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ScienceDirect
Maturitas 57 (2007) 16–19
MATURITAS
THE EUROPEAN MENOPAUSE JOURNAL
www.elsevier.com/locate/maturitas

Do journals have a publication bias?

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Abstract

The timely publication of accurate and unbiased results of research is necessary to ensure that the knowledge gained is effectively shared with both the scientific community and the public. The ability to publish will be dependent not only on the significance of the findings, but also on the editorial staff of the journal and the peer review process. The manner in which the peer review process can be influenced by a journal's staff, as well as by the potential bias of reviewers, needs appreciation. Additionally, the routine practice of a journal providing copies of articles and press releases related to those articles in advance of the journal's publication and general availability requires evaluation.

Keywords: Peer review; Publication bias; Authorship; Clinical trials; Journalism; Information dissemination; Mass media; Press release; Journals

1. Introduction

The question has been on the table for some time as to whether press releases set the agenda for science journalists in the general press [1]. There are a variety of sources for these press releases including medical journals. Newspapers, in turn, carry stories based on the findings of medical research articles published in medical journals [2]. Peer review of journal articles is seen by journalists as an independent stamp of approval, a quality filter [3]. To gain greater understanding of this interaction requires knowledge of the peer review process, a discussion of the justification for the use of the press release by medical journals, and an analysis of the impact of press releases on media coverage of scientific publications.

2. Peer review

Peer review, as regards medical journals, is the critical assessment of manuscripts submitted to journals by experts who are not part of the editorial staff [4]. Antecedents of the peer review system date back to the 17th century. However, the origins of the present system have been associated with the date 1752, when the Royal Society of London took over responsibility for the *Philosophical Transactions* [5]. It was during this period that the practice of referring manuscripts based on the subject matter to the members most knowledgeable, their identity unknown to the author, has been attributed [6].

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doi:10.1016/j.maturitas.2007.02.004

The International Committee of Medical Journal Editors (ICMJE) has indicated that peer review is an important extension of the scientific process. They note that its actual value has been "little studied," however, it helps editors determine which articles are appropriate for their journals and has helped both editors and authors improve the quality of the manuscripts [4]. It has been reported that there is only limited concordance between reviewers on identical manuscripts. Additionally, a number of types of bias may also be a consideration in the peer review process [7].

The ICMJE indicates that for a journal to be considered peer reviewed it needs to submit *most* of its published research for outside review and "the number and kind of manuscripts sent for review, the number of reviewers, the reviewing procedures, and the use made of the reviewers' opinions may vary [4]."

Journal editors can influence the peer review process for manuscripts by their initial decision as to whether they will refer the paper for review and because they select the reviewers for any given paper. Additionally, the journal determines if there will be accompanying editorials and, if so, by whom and whether they will be peer reviewed. The editor may or may not know the bias of a particular reviewer. Additionally, in determining the reviewers, the editor defines which fields of study will be involved in the review process. For example, peer review of an observational study of hormone therapy would likely include experts in the field of epidemiology as well as physicians with expertise in hormone therapy. When the article from the U.K. "Breast cancer and hormone-replacement therapy in the Million Women Study" was published in *The Lancet*, it made reference to ethinyloestradiol in figure 4 related to estrogen-only HRT [8]. Whitehead and Farmer in their critique of the study noted that ethinyloestradiol was not used as HRT in the U.K. during the period of study [9]. A correction was published indicating that "in all instances, ethinyloestradiol should be '*oestradiol*' [10]." The original reference to ethinyloestradiol raises issues regarding the peer review process employed, as it is reasonable to believe that if the paper was thoroughly reviewed by those knowledgeable in HRT it would have been corrected prior to original publication. It has been argued that removing the anonymity in the peer review process would decrease the potential for bias [7]. This is a complex issue which while solving some problems creates other considerations.

3. Scientific journals and the press release

Over 20 years ago Winsten noted, "The research community has an important stake in the quality of science news. The media exert great influence in shaping the public's understanding of, and support for, the scientific enterprise." He went on to state "Within medicine, the activities of the press are deeply embedded in the processes of medical care delivery. Medical news reports may increase or diminish the willingness of individuals to present themselves for care, . . . may raise expectations, . . . may dash hopes, or may provoke alarm . . . [11]". The ICMJE states that physicians need complete reports prior to presenting the reports' conclusions to their patients. Additionally, they note that "Very little medical research has such clear and urgently important clinical implications for the public's health that the news must be released before full publication in a journal [4]."

It has become customary for many medical journals, under an embargo, to provide journalists prior to publication, press releases, abstracts, or copies of upcoming issues. This allows reporters sufficient time to conduct interviews and prepare their stories [12]. The ICMJE has indicated "The public is entitled to important medical information without unreasonable delay, and editors have a responsibility to play their part in this process [4]." In most cases the scientific community should have the opportunity to review and consider published research (true peer review) prior to its broader dissemination. As has been previously noted there are very few instances where the information is required more urgently. In this way, what is ultimately conveyed to the public should have greater accuracy and those responsible for communicating to patients would have a greater understanding of the information. There appears to be little scientific justification for the routine release of information to the media on articles shortly prior to publication of the journal in which they are to appear. Many medical journals contain advertising, this generates income for their publisher [4]. Additionally, journals compete for readership. An editorial in *The New England Journal of Medicine* (*NEJM*) stated "Press releases, whether the work of universities,