

Analysis of Authorship Criteria in Articles Published in the Revista Argentina de Cardiología

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Received: 05/16/2011

Accepted: 08/02/2011

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SUMMARY

The increasing number of authors per article might be due, to a certain extent, to less strict criteria for authorship. The goal of this study was to know the authorship criteria used to be included as authors of the articles published. A survey was administered to the authors who have published articles in the Rev Argent Cardiol during 2010. The authors were asked to indicate the authorship criteria used. The information was analyzed comparing the criteria used by the authors with those recommended by the International Committee of Medical Journal Editors (ICMJE). A total of 214 authors were surveyed. According to the ICMJE criteria, 26.6% qualified as "justified authorship", 40.7% as "partial authorship" and 32.7% as "unjustified authorship". The average number of authors per article was 7.1 ± 2.60 ; if only justified authorship was considered, this number might fall to 1.9 ± 1.16 , increasing to 4.8 ± 2.55 ($p < 0.0001$) when partial authorship was included. In conclusion, in the Rev Argent Cardiol unjustified authorship rather than contribution of multiple investigators might explain the increasing number of authors per article in the last years. Even when the criteria of partial authorship were applied, only 67% of authors could justify their authorship. Authors, editors and readers should adopt a more critical attitude towards authorship credit based on strict rules; in addition, the role of contributors should be better appreciated.

REV ARGENT CARDIOL 2012;80:40-43

Key words > Bibliometrics - Authorship - Cardiology - Argentina

BACKGROUND

The increasing number of authors per article over the years has been a constant in most medical publications, (1) fact also demonstrated in the articles published in Argentine Journal of Cardiology since 1934 to present. (2) This trend has been justified in claiming a growing number of articles with the collaboration of multiple centers, or due to a less strict management criteria to be incorporated as author on a work. (3)

The International Committee of Medical Journal Editors (ICMJE) published a few years ago, the criteria for authorship to justify the inclusion as such in a publication. (4) Some later research indicated that in many cases the inclusion as author into articles published in international journals was not adequately justified, with rates hovering between 4% and 50%. (1, 3, 5-7)

Given the lack of local information on this subject, this study was developed in order to know the criteria used by authors to justify their inclusion as such in

the articles published in the Argentine Journal of Cardiology and compare these results with those reported in international journals.

MATERIAL AND METHODS

In April 2011, a survey was conducted via e-mail to authors who had published original articles, brief communications and case reports in the Argentine Journal of Cardiology during 2010. Responsible authors were contacted and asked to indicate the criteria used to incorporate the different co-authors in the publication. For this, it was sent a grid in which they had to mark, for each co-author, one or more of the following criteria for authorship:

1. Contribution to the conception and design, or acquisition, analysis and interpretation of data;
2. Writing of the article or critical revision for its intellectual aspects;
3. Final approval of the full version;
4. Data collection;
5. Statistical analysis;
6. Acquisition of funds or means for research;
7. Achievement of diagnostic or therapeutic procedures;

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8. General supervision of the work team.

The first three points are the only authorship criteria considered by the ICMJE, fact which was not reported to the responsible authors for sending the survey. The sample size consisted of 43 articles and 281 authors and co-authors. After collecting data, it was assessed the contribution of each author to the work and it was or was not justified the inclusion according to the following scheme:

- Justified authorship, whether he kept the three criteria (every and each one of them) (ICMJE criteria);
- Partial authorship, whether he kept one or two of the ICMJE criteria;
- Unjustified authorship, if he only kept one or more of the criteria from 4 to 8 (non-justified by the ICMJE).

The results were expressed as crude values and rates of total number of authors and co-authors and were compared with those reported in international bibliography. The average number of justified criteria by author was expressed as mean $\pm$ standard deviation. In the same way it was calculated the average of authors per article and was compared with ANOVA.

RESULTS

Of 43 responsible contacted authors (281 authors and co-authors in total), 74.4% (32/43) replied to the survey, if one considers the total authors and co-authors, the response rate rises to 76.2% (214/281).

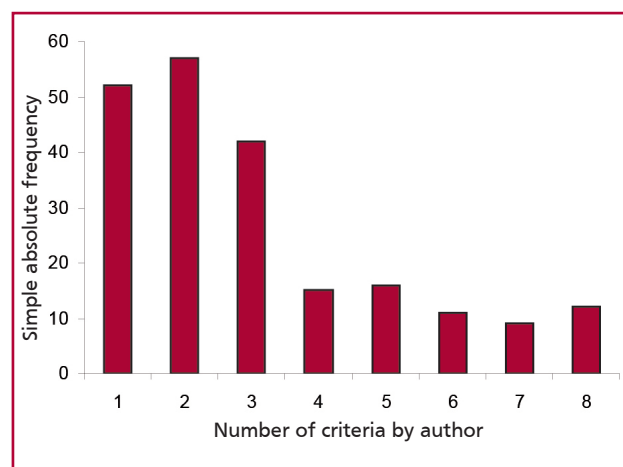


Fig. 1. Distribution of frequency of the number of criteria used to justify the authorship in each author or co-author.

Of the 214 authors and co-authors who replied, according to predefined criteria, 26.6% (57) qualified as 'justified authorship', 40.7% (87) as 'partially justified authorship' and 32, 7% (70) as 'unjustified authorship'. The average number of justifying criteria by author or co-author was 3.1 ± 2.04 and its distribution of frequency is shown in Figure 1. The average number of authors per article was 7.1 ± 2.60 , if they had only been authors those who fulfilled the three ICMJE criteria (full justification), the average of authors per article would fall to 1.9 ± 1.16 , and if it is also included the partial justification for authorship (1 or 2 criteria of the ICMJE), the average of authors would be 4.8 ± 2.55 (ANOVA, $F = 42.4$, $p < 0.0001$). The most commonly reported criteria to be included as author or co-author in a work are detailed in Table 1.

COMMENTS

In this set of authors who were surveyed, only two thirds of them could justify their status as author or co-author on the basis of the criteria of the ICMJE. If the remaining third would have been excluded from the works, the average number of authors per article had been reduced from 7.1 to 4.8.

The increasing number of authors per article observed in recent years not only should be to a greater collaboration among multiple centers, but also that researchers have begun to define authorship in a more lax way. (1) That is why the ICMJE defined a set of objective criteria to justify authorship. (4) According to this Committee, these criteria must be achieved in its whole in order to be considered author, although some publications have also adopted the concept of partial justification for authorship, when it achieves at least one of the three criteria of the ICMJE. (6) Thus, in an analysis for authorship in the Medical Journal of Chile was justified authorship in full in only half of the authors, however, when partial authorship was also considered, this proportion reached 93%. (6) In the same way, one fifth of the authors of the Annals of Internal Medicine and one in 10 in the British Medical Journal did not reach the criteria for authorship. (3) The same, 36% of authors of articles published in the Dutch Journal of Medicine (5) and only 4% in the JAMA (3) did not gather the criteria for being considered author. In our study, when we adopted the

Atheroprotective effect	Pathophysiological mechanisms involved	
Data Collection	126	19.2
Final approval of the full version (ICMJE)	112	17.1
Achievement of diagnostic or therapeutic procedures	107	16.3
Conception and design, or acquisition, analysis and interpretation of data (ICMJE)	101	15.4
Writing of the article or critical revision of intellectual aspects (ICMJE)	81	12.3
General supervision of the work team	50	7.6
Statistical analysis	41	6.2
Acquisition of funds or means for research	39	5.9

The total number of criteria exceeds the number of authors, since there could be more than one criterion for each author (see Figure 1).

Table 1. Criteria that responsible authors reported to include each co-author on the article (n = 657)

criterion of 'strong' of full justification, only reached 27%, but this proportion rose to 67% to include partial authorship.

Among the criteria more used by the authors who published in the Argentine Journal of Cardiology to justify authorship, they were found to have collected data (19.2%) or have carried out diagnostic or therapeutic procedures (16.3%). These criteria were among the most frequent, although they were not accepted by the ICMJE as justification to be included as author or co-author on a work. Although these strict conditions could be a matter of debate, the application of internationally agreed criteria or standards are useful to provide transparency to the process of research and publication of its results. Some journals such as the British Medical Journal, Lancet and JAMA publish specific contributions of each author in the production of the manuscript and promote the use of acknowledgments to include those collaborators who did not reach the ICMJE criteria for authorship. (8, 9)

In contrast to what happens in other countries, it is uncommon the use of acknowledgments in the works published locally. When we check the proportion of articles published in the Argentine Journal of Cardiology containing acknowledgments, only 19% had them, while the articles in the New England Journal of Medicine, in the same period, 80% had acknowledgment guided to collaborators, non-authors.

It is usual that there are several reasons to include other persons as authors, either friendship, academic respect or the benefit that might have about the arbitration of the manuscript, the inclusion of certain personalities of prestige in the area. On the other hand, although it maybe seem reasonable the justification as author of those who study, treat or collect data of patients, would be more appropriate to include them into the acknowledgments as collaborators, non-authors, as otherwise they would be getting an unfair advantage over researchers who adhere and respect the criteria for authorship recommended by the ICMJE. (1) This transfer of authors to collaborators, non-authors, should be accompanied by their revalorization in academic environment, in a way that recognizes the role of these official collaborators and gives them a benefit or additional mark in their academic career, similar to that conferred by the role of arbitrator or reviewer for a scientific journal.

CONCLUSIONS

In the Argentine Journal of Cardiology, unjustified authorship, rather than the collaboration of many researchers, may be the main factor that led to an increase in the number of authors per article in the last years. Even with the application of partial authorship criteria, there could only justify the inclusion of 67% of the authors. The strict accreditation for authorship should be based on a more critical attitude on the part of authors, reviewers and readers, and accompanied

by the appreciation of the role of the collaborator, non-author.

RESUMEN

Análisis de los criterios de autoría en los artículos publicados en la Revista Argentina de Cardiología

El crecimiento del número de autores por artículo podría depender, en cierta medida, de criterios menos estrictos para ser incluido como autor en un trabajo. El objetivo de este estudio fue conocer los criterios usados por los autores para justificar su inclusión como tales en los artículos publicados. Se realizó una encuesta a los autores que habían publicado artículos en la Rev Argent Cardiol durante 2010, a quienes se les pidió que indicaran cuáles habían sido los criterios para justificar su autoría. Posteriormente se analizaron los datos comparando los criterios esgrimidos por los autores con los recomendados por el Comité Internacional de Editores de Revistas Médicas (ICMJE). De los 214 autores encuestados, de acuerdo con los criterios del ICMJE, el 26,6% calificó como "autoría justificada", el 40,7% como "autoría parcialmente justificada" y el 32,7% como "autoría injustificada". El número promedio de autores por artículo fue de $7,1 \pm 2,60$; si se consideran sólo los autores con justificación total de la autoría, este promedio caería a $1,9 \pm 1,16$, e incluyendo la justificación parcial el promedio ascendería a $4,8 \pm 2,55$ ($p < 0,0001$). En conclusión, en la Rev Argent Cardiol, la autoría injustificada, más que la colaboración de múltiples investigadores, podría ser el factor preponderante que generó un aumento del número de autores por artículo en los últimos años. Incluso con la aplicación de los criterios de autoría parcial, sólo se pudo justificar la inclusión del 67% de los autores. La acreditación estricta de la autoría debería basarse en una actitud más crítica por parte de los autores, los revisores y los lectores e ir acompañada de la revalorización del papel del colaborador no autor.

Palabras clave > Bibliometría - Autoría - Cardiología - Argentina

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