

Perceptions of authors' contributions are influenced by both byline order and designation of corresponding author

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Abstract

Objectives: We explored how readers interpret authors' roles based on authorship order and corresponding author.

Study Design and Setting: We conducted a cross-sectional survey of all 291 Surgical and Medical Chairpersons across North America. We developed hypothetical study and authorship bylines with five authors varying the corresponding author as first or last author. Respondents reported their perceptions about the authors' roles in the study and the most prestigious authorship position. We used multinomial regression to explore the results.

Results: One hundred sixty-five chairpersons (response rate: 57%) completed our survey. When the first author was designated as corresponding author, most of the respondents assumed that this author had taken the lead in study design (55.3%) and analysis and interpretation of data (51.2%). When the last author (fifth) was designated as corresponding, perceptions of the first author's role in study concept and design (odds ratio [OR] = 0.25, 95% confidence interval [CI]: 0.15, 0.41) and analysis and interpretation of results (OR = 0.22, 95% CI: 0.13, 0.38) decreased significantly. Overall prestige of the last author position increased significantly when designated as corresponding author (OR = 4.0, 95% CI: 2.4, 6.4).

Conclusions: Academic department chairs' perception of authors' contributions was influenced by corresponding author designation. Without authors' explicit contributions in research articles, many readers may draw false conclusions about author credit and accountability. © 2014 Elsevier Inc. All rights reserved.

Keywords: Authorship order; Cross-sectional; Survey; Evidence-based medicine; Publications; Multinomial regression

1. Introduction

Two hundred years ago authors of scientific articles often chose anonymous publication [1]. Medical journals abandoned this practice because of limitations in accountability and credit. Accountability for scientific publications provides the foundation of the trust that underlies research conduct and reporting. Credit for scientific research plays a major role in academic promotions.

Throughout the first half of the last century, when publications often had a single author, issues of credit and accountability were clear [2–4]. In the current era of multi-authored scientific articles and group authorship, critics have suggested that determination of credit and accountability cannot occur without explicit reporting of author contributions [5]. In response to this concern, Rennie and Yank proposed a transparent system to list authors' contributions [6]. A number of high-impact journals (Journal of the American Medical Association [JAMA], *Annals of Internal Medicine*, *British Medical Journal* [BMJ], and *The Lancet*) adopted this plan and now insist authors explicitly report their contributions [6]. Most journals have not adopted this policy, however, leaving readers to infer credit and accountability according to

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What is new?

Key findings

- We undertook a study to evaluate how academic leaders interpret position of authorship and designation of corresponding author in deciding on credit and accountability for scientific research. We found that without explicit reporting of authors' contributions, respondents manifested considerable variability in the perceptions of roles based on authorship order and designation of corresponding author. Chairpersons in the present study strongly preferred allocating authorship order based on manuscript writing and amount of work done on the project; however, author seniority and acquisition of study funding were also endorsed by a significant minority of respondents.

What this adds to what was known?

- To our knowledge, our study is the first to explore variability among readers in the perception of authors' contributions to research based on authorship order and who is listed as the corresponding author. The results confirm findings from previous studies that reported many readers remain uncertain or draw false conclusions about author credit and accountability when authors' contributions in research articles are not explicit. We also confirmed that chairpersons associate considerable prestige with the last author position and consider this role secondary only to the first author.

What is the implication and what should change now?

- This study provides more insight into the interpretation of authors' contributions to research based on authorship order and designation of corresponding author. Our findings raise questions about the way by which authorship position is currently assigned and the impact that corresponding author position may have on process. Future research should focus on optimal strategies to ensure transparency in author's roles and contributions and on exploring the basis by which authorship position is designated.

authorship order and the designation of corresponding author.

We undertook a study to evaluate how academic leaders interpret position of authorship and designation of corresponding author in deciding on credit and accountability for scientific research.

2. Methods

2.1. Survey development

We created a fictitious study title of a clinical study with five fictitious authors. To determine which authors to designate as corresponding authors, we evaluated original research articles in the *BMJ*, *JAMA*, *The Lancet*, and *New England Journal of Medicine (NEJM)*. We included all articles under the following table of content headings: "Research" in *BMJ*, "Original Contributions" in *JAMA*, "Original Research—Articles" in *The Lancet*, and "Original Articles" in *NEJM*. This excluded all nonsystematic literature reviews and other original research articles that appeared under different table of content headings in the journals. Among the 41 published original articles, the median number of authors was five, the first and last authors were most commonly designated as the corresponding author (82% and 15% of the time, respectively). We chose the five most common surnames in North America (US Census Bureau - <http://www.census.gov/genealogy/www/freqnames.html>) for the authors on the byline. Providing only the initials of the authors' first names avoided gender-biased responses.

The survey instructed respondents to indicate which author(s) they believed contributed to the following: study conception and design, data acquisition, analysis and interpretation of data, drafting the manuscript, manuscript revisions, statistical analysis, obtaining study funding, providing administrative support, and overall supervision of the study. Respondents provided this information twice, once when the first author was designated the corresponding author and once when the last author was designated the corresponding author. We asked respondents which position of authorship (first to last) they believed was most prestigious. We also asked respondents how strongly they agreed or disagreed on basing the order of authorship on each of the following: amount of work done, alphabetical order, seniority of author, random order, contribution in writing the manuscript, obtaining financial support, and other (ie, if they felt another method was the most appropriate, they were instructed to record it).

Five physicians participated in pilot testing of the survey (two surgeons, two epidemiologists in medicine, and one epidemiologist in surgery) to enhance clarity and comprehensiveness.

2.2. Target population

Chairpersons in the departments of surgery and medicine across North America (259 United States and 32 Canada). We selected department chairpersons as they participate in academic staff review and promotion, and their interpretation of authors' contributions would be expected to have important implications. Each respondent received up to five follow-up telephone calls after the initial mailing. At each subsequent contact, we requested

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