, to recount events? | An article about an actor impersonating Dr. Anthony Fauci.            | Dr. Anthony Fauci discussing the risks and benefits of wearing a facial covering in public. |
| Is the person speaking about COVID-19 disease or the coronavirus?              | A physician discussing heart disease.                                 | A physician describing heart disease in patients with COVID-19.                             |
|  | An epidemiologist discussing the Ebola pandemic.                      | An epidemiologist discussing the COVID-19 pandemic.   |
| Is the person speaking about human impacts or human disease?                   | A veterinarian discussing the health impact of coronavirus in tigers. | A veterinarian discussing zoonotic disease transmission to humans.                          |

| Newspaper           | Total Articles Included | Total Experts | Total Women Experts | Proportion of total experts who were women %<br>(95% CI) | Total Men Experts | Proportion of total experts who were men %<br>(95% CI) | Total Unknown | Unique* Experts | Unique* Women Experts | Proportion of unique experts who were women %<br>(95% CI) | Unique* Men Experts | Proportion of unique experts who were men %<br>(95% CI) |
|---------------------|-------------------------|---------------|---------------------|--|-------------------|--|---------------|-----------------|-----------------------|---|---------------------|---|
| Boston Globe        | 426                     | 329           | 119                 | 36.2<br>(31.0-41.4)                                      | 210               | 63.8<br>(58.6-69.0)                                    | 0             | 223             | 85                    | 38.1<br>(31.7-44.5)                                       | 138                 | 61.9<br>(55.5-68.3)                                     |
| Chicago Tribune     | 460                     | 179           | 81                  | 45.3<br>(38.0-52.5)                                      | 98                | 54.7<br>(47.5-62.0)                                    | 0             | 145             | 60                    | 41.4<br>(33.4-49.4)                                       | 85                  | 58.6<br>(50.6-66.6)                                     |
| Los Angeles Times   | 581                     | 374           | 133                 | 35.3<br>(30.7-40.4)                                      | 241               | 63.9<br>(59.6-69.3)                                    | 3 (0.8)       | 300             | 97                    | 32.3<br>(27.0-37.6)                                       | 200                 | 66.7<br>(61.3-72.0)                                     |
| New York Post       | 294                     | 73            | 27                  | 37.0<br>(25.9-48.1)                                      | 46                | 63.0<br>(51.9-74.1)                                    | 0             | 63              | 22                    | 34.9<br>(27.0-37.6)                                       | 41                  | 65.1<br>(53.3-76.9)                                     |
| New York Times      | 458                     | 372           | 123                 | 33.1<br>(28.3-37.8)                                      | 249               | 66.9<br>(62.2-71.7)                                    | 0             | 329             | 102                   | 31.0<br>(26.0-36.0)                                       | 227                 | 69.0<br>(64.0-74.0)                                     |
| Star Tribune        | 241                     | 98            | 51                  | 52.0<br>(42.1-61.9)                                      | 47                | 48.0<br>(38.1-57.9)                                    | 0             | 66              | 28                    | 42.4<br>(30.5-54.3)                                       | 38                  | 57.6<br>(45.7-69.5)                                     |
| USA Today           | 292                     | 175           | 62                  | 35.0<br>(28.3-42.5)                                      | 113               | 63.8<br>(57.5-71.7)                                    | 2 (1.1)       | 132             | 52                    | 39.4<br>(31.1-47.7)                                       | 78                  | 59.1<br>(50.7-67.5)                                     |
| Wall Street Journal | 446                     | 208           | 71                  | 34.1<br>(27.2-40.6)                                      | 137               | 65.9<br>(59.4-72.3)                                    | 0             | 199             | 66                    | 33.2<br>(26.6-39.7)                                       | 133                 | 66.8<br>(60.3-73.4)                                     |
| Washington Post     | 483                     | 480           | 157                 | 32.4<br>(28.5-36.9)                                      | 323               | 66.8<br>(63.1-71.5)                                    | 4 (0.8)       | 386             | 125                   | 32.4<br>(27.7-37.10)                                      | 257                 | 66.6<br>(61.9-71.3)                                     |
| Total               | 3,681                   | 2,297         | 824                 | 35.9<br>(33.9-37.8)                                      | 1,464             | 63.7<br>(61.8-65.7)                                    | 9 (0.4)       | 1,738           | 601                   | 34.6<br>(32.3-36.8)                                       | 1,128               | 64.9<br>(62.7-67.1)                                     |

\*Unique refers to exclusion of duplicate mentions of the same expert in multiple articles.

## Figures

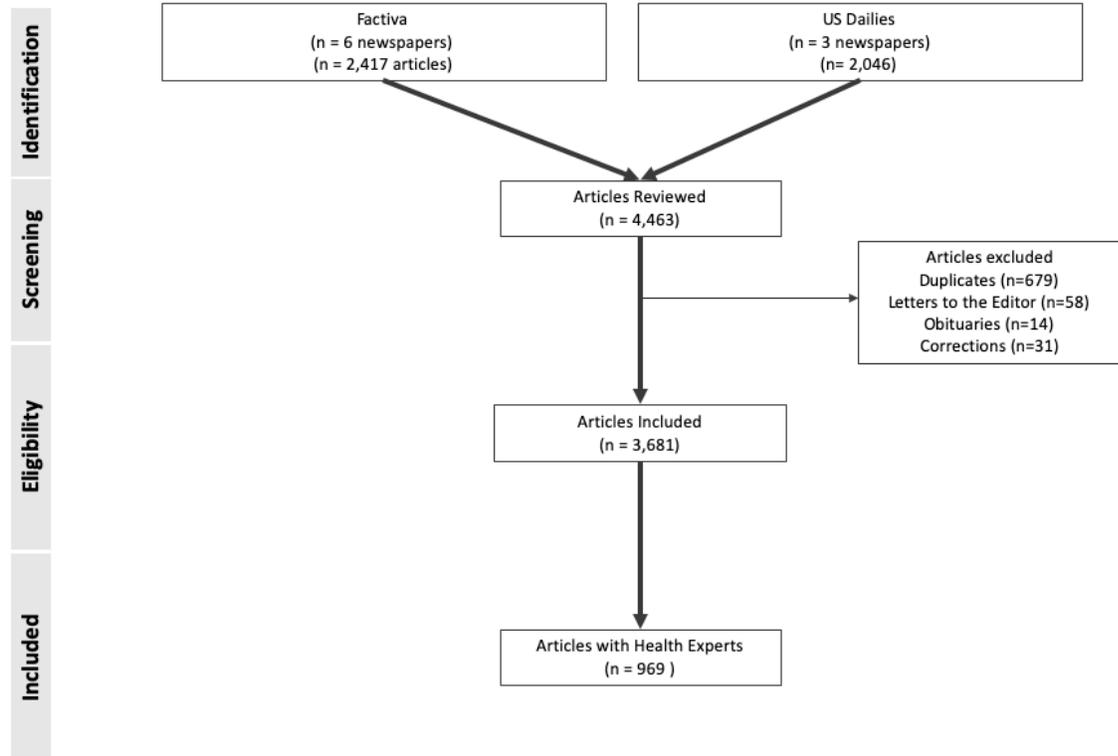


Figure 1

Flow diagram indicating articles included in the analysis.

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [NewspaperAppendices.docx](#)