

Errata in Medical Publications



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ABSTRACT

BACKGROUND: Information is limited about the communication of corrections or errors in the medical literature; therefore, we sought to determine the frequency and significance of published errata in high impact factor journals.

METHODS: Retrospective evaluation of errata reports for articles published in 20 English-language general medicine and cardiovascular journals (mean impact factor, 12.23; median, 5.52) over 18 months. Each independently adjudicated erratum was categorized by location in the article and qualitative categories of severity. Descriptive statistics and Spearman's rank correlation coefficients were computed to describe the association between author and errata number. Source of error, association between impact factor and errata occurrence, and errata rate by journal were assessed.

RESULTS: A total of 557 articles were associated with errata reports (overall errata report occurrence 4.2 per 100 published original and review articles; mean of 2.4 errors per errata report). At least 1 major error that materially altered data interpretation was present in 24.2% of articles with errata. There was a strong association between impact factor and errata occurrence rate ($\rho = 0.869$, $P < .001$). Across all errata, 51.0% were not corrected or the report did not specify whether a correction was made.

CONCLUSIONS: The reporting of errata across journals lacks uniformity. Despite published criteria for authorship that mandate final approval of the manuscript by all authors, errors are frequent, including those that may materially change the interpretation of data. Increased vigilance by authors to prevent errata and consensus by journal editors on the format of reporting are warranted.

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“When you receive galley proofs, read them forwards and backwards.”

— Thomas W. Smith, MD
(*personal communication, 1993*)

The ability of the medical literature to convey useful information is a subject of increasing scrutiny.^{1,2} Although accuracy of reporting is often assumed, the existence

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of critical errors in medical publications can lead to fundamental misappropriation of study results by the readership and propagation in the literature, especially if the reader does not subsequently review published corrections. Criteria for publication of errata have been disseminated by the International Committee of Medical Journal Editors (ICMJE).³ This document states “...corrections should appear on a numbered page, be listed in the Table of Contents, include the complete original citation, and link to the original article and vice versa if online.”

To date, however, there has not been a critical examination of published corrections or “errata.” Therefore, we evaluated the prevalence and significance of corrections in a range of prominent journals. Our goal was to understand the degree to which errata differ by journal, to describe their potential impact on accurate communication of scientific content, and to identify attributes that may be associated with errata severity.

We hypothesized that the identification and subsequent publication of errata can offer insight into the nature of author contributions⁴⁻⁶ because they may suggest a failure on the part of 1 or more authors to carefully review final drafts or preprints. Specifically, we examined whether the number of authors was associated with the publication of errata.

METHODS

We reviewed original studies, meta-analyses, reviews, guidelines, editorials/opinions, case reports, and research letters published between July 1, 2009, and December 31, 2010, from 2 categories of journals: the top 10 peer-reviewed journals in general medicine and in cardiovascular medicine (Appendix 1, online), as ranked according to the 2010 impact factor.^{7,8} Only English language journals with at least 25 original articles published during the aforementioned period were included. All errata reports were identified by a manual process that required independent review of each journal issue. We avoided database searching because not all errata reports are reliably indexed. Further, journals may refer to errata publications under different terms such as “erratum” or “correction.” We used PubMed and OVID Medline to find the original articles referred to in the errata reports. We excluded errata reports derived from medical news stories or from any article that was retracted for any reason.

Rating

All errata reports were examined, and the number of errors in each report was recorded. Each error was evaluated separately and categorized into 1 of 9 locations within the article (author disclosure/conflict of interest, author attribute, abstract, methods, results, conclusions/discussion, numeric data in text, table/figure, references/citations) and into 3 qualitative rankings by severity. A “trivial” error was considered one that did not materially change methods reporting, interpretation of data, or conclusions. Examples include misspelling of an author’s name, misattribution of institution, and inconsequential numerical errors. Examples of “minor” errors include transposition of columns in a table or mislabeling, generally involving more than 1 data point, which did not alter the reporting of primary or other important end points. “Major” errors were associated with material changes in the interpretation of data in text, figures, or tables, or with significant alterations in the article’s conclusions. When feasible, each errata report was classified according to the attribution of the error (author, publisher) and response (not corrected, corrected in print, corrected online, corrected in both).

CLINICAL SIGNIFICANCE

- Over an 18-month period, 557 errata reports were published in 20 high impact factor journals; 24.2% contained at least 1 major error that materially altered data interpretation.
- Some 37.7% were not corrected in the original, or the errata report did not specify whether a correction was made.
- Criteria for authorship mandate final approval of published articles by all authors, but errors are frequent and there is no uniformity in errata reporting.

Adjudication

Each errata report was independently reviewed by 2 of 3 investigators (PJH, ESA, MWR). The 2 investigators discussed their assessments; in the event of a disagreement about any attribute of the errata (number of errors, location, or severity), a third investigator provided an independent assessment and categorization was considered final on the basis of the majority decision. Thirteen (2.3%) errata reports required assessment by a third investigator.

To assess the potential impact of an article with a major error, the number of times it was cited by another author was counted using the Web of Science database maintained by Thompson Reuters. Access to the proprietary database was made possible through a license held by Saint Louis University Libraries.

Errata Rate

To estimate rates of errata reporting, we extended the manual search window for errata to June 30, 2012, because these reports occur after the original publication. For consistency with impact factor scoring methodology, the rate for each journal was calculated by dividing the total number of errata reports by the total number of published articles, limited to original, meta-analysis, and review articles (Figure 1). A total of 325 errata were identified during the baseline 18-month period, and an additional 66 errata were identified during the subsequent 18-month follow-up window.

Statistical Analysis

Descriptive statistics were calculated, including percentages of errata reports between and within journals, and errors as a function of article type, location, and severity. Spearman rank correlation coefficients (ρ) were computed to describe associations between number of authors and number of errata by various characteristics. The association between impact factor and occurrence of errata reports was calculated using Spearman rank correlation. The source of the error (publisher, author) was examined with descriptive measures between and across journals. For all analyses, $\alpha = 0.05$.

RESULTS

Errata Report Counts

During the study period, there were 557 errata reports; 365 (65.5%) came from original, meta-analysis, guidelines, and review articles; the remainder were from other article types. Two journals reported no errata during the initial study period (Table 1). The count of errata reports varied considerably among the other journals (range, 1-129). A

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