

**EDITORIAL****DECLARATION OF TRANSPARENCY: PROMOTING A MORE COMPLETE, HONEST AND ADEQUATE PUBLICATION OF SCIENTIFIC ARTICLES**

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Health research is fundamental for the improvement of population health. Research development should be a priority action in any health policy agenda<sup>1</sup>. Although scientific publication is not the last stage of a research process, as a rule, it should incorporate certain issues into the actual application of health care, it is in fact essential as it facilitates an open debate with the scientific community and, ultimately, with society in general. The outcome of any research may be communicated in various ways and formats (scientific meetings, reports, working papers, the Internet...). However, scientific articles usually offer the greatest rigour, dissemination and impact. A scientific publication of research findings should provide in-

formation about what was actually done and how, what was found and, basically, assess the reliability, validity and relevance of any conclusions reached further to tasks that may be of importance for decision-making in many different matters related to health care, public health and health policies.

The quality of scientific publications depends on an expert appraisal (about the object being studied and methodology used), carried out through a peer review process. Through this system, which is essential for quality control and the prominence of publications, one or more experts review, analyse and evaluate articles to determine their scientific rigour and relevance to their specific area of knowledge. Although this system is the most popular and is widely implemented (it is included in the recommendations for the conduct, reporting, edit and publication of scholarly work in medical journals, issued by the International

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Committee of Medical Journal Editors<sup>2</sup>) a peer review is not problem-free when subjected to a critical examination<sup>3-6</sup>.

There are many recommendations and initiatives that try to standardize reporting of essential issues related to scientific articles<sup>7-10</sup>. However, occasionally, some research descriptions remain vague and still lack important information, basically as regards methods and results<sup>11,12</sup>. There are numerous examples in the scientific literature<sup>13-19</sup> of the serious defects existing in published scientific articles, to include omitted information on evaluated interventions, the criteria used to include/exclude samples, and a full description of both methodology (enabling the research to be reproduced) and results, amongst others. Other common problems are publication bias (non-communication of the study depending on the nature and magnitude of results) and selective reporting bias (selective revealing or suppression of information)<sup>19-23</sup>. If key aspects of the research methodology are omitted, any evaluation about the validity of the study's conclusions may be difficult or even impossible. Whenever key research aspects are unknown (due to non-reporting or a lack of clarity), the research is difficult to adequately interpret. Its conclusions are much more difficult to use and their implementation into decision-making is extraordinarily restricted.

An incomplete or defective dissemination of scientific knowledge is not acceptable, let alone in the current social and economic scenario, where health services are expected to do more with less<sup>11</sup>. Authors should provide key information so that, when reading an article, no presumptions (whether or not correct) are necessary on the methodology used. The persons in charge of reviewing and editing should also try to encourage and guarantee that the presentation is complete, accurate and clear, improving an adequate interpretation of any journal articles published.

Several resources exist to report scientific articles, such as reporting guidelines for research publication<sup>24</sup>, to include CONSORT (Consolidated Standards of Reporting Trials)<sup>8</sup>, STROBE (Strengthening the Reporting of Observational studies in Epidemiology)<sup>9</sup> and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)<sup>10</sup>, which intend to assist authors when drafting their articles, including any other appraising individuals, thereby improving relevant aspects of published research works. In general, these guidelines use checklists to specify the minimum items required to present research information clearly and consistently. These checklists explicitly focus on study design and analysis, in addition to other aspects that may be used to evaluate the risk of bias and reporting any research. The total or partial adoption of these guidelines has already become an editorial requirement imposed by many international and national journals through their publication rules.

Making these reporting guidelines available or accessible for authors and reviewers can help remedy certain information defects in scientific articles.

Within the scope of research in health services and public health, and despite the existence of guidelines to practically publish any research design (including case descriptions<sup>25</sup>, clinical trials<sup>8</sup>, case-control studies, and cohort studies, systematic reviews and meta-analyses<sup>10</sup> and cost-effectiveness analyses<sup>26</sup>), it is still relatively frequent to find inconsistencies or the absence of relevant information<sup>16-18,27-33</sup>. For example, various reviews conducted in different specialties have disclosed that very few publications of studies with case-control design explain the methods used to identify cases and controls, in addition to other limitations<sup>31-33</sup>. Other analysis conclude that epidemiological studies published in biomedical journals do not usually justify their selection of potential confounding factors<sup>29</sup>

or methods developed to control their effect<sup>30</sup>. Some systematic reviews have proven that the application of reporting guidelines, such as CONSORT, have helped increase the quality of information in articles using clinical trial designs, although evidence is less consistent in epidemiological studies that use observational designs<sup>35-37</sup>.

Of greater concern is inappropriate conduct or scientific fraud, i.e. the deliberate handling of information related to any stage of a research process, given that the number of articles retracted over the last few years has increased<sup>38-39</sup>. An exhaustive review conducted in PubMed/Medline, from 1975 to May 2012, covering 2,047 retracted biomedical research articles, disclosed that only 21% of these retractions were attributable to errors, whereas 67% were attributable to inappropriate conduct, including fraud or potential fraud (43%), duplicate publications (14%) and plagiarism (10%). Furthermore, the percentage of retracted articles on the grounds of fraud has multiplied by ten over the last decades<sup>39</sup>.

The editors of various journals and editor associations have been claiming specific measures to prevent and detect inappropriate conduct in scientific research. However the content, visibility and access to these policies considerably differ<sup>40-42</sup>. Moreover, the absence of a common position in these situations, which affect various levels of shared responsibility amongst researchers, authors, institutions, reviewers, editors and editorial committees<sup>41</sup>, means that they are hardly effective.

Aware of the problem, some scientific journals are leading “preventive” pro-change initiatives. In August 2013 the British Medical Journal published the announcement made by its senior statistics editor and one of this editorial authors to encourage transparency, declaring a change in editorial management which, thereafter, would

include a “transparency declaration” from the author designated for correspondence (or article guarantor) upon delivery, when requesting a review for publication purposes<sup>43</sup>. Since then, various journals have become aware of the matter and/or have voiced this initiative<sup>44-46</sup>. However, as far as we know, no national or international journal in the field of epidemiology, public health and the health administration has responded to this announcement.

This was the case until today, because *Revista Española de Salud Pública* has already included in its publication rules<sup>47</sup> the need to provide a “transparency declaration” when submitting papers eligible for publication in the journal. The lead author, guarantor or person in charge of content, declares that the manuscript submitted is a complete, honest, accurate and transparent manner of the study being reported, that no important aspects have been omitted and that any discrepancies from the study as planned have been in the manuscript.

With this step we would also like to encourage other national and international journals in any field, particularly related to public health, epidemiology, health promotion, environmental health, evaluation of health services, health economics and the health administration, to support this “transparency declaration” through the EQUATOR network - Enhancing the QUALITY and Transparency Of health Research<sup>48</sup>. For years, the EQUATOR network is collaborating towards improving the reliability and value of scientific literature, by promoting clear and precise practice for the publication of articles. In order to reach this objective, the network intends to encourage awareness about the importance of continuing with and promoting adequate practice for research communication, contributing to the development, dissemination and implementation of reporting guidelines for article publication, and to systematically evaluate the presentation quality of scientific articles.

The publication of visible editorial policies, which are easily accessed and consistent, to fight inappropriate conduct, could prevent the publication of fraudulent articles, increase the number of retracted articles already published and, perhaps, reduce inappropriate conduct in scientific research<sup>41</sup>. Along these lines, the adoption of a “transparency declaration” by journals may amount to a complementary yet different measure from other widely accepted editorial rules, such as those that already handle ethics and data protection<sup>7</sup>, conflicts of interest<sup>49</sup> or the adherence to main reporting guidelines for the publication of research<sup>24</sup>. We hope that the application of this policy will represent a huge step forward to improve the quality of publications related to public health and health administration.

## BIBLIOGRAPHY

1. Catalá López F, Alvarez Martín E, Gènova Malaras R, Morant Ginestar C. Relación en España entre la investigación sanitaria financiada por el Sistema Nacional de Salud y la carga de enfermedad en la comunidad. *Rev Esp Salud Publica*. 2009;83:137-51.
2. International Committee of Medical Journal Editors (ICMJE). Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly work in Medical Journals. Available in: <http://www.icmje.org/icmje-recommendations.pdf>
3. Jefferson T, Rudin M, Brodney Folse S, Davidoff F. Editorial peer review for improving the quality of reports of biomedical studies. *Cochrane Database Syst Rev*. 2007;MR000016.
4. Plasencia A, García A, Fernández E. La revisión por pares: ¿buena, mala o todo contrario? *Gac Sanit* 2001;15:378-79.
5. Meneu R, Gèrvias J. ¿Revisión por pares anónimos? *Nones*. *Gac Sanit*. 2008;22:168.
6. Marcovitch H. Misconduct by researchers and authors. *Gac Sanit*. 2007;21:492-9.
7. World Medical Association. WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects. Available in: [www.wma.net/es/30publications/10policies/b3/](http://www.wma.net/es/30publications/10policies/b3/)
8. Schulz KF, Altman DG, Moher D; CONSORT Group. CONSORT 2010 statement: updated guidelines for reporting parallel group randomized trials. *Ann Intern Med*. 2010;152:726-32.
9. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *J Clin Epidemiol*. 2008;61(4):344-9.
10. Moher D, Liberati A, Tetzlaff J, Altman DG; PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ*. 2009;339:b2535.
11. Glasziou P, Altman DG, Bossuyt P, Boutron I, Clarke M, Julious S, et al. Reducing waste from incomplete or unusable reports of biomedical research. *Lancet*. 2014;383:267-76.
12. Ioannidis JP, Greenland S, Hlatky MA, Khoury MJ, Macleod MR, Moher D, et al. Increasing value and reducing waste in research design, conduct, and analysis. *Lancet*. 2014;383:166-75.
13. Hopewell S, Dutton S, Yu LM, Chan AW, Altman DG. The quality of reports of randomised trials in 2000 and 2006: comparative study of articles indexed in PubMed. *BMJ*. 2010;340:c723.
14. Haidich AB, Birtsou C, Dardavessis T, Tirodimos I, Arvanitidou M. The quality of safety reporting in trials is still suboptimal: survey of major general medical journals. *J Clin Epidemiol*. 2011;64:124-35.
15. Hodkinson A, Kirkham JJ, Tudur-Smith C, Gamble C. Reporting of harms data in RCTs: a systematic review of empirical assessments against the CONSORT harms extension. *BMJ Open*. 2013;3:e003436.
16. Moher D, Tetzlaff J, Tricco AC, Sampson M, Altman DG. Epidemiology and reporting characteristics of systematic reviews. *PLoS Med*. 2007;4:e78.
17. Hutton B, Salanti G, Chaimani A, Caldwell DM, Schmid C, Thorlund K, et al. The quality of reporting methods and results in network meta-analyses: an overview of reviews and suggestions for improvement. *PLoS One*. 2014;9:e92508.
18. Pocock SJ, Collier TJ, Dandreo KJ, de Stavola BL, Goldman MB, Kalish LA, Kasten LE, McCormack VA. Issues in the reporting of epidemiological studies: a survey of recent practice. *BMJ*. 2004;329:883.

19. Hopewell S, Loudon K, Clarke MJ, Oxman AD, Dickersin K. Publication bias in clinical trials due to statistical significance or direction of trial results. *Cochrane Database Syst Rev.* 2009; (1):MR000006.
20. Dwan K, Altman DG, Arnaiz JA, Bloom J, Chan AW, Cronin E, et al. Systematic review of the empirical evidence of study publication bias and outcome reporting bias. *PLoS One.* 2008;3:e3081.
21. Scherer RW, Langenberg P, von Elm E. Full publication of results initially presented in abstracts. *Cochrane Database Syst Rev.* 2007;(2):MR000005.
22. Boutron I, Dutton S, Ravaud P, Altman DG. Reporting and interpretation of randomized controlled trials with statistically nonsignificant results for primary outcomes. *JAMA.* 2010;303:2058-64
23. Lundh A, Sismondo S, Lexchin J, Busuioic OA, Bero L. Industry sponsorship and research outcome. *Cochrane Database Syst Rev.* 2012;12:MR000033.
24. Altman DG, Moher D. Elaboración de directrices para la publicación de investigación biomédica: proceso y fundamento científico. *Med Clin (Barc).* 2005;125 Suppl 1:8-13.
25. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D; CARE Group. The CARE guidelines: consensus-based clinical case report guideline development. *J Clin Epidemiol.* 2014;67:46-51.
26. Husereau D, Drummond M, Petrou S, Carswell C, Moher D, Greenberg D, Augustovski F, et al. Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement. *BMJ.* 2013;346:f1049.
27. Neumann PJ, Stone PW, Chapman RH, Sandberg EA, Bell CM. The quality of reporting in published cost-utility analyses, 1976-1997. *Ann Intern Med* 2000;132:964.
28. Catalá-López F, García-Altés A. Evaluación económica de intervenciones sanitarias en España durante el periodo 1983-2008. *Rev Esp Salud Publica.* 2010;84:353-69.
29. Groenwold RH, Van Deursen AM, Hoes AW, Hak E. Poor quality of reporting confounding bias in observational intervention studies: a systematic review. *Ann Epidemiol.* 2008;18:746-51.
30. Davies NM, Smith GD, Windmeijer F, Martin RM. Issues in the reporting and conduct of instrumental variable studies: a systematic review. *Epidemiology.* 2013;24:363-9.
31. Lee W, Bindman J, Ford T, Glozier N, Moran P, Stewart R, et al. Bias in psychiatric case-control studies: literature survey. *Br J Psychiatry.* 2007; 190:204-9.
32. Lopez R, Scheutz F, Errboe M, Baelum V. Selection bias in case-control studies on periodontitis: a systematic review. *Eur J Oral Sci.* 2007;115:339-43.
33. Guise JM, Austin D, Morris CD. Review of case-control studies related to breastfeeding and reduced risk of childhood leukemia. *Pediatrics.* 2005;116:e724-31.
34. Turner L, Shamseer L, Altman DG, Schulz KF, Moher D. Does use of the CONSORT Statement impact the completeness of reporting of randomized controlled trials published in medical journals? A Cochrane review. *Syst Rev.* 2012;1:60.
35. Bastuji-Garin S, Sbidian E, Gaudy-Marqueste C, Ferrat E, Roujeau JC, Richard MA, et al. Impact of STROBE statement publication on quality of observational study reporting: interrupted time series versus before-after analysis. *PLoS One.* 2013;8:e64733.
36. da Costa BR, Cevallos M, Altman DG, Rutjes AW, Egger M. Uses and misuses of the STROBE statement: bibliographic study. *BMJ Open.* 2011;1:e000048.
37. Galera Llorca J, Lahoz Grillo R, Roig Loscertales F. Comunicación de los resultados de la investigación observacional: análisis mediante la guía STROBE. *Rev Esp Salud Publica.* 2011;85:583-91.
38. Wager E, Williams P. Why and how do journals retract articles? An analysis of Medline retractions 1988-2008. *J Med Ethics.* 2011;37:567-70.
39. Fang FC, Steen RG, Casadevall A. Misconduct accounts for the majority of retracted scientific publications. *Proc Natl Acad Sci U S A.* 2012;109:17028-33.
40. Bosch X, Hernández C, Pericas JM, Doti P, Marušić A. Misconduct policies in high-impact biomedical journals. *PLoS One.* 2012;7:e51928.
41. Bosch X. Improving biomedical journals' ethical policies: the case of research misconduct. *J Med Ethics.* 2014 Feb 6. doi: 10.1136/medethics-2013-101822.
42. Bosch X. Research integrity: Journals should be clear on misconduct. *Nature.* 2013;497:40.
43. Altman DG, Moher D. Declaration of transparency for each research article. *BMJ.* 2013;347:f4796.

44. Catalá-López F, Hutton B, Moher D. Declaración de transparencia para las publicaciones científicas. *Med Clin (Barc)*. 2014. <http://dx.doi.org/10.1016/j.medcli.2014.01.035>
45. Bonilla-Escobar FJ, Gharaibeh AK, Mires SJ, Abhshek AH. Transparency in the International Journal of Medical Students. *Int J Med Students* 2014;2(1):3-4.
46. EQUATOR Network. Declaration of transparency. Available in: <http://www.equator-network.org/2013/10/24/declaration-of-transparency/>
47. Revista Española de Salud Pública. Publication Rules. Available in: [http://www.msssi.gob.es/biblio-Public/publicaciones/recursos\\_propios/resp/revista\\_crom/misc/normas.pdf](http://www.msssi.gob.es/biblio-Public/publicaciones/recursos_propios/resp/revista_crom/misc/normas.pdf)
48. EQUATOR Network- Enhancing the QUALity and Transparency Of health Research. Available at: <http://www.equator-network.org/>
49. World Medical Association. WMA Statement on Conflict of Interest. Available in: <http://www.wma.net/es/30publications/10policias/i3/>