



# Choosing and communicating with journals

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**Abstract:** Publishing your research requires knowing about the business practices of journals, what journal editors and peer reviewers want, and how the publication process works. For example, journals that have to make money for their owners have different needs and requirements than journals funded by government agencies or universities, and journals that receive advertising have different needs and requirements than journals that receive article processing charges from authors. Some journals are directed to readers in several public health disciplines, whereas others are directed to specialists or subspecialists. Finally, some journals are directed to international audiences, whereas others are directed to national or regional audiences. The quality or impact of a journal also has to be assessed before submitting a manuscript and when evaluating articles and authors who have published in it. Each of these characteristics should be considered when choosing a target journal. Likewise, most journals follow strict ethical standards when accepting, reviewing, and publishing articles, but other “predatory” journals do not, which can cost unsuspecting authors money and never result in a legitimate publication. Many authors, especially those early in their careers, are unfamiliar with the strengths and weaknesses of the various forms of peer review and how to respond to reviewers’ comments. Here, I review the scientific publishing process, including what authors need to know about journals, manuscript preparation and submittal, publication ethics, peer review, and other journal requirements.

**Keywords:** Scientific publications; journals; medical writing and editing; scientific literature

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*“I don’t mind your thinking slowly: I mind your publishing faster than you think.”—Wolfgang Pauli [1900–1958], Austrian-Swiss, Nobel-Prize winning physicist (1).*

## Introduction

Getting your research published requires preparing your manuscript, submitting it to an appropriate journal, completing the peer-review process, and working with the journal’s production staff. The process can be frustrating, but the more you know about it, the easier it is. Here, I review the scientific publishing process, including what you need to know about journals, manuscript preparation and submittal, publication ethics, peer review, and other journal requirements.

## Choosing a journal

The field of public health is served by hundreds of journals

(one service indexes 477) (2), but all you need is 1; the problem is how to identify it. Here, I describe some of the ways journals are classified, how their importance is assessed, and a strategy for identifying those most likely to be interested in receiving your manuscript.

## Types of journals

Journals can be classified in several ways (3). Archival journals seek to publish the most important original research articles and are the core of the scientific literature. Review journals summarize the research on specific topics and include the traditional “narrative reviews” written by experts, often at the invitation of the journal, and the more evidence-based systematic reviews and meta-analyses. Archival and review journals may be either general journals that cover a range of topics for a broad audience

of professionals (e.g., *The European Journal of Public Health* or *BMC Public Health*), or specialty or subspecialty journals that have a narrow focus and are directed to specialists (e.g., *The Journal of Infection and Public Health*) and subspecialists (*The Journal of Hospital Infection*). Applied journals may publish original research but mainly publish “how to” articles on improving public health practice or service delivery and continuing medical education (e.g., *Health Promotion Practice*).

### Print journals

For most of their 350-year history, journals have been published on printed pages. Print journals typically publish a fixed number of pages in each issue or each year, which means that each submitted manuscript is competing to be included in that limited number of pages. Print journals also vary in how often they publish: weekly, monthly, or sometimes every 3, 4, or 6 months. The frequency of publication affects the number of pages a journal publishes each year, which affects the competition among manuscripts and can mean that accepted manuscripts wait several weeks or months before being published.

In addition to income from individual and library subscriptions, most print journals depend heavily on advertising for their income. To stay in business, editors literally sell advertisers access to the journal’s primary readers. As a result, editors consistently have to publish articles of high interest to their readers. If readers report on advertising surveys that they are not reading the journal as thoroughly or as often as before, advertisers will not pay as much for advertising, and the journal’s income will drop. This need to publish articles of high interest to their readers is why you must submit your manuscript only to journals whose readers are likely to be interested in your research.

The positive side of advertising support by is that publishing in print journals is essentially free for authors. Authors donate their manuscripts to the journal and in exchange get the visibility and credibility that comes from publishing in the journal.

### On-line journals

Many print journals now have on-line versions in which they may publish the same articles sooner than in the print journal and often publish supplemental materials that do not appear in the print version. The on-line version may be included in the same subscription price but kept behind a “pay wall”, which allows the journal to sell the right to download or to read individual articles on-line for anyone

willing to pay for the privilege.

Journals that publish only on-line attract little advertising because readers do not have to page through an issue to find the article they want, encountering ads in the process. Without advertising revenue, these journals often use an “author pay” model, in which authors pay an article processing charge (APC) to publish their articles after acceptance. These charges typically range from a few hundred to a few thousand dollars.

Because they are not limited to a fixed number of pages, on-line journals can publish as many articles as they like. To be accepted, articles do not have to compete with other articles, they need only be of interest to the journal’s reader and above a given level of quality. As a result, other things being equal, your manuscript may have a better chance of being accepted by an on-line journal than by a print journal.

### Open-access (OA) journals

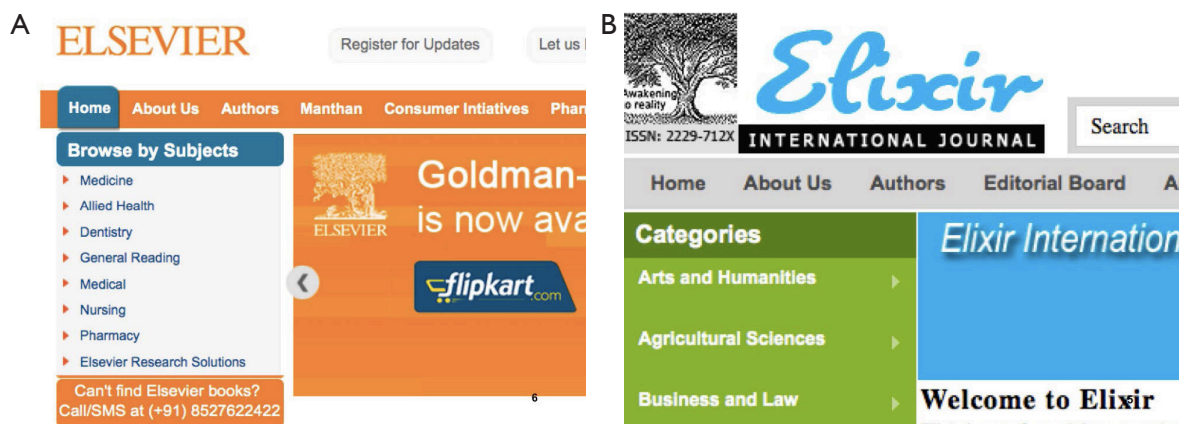
OA journals are “scholarly journals that are available online to the reader without financial, legal, or technical barriers other than those inseparable from gaining access to the Internet itself” (4). Most peer-reviewed, indexed, OA journals have no subscription fees, licensing fees, or pay-per-view fees and impose no copyright or licensing restrictions on the articles they publish. Anyone can read, download, copy, distribute, print, search, or link to the full text without charge (5).

Most OA journals use the author pay model and so are funded largely by APCs. Before submitting your manuscript to an OA journal, be sure you can afford to pay the APC. Some OA journals will reduce or even waive the charge for authors from low- and middle-income countries.

### Predatory journals

Predatory journals are OA journals that promise quick acceptance and inexpensive publication of even very low-quality manuscripts without providing the peer-review, editorial, publishing, and indexing services offered by legitimate journals. They are called “predatory” because they often trick new authors (especially from developing countries) into publishing with them. However, many authors, especially those under great pressure to publish, appear to be aware that these journals are of poor quality or even fraudulent (6).

These journals may inform authors of the APC only after the article has been accepted because acceptance usually implies publication, and authors do not want to lose the chance to publish by not paying. In fact, once the



**Figure 1** Predatory journals may copy features of legitimate journals in their websites to fool unsuspecting authors. (A) The website and logo of a legitimate scientific publisher; (B) the website of a predatory publisher that seemingly imitates both the name and logo of the legitimate publisher.

**Table 1** Characteristics common in websites of predatory journals (8)

The scope of interest includes non-biomedical as well as biomedical topics
Spelling and grammar errors are common
Images are of poor quality
The website is directed primarily to authors, not to viewers interested in other aspects of the journal
The publisher's logo may look like that of a legitimate publisher or may even be counterfeit
The journal promotes metrics produced by Index Copernicus International, which has a history of including a large number of predatory journals
The manuscript handling process is not described
Authors are directed to submit manuscripts by e-mail, not through a web site
The journal promises rapid publication after acceptance
The journal has no stated retraction policy
Whether and how journal content will be digitally preserved is not addressed
Article processing charges (APCs) are less than US \$150
The journal claims to be open-access but does not mention copyright or says that the journal retains copyright
The contact e-mail address is not specific to the journal or publisher but belongs to a public e-mail service (e.g., @gmail.com or @yahoo.com)

journal receives the fee, it may publish the article without any changes or after a long delay, if ever. If the fraud is discovered, the journal closes its website and opens a new one with a new name.

Predatory journals often aggressively ask authors to submit articles through spam e-mails (7). Their names may differ from those of legitimate journals by a single word: for example, *The New England Journal* (a fake name) vs. *The New England Journal of Medicine* (the name of the real journal). They may list well-known researchers without their permission as editorial board members or may make up names and descriptions of members to make the journal sound prestigious. Their websites may be designed to look like those of legitimate journals (Figure 1).

To avoid being robbed by any of the estimated 10,000 predatory journals currently being published, you have to investigate any journal of interest thoroughly (Tables 1,2) (10). Verify the information on the journal's website with information from other websites. Search for the ISSN number (the International Standard Serial Number) and any citation metrics (see below) to see if they really belong to the journal. Search for the journal's office address and see if the address exists. Verify the identities and qualifications of the editor and editorial board members. Legitimate OA journals may also be listed in The Directory of Open Access Journals (<https://doaj.org>), which indexes only high-quality OA journals that have appropriate quality control systems, including peer review. Only when you are satisfied that the journal is legitimate should you consider submitting your article to it.

**Table 2** Characteristics of websites of legitimate journals (9)

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The scope of the journal is well-defined and clearly stated
The journal's primary audience is researchers or practitioners
The editor and editorial board are recognized experts in the field
The journal is affiliated with or sponsored by an established scholarly society or academic institution
Articles are within the scope of the journal and meet the standards of the discipline
Any fees or charges for publishing in the journal are easily found on the journal web site and clearly explained
Articles have Digital Object Identifiers (DOIs)
The journal clearly indicates rights for use and re-use of content at article level (e.g., Creative Commons CC BY license)
The journal has an International Standard Serial Number (ISSN)
The publisher is a member of Open Access Scholarly Publishers Association
The journal is registered in UlrichsWeb, Global Serials Directory
The journal is listed in the Directory of Open Access Journals
The journal is included in legitimate subject databases and indexes

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### *Quality measures of journals*

Scientific journals are always concerned about their reputations. Better journals tend to receive better manuscripts and to publish better articles. In an effort to measure the relative importance of journals, several metrics have been developed, most built around citations to articles published in the journal. The most common of these citation metrics are described below.

#### **The impact factor (IF)**

The IF is probably the most commonly used—and misused—citation metric. The IF and related metrics are now calculated for journals indexed in the Web of Science [the electronic version of the science citation index (SCI) expanded] and published in journal citation reports (JCR). (These products were developed by the Institute of Scientific Information (ISI), sold to Thompson Reuters, and are now owned by Clarivate Analytics, although references are still made to the “ISI impact factor” and to “ISI-indexed” or “SCI-indexed journals”. Basically, the IF is the average number of citations in 1 year to certain types of articles published by the journal in the previous 2 years. A journal with a higher IF produces a greater proportion of citations than does a journal with a lower IF, which is taken to indicate the relative importance of the journal in its particular field (*Table 3*). The ISI IF should not to be confused with the ResearchGate Impact Factor, which is a newer but less-accepted metric.

Although individual journals often publish their IF, Clarivate Analytics (<https://clarivate.com>) charges for access to its databases and citation information, which means that access is often limited to authors at universities or companies that subscribe to the service.

#### **Elsevier's CiteScore**

Elsevier, a major scientific publisher, maintains Scopus, a huge database of the peer-reviewed literature that includes information on scientific journals, books, and conference proceedings. The CiteScore, calculated from data in Scopus, is the number of citations received by a journal in 1 year to documents published in the 3 previous years, divided by the number of documents indexed in Scopus published in those same 3 years. The CiteScore differs from the IF because it uses a 3-year window of publication, not a 2-year window, and because the denominator includes more types of articles than does that of the IF (*Table 3*). CiteScores are available free on the Internet (<https://journalmetrics.scopus.com/>).

#### **The SCImago journal rank (SJR)**

The SJR is another journal metric from Elsevier that considers both the number of citations received by a journal and the importance or prestige of the journals in which the citations appeared. It is the average number of citations (weighted by importance) received in 1 year divided by the number of documents published in the previous

**Table 3** Major citation metrics for selected public health journals

Journal name	2016 or 2017 ISI impact factor <sup>a</sup>	2016 scopus CiteScore <sup>b</sup>	2016 SCImago journal rank <sup>b</sup>	2016 H-index <sup>d</sup>
<i>Annual Review of Public Health</i>	10.228	11.27	5.644	104
<i>Environmental Health Perspectives</i>	9.780	3.07	3.067	227
<i>Bulletin of the World Health Organization</i>	4.939	3.09	2.417	110
<i>American Journal of Public Health</i>	3.858	3.18	2.430	198
<i>Journal of Epidemiology and Community Health</i>	3.608	2.74	1.684	140
<i>European Journal of Public Health</i>	2.431	2.49	1.432	51

Data come from various sources, which may give different values for the same metric and journal. Values do not change much from year-to-year, so rankings on the same metric calculated for different years are generally similar. <sup>a</sup>From individual journal websites; <sup>b</sup><https://journalmetrics.scopus.com>; <sup>c</sup><http://www.scimagojr.com/journalrank.php>; <sup>d</sup>From Merigó JM, Núñez A. Influential journals in health research: a bibliometric study. *Globalization Health*. 2016;12:46. DOI 10.1186/s12992-016-0186-4.

3 years (*Table 3*). It is also calculated from data in Scopus. You can find the SJR for many journals, free, at <https://journalmetrics.scopus.com>.

### The Hirsch-index

The Hirsch- or H-index (after its creator, physicist Jorge Hirsch) was developed as a measure of scientific productivity for individual researchers, but it has since been applied to journals. An author with an H-index of, say, 16, has published at least 16 articles, each of which has been cited at least 16 times. *Environmental Health Perspectives*, a leading public health journal, has an H-index of 227, meaning that it has published at least 227 articles, each of which has been cited at least 227 times (*Table 3*).

The biggest of many problems with citation metrics is that they are calculated for journals but are used to evaluate individual articles or their authors who publish in those journals (11,12). Other problems with citation metrics, especially for evaluating authors, are that most (but not all) of these metrics do not consider the status of the citing journal, whether the citation was positive or negative, whether the citation was to the author's own work (a self-citation), whether the citation was to a letter or an original research article, whether there were co-authors, and the position of the author within the list of authors. In addition, the metric is often the mean value of a highly skewed distribution, which makes it a poor descriptive statistic (13-17).

### How to pick a target journal

The key to finding the right journal is to identify those

whose readers are most likely to be interested in your research. The process involves finding or creating a list of possible journals, reducing the list to a manageable number, reading the "About the Journal" section in the instructions for authors for each of those journals, identifying those that seem appropriate, and then choosing the best match (*Table 4*).

I recommend following the six steps described below.

### Find or create a list of journals in your field of public health

Each of the below fields is served by dozens of journals:

- ❖ Global health;
- ❖ Emergency preparedness;
- ❖ Epidemiology;
- ❖ Health information specialist;
- ❖ Environmental health;
- ❖ Maternal and child health;
- ❖ Public health policy;
- ❖ Health care administration;
- ❖ Health education;
- ❖ Biostatistics;
- ❖ Nutrition or dietetics;
- ❖ Occupational health and safety.

Several lists of journals in each of these fields can often be found with simple, on-line searches. Another way to develop a list is to use any (or all) of several on-line tools that claim to be able match the title and abstract of your article to suitable journals. Their performance varies, but they are free and they may give you some ideas.

- ❖ Springer Journal Suggester (<https://journalsuggester.springer.com>);

**Table 4** Public health journals published in the Pacific Rim that might accept an article titled “Reactions to Pictorial Health Warnings on Cigarette Packages in Malaysia: A Cross-sectional Study” (Journals in boldface are better choices for this particular article)

Journal	SJR	General audience	Geographical scope	Acceptable
<i>International Journal of COPD</i>	1.251			
<i>Vascular Health and Risk Management</i>	0.890			
<i>Sexual Health</i>	0.622			
<b><i>Health Promotion Journal of Australia</i><sup>a</sup></b>	<b>0.553</b>	<b>Yes</b>	<b>National</b>	<b>Yes</b>
<b><i>Australian Journal of Primary Health</i><sup>b</sup></b>	<b>0.535</b>	<b>Yes</b>	<b>International</b>	<b>Yes</b>
<b><i>Risk Management and Healthcare Policy</i><sup>c</sup></b>	<b>0.534</b>	<b>Yes</b>	<b>International</b>	<b>Yes</b>
<i>Journal of Primary Health Care</i>	0.438			
<i>Rural and Remote Health</i>	0.423			
<i>Diving and Hyperbaric Medicine</i>	0.397			
<b><i>Public Health Research and Practice</i><sup>d</sup></b>	<b>0.389</b>	<b>Yes</b>	<b>International</b>	<b>Yes</b>
<i>Fluoride - Quarterly Reports</i>	0.324			
<b><i>Infection, Disease and Health</i><sup>e</sup></b>	<b>0.319</b>	<b>Yes</b>	<b>International</b>	<b>No</b>
<i>New Zealand Public Health Surveillance Report</i>	0.125			
<i>Electronic Journal of Health Informatics</i>	0.116			
<i>Health Care and Informatics Review Online</i>	0.103			

The top three journals have about the same rank. *The Australian Journal of Primary Health* and *Risk Management and Healthcare Policy* would probably give the article wider exposure, so these might be the best first choices. <sup>a</sup>*Health Promotion Journal of Australia* “publishes high-quality research and perspectives from academics and practitioners that contributes to the knowledge base and provides evidence for health promotion. In particular, the journal reports on policies, theories, strategies and programs that use educational, organisational, economic and/or environmental approaches to health promotion and their evaluation.” <sup>b</sup>*Australian Journal of Primary Health* “integrates the theory and practice of community health services and primary health care. The journal publishes high-quality, peer-reviewed research, reviews, policy reports and analyses from around the world. Articles cover a range of issues influencing community health services and primary health care, particularly comprehensive primary health care research, evidence-based practice (excluding discipline-specific clinical interventions) and primary health care policy issues.” <sup>c</sup>*Risk Management and Healthcare Policy*. “An international, peer-reviewed, open access journal focusing on all aspects of public health, policy, and preventative measures to promote good health and improve morbidity and mortality in the population.” <sup>d</sup>*Public Health Research & Practice* “will publish innovative, high-quality papers that inform public health policy and practice, paying particular attention to innovations, data, and perspectives from policy and practice.” <sup>e</sup>*Infection, Disease and Health*. “The original and important articles in the journal investigate, report or discuss infection prevention and control; clinical, social, epidemiological or public health aspects of infectious disease; health economics, policy and planning for the control of infections; zoonoses; and food hygiene and vaccines related to disease in human health.” SJR, Scimago Journal rank.

- ❖ Elsevier Journal Finder (<http://journalfinder.elsevier.com>);
- ❖ Co-factor Journal Selector (<http://cofactorscience.com/journal-selector>);
- ❖ Journal Author Name Estimator (JANE) (<http://jane.biosemantics.org>);
- ❖ EndNote Manuscript Matcher (<http://endnote.com/product-details/manuscript-matcher>) (must sign-in for a free trial);
- ❖ Edanz Journal Selector (<https://www.edanzediting.com/journal-selector>) (must sign-in for a free trial).

You can also go to the Scimago website (<http://www.scimagojr.com/index.php>) and click on “Journal Rankings”. In the four drop-down menus, for “All subject areas”, choose *medicine*; for “All subject categories”, choose *Public Health, Environmental and Occupational Health*; for “All regions/countries,” choose the country or region of interest; and for “All types,” choose *journals*. The program will then generate a list of all public health journals ordered by SJR.

### Rank these journals in order of their scientific importance

You can rank them by a citation metric, by acceptance rate, by reputation, number of citations, or by any other criterion you choose. Unfortunately, not all journals report the same metrics, and the metrics for many journals are more easily found on websites other than on their own.

### Decide how important the implications of your research really are

You need to have a *realistic* opinion of how well your research compares with that published in a given journal. At this point, if you are unfamiliar with the journals on your list, you may need to begin reading the “About the Journal” in the journal’s instructions for authors and one or two articles published in a recent issue.

On the ranked list you created in steps 1 and 2, circle the journals that publish research of about the same quality as yours. If you truly believe your research has important implications, consider the leading journals in the field. If your results are interesting but not exceptional, consider journals farther down the list, but not those at the bottom. This step can be difficult, but it is the most important step.

Accurately judging the relative quality of your research is important because submitting your manuscript to journals that publish better research will likely result in rejection, and every rejection can delay publication of your manuscript by weeks or months. On the other hand, submitting your manuscript to journal that publishes less important research may result in acceptance by a lower-status journal.

### Decide whether your results will interest readers outside your field as well as those in it

Identify the journal’s primary audience from the “About the Journal” information on its website. Some journals are directed to specialists (e.g., *Clinical Microbiology Reviews*; *Multivariate Behavioral Research*), whereas others are directed to a more general or multidisciplinary readership (e.g., *The Journal of Public Health and Emergency*; *Harm Reduction Journal*). Also, reviewing the articles in the most recent issues will give you a better idea of what topics the journal publishes.

### Decide whether your results will interest a national, regional, or international audience

Some journals focus on meeting local or national needs (e.g., *The Indian Journal of Community Medicine*, some on regional needs (e.g., *The Journal of Public Health in Africa*), and some

on international needs (e.g., *International Health*.)

### Read closely the instructions for authors for the journals that best match your research

Links to the Instructions for Authors for most of the world’s medical and public health journals are available on the website of the Mulford Library of the University of Toledo, Ohio (<http://mulford.utoledo.edu/instr/>). Narrow your list to all the suitable journals, then submit your manuscript to the highest-ranking journal (*Table 4*).

## Communicating with a journal

### Publication ethics

#### Authorship

Authorship is critically important to authors—and to journal editors, for whom it is a major ethical concern. The most common criteria defining authorship in medicine and public health are those issued by the International Committee of Medical Journal Editors (ICMJE) (18):

- (I) “Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- (II) Drafting the work or revising it critically for important intellectual content; AND
- (III) Final approval of the version to be published; AND
- (IV) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.”

Before the article is written, if not before the research begins, you should determine who will be an author on the paper, what is expected of each author, and in what order the authors will be listed. This advice is even more important if you are early in your career. Without these decisions in place before you begin writing, you may be far less able to prevent senior researchers from changing them without your consent.

Many problems center on the order in which authors are listed (18). The first author is the author most responsible for the research and thus is almost always considered the most important, but in some fields of science, the last author is considered most important. (Historically, in Germany, the head of the laboratory was always listed last, as the senior author.) Other than these two positions, there is no agreement on the meaning of any other position. Some journals allow two “co-first” authors who

“contributed equally to the work”, but no more than two. The current recommendation is to list authors in order of their contributions to the research, from most to least. Determining how much an individual contributed to the research is often difficult, however (19-21).

Changes to the author list after the manuscript has been submitted are regarded as suspicious and must usually be explained to the journal.

In the West, the corresponding author is simply the author who communicates with the journal, and this designation has no academic importance. Journals want to communicate with a single corresponding author; there are no “co-corresponding” authors.

Guest or gift authors are people who are listed as authors but who do not meet the ICMJE authorship criteria. Often, senior researchers, administrators, colleagues providing only patients or samples to the research, or famous people unaffiliated with the research will be offered guest authorship to increase the credibility of the research. The practice is universally considered unethical, and several procedures are used to prevent or expose guest authors (3). Do not ask someone to be a guest author on your article, and do not agree to be a guest author on anyone else’s article.

Ghost authors are people who have made substantial contributions to an article but who are not named as authors. Ghost authors are often industry-sponsored writers who write articles to be published under the names of one or more guest authors (3). Do not accept an invitation to be an author on an article written by a ghost author.

Some journals also employ contributorship, in which each author’s specific contributions to the research are listed, and guarantorship, in which one or two, usually senior, authors personally and publicly guarantee the authenticity of the research and the article.

### **The ORCID number**

The Open Researcher and Contributor ID, or ORCID number, is a unique number that links a specific author to his or her publications to avoid confusion with authors with the same name. For example, 92,881,000 people in China have a family name of Wang or Wong, and 5,460,000 people in Saudi Arabia have a family name of Ali. If you are an author, especially if you expect to do research, get an ORCID number from <https://orcid.org>. Registration is free. Importing the bibliographic information of your publications is easy. Your ORCID number on your

curriculum vitae, website, business card, correspondence, publications, grants, and so on allows anyone to verify your publications from the ORCID website.

### **Plagiarism**

Plagiarism is taking credit for someone else’s work or ideas. Science builds on the work of others, so plagiarism is not using someone else’s ideas, it is using someone else’s ideas and claiming or implying that their ideas are yours. At its worst, plagiarism is outright theft of intellectual property. At best, it is carelessness. Probably the most common form of plagiarism in science is citation plagiarism or citation amnesia, in which the author “forgets” to cite the source and lets readers assume that he or she is the source (3).

You must always cite a reference for any ideas that are not yours and must always put in quotation marks any text you have copied exactly that was written by somebody else.

Paraphrasing means to express someone else’s meaning in your own words. You still have to cite a reference for the text you are paraphrasing, but using your own words means you do not have to put the paraphrased text in quotation marks. The problem comes when the paraphrased text still reads much like the original. This problem, called patchwriting (22) or language reuse (23), is created when too many key words or phrases are copied or just rearranged in the paraphrased text:

- ❖ Original text: “Your obligation from today onward is to stand up for the vulnerable and the voiceless. And if that means engaging in controversy, then do it anyway.” (Former Surgeon General of the United States, Vivek Murthy, addressing a graduating class of physicians.)
- ❖ Incorrectly paraphrased text: The Surgeon general told graduates that, even if it means engaging in controversy, they should stand up for the vulnerable and the voiceless.
- ❖ Correctly paraphrased text: The Surgeon General told graduates that they should “stand up for the vulnerable and the voiceless”, whether or not their actions were controversial.

A form of patchwriting often done by non-native speakers is to copy descriptions of standard research procedures written by native speakers directly into their own articles. Many journal editors are not concerned with such copying. However, they have to see the actual wording, and that takes effort, as described below, so paraphrasing



and citing a reference are always appropriate.

Self-plagiarism (or “recycling fraud”) is “the practice of presenting one’s own previously published work as though it were new” (24). The problem is actually more of a copyright issue than a scientific one. Authors who publish a lot almost always repeat information or ideas and even sentences or paragraphs they have published before. As long as earlier publications are correctly referenced in the new publication, such duplication is not a problem. As with certain forms of patchwriting, many journal editors are not concerned with such duplication. However, again, they have to see the actual wording to decide whether it is acceptable.

Crossref similarity check is a computer program that “compares manuscripts against the iThenticate database (more than 60 billion web pages and 155 million content items) to determine whether a paper contains passages of text that also appear in other publications or resources” (25). Your submitted manuscript will probably be submitted to Crossref, which will list all instances of duplicate text and will calculate the percentage of duplicate text in your manuscript. If the percentage is high, your manuscript may be rejected outright. Many editors will not take the time to page through the entire report to determine whether the duplication is plagiarism or acceptable patchwriting.

### **The rule against prior publication**

The rule against prior publication means that a journal will not accept an article (especially one reporting original research) for publication if it has already been published elsewhere, particularly in the popular press. Often called the “Ingelfinger-Relman rule,” after the editors of the *NEJM* who established it, the rule has been adopted by journals worldwide. The rule allows journals to be the first to publish important research, which adds to their reputations, but it also reinforces the importance of research being peer-reviewed before it is widely published, and it prevents unnecessary duplicate publication (3).

### **The rule against duplicate publication**

Duplicate (or dual or secondary or redundant) publication is the unethical practice of publishing the same or a similar article in two or more journals, without the knowledge or consent of the journals involved. In addition to violating copyright laws, duplicate publication wastes valuable journal resources, in terms of editorial and peer-review time. Secondary publication may be ethical if the article is published in a different language, in a different country,

or in a different field of medicine, as long as both journals approve the publication of the second article (3).

### **Disclosing conflicts of interest**

A conflict of interest (or a competing interest) exists when an author’s (or reviewer’s or editor’s) judgement can be—but not necessarily is—influenced by possible financial, professional, academic, ethical, political, or personal gain. A conflict of interest may be real or perceived, potential or actual, inconsequential or harmful (26). Common financial conflicts of interest may be related to your employment, stock ownership, being a paid speaker for industry, source of your research funds, and so on. The amount of money involved does not matter. Other conflicts may involve personal and professional relationships or strong religious or political beliefs. A conflict of interest does not always result in a biased judgment; it just needs to be reported. In scientific publishing, such “transparency,” or telling readers the truth, protects you against claims of misconduct (3,27).

### *The publication process*

#### **Instructions for authors**

Almost all journal editors agree that following their journal’s instructions for authors is among the most important strategies for getting your manuscript published (28). Most editors are part-time, unpaid, untrained, and often unappreciated. Many also have other jobs or are retired, part-time editors. So, following the instructions for authors will generally avoid immediate rejection, tells the editor you care enough about publishing in his or her journal that you read and followed the instructions, and saves the editor time and effort in preparing your manuscript for publication (*Table 5*).

#### **Editing your manuscript**

Many journals ask that non-native English speakers have their manuscripts edited by native English speakers before acceptance. Even if your English is good, consider having your article edited by a professional editor. Such editors are the only people who are paid specifically to help improve your article.

I identify five levels of editorial review (*Table 6*) (3). Language-polishing companies provide editing for Basic English and often light copyediting. Their only claim is that your article will not be immediately rejected by the journal for poor English. There are hundreds of these companies,

**Table 5** What to look for in the journal's instructions for authors (the list does not include many other requirements)

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Limits on the number of characters and spaces allowed in the title
Limits on the number of words in the abstract
Which headings to use in the abstract
Limits on the number of words or pages in the body of the article
Limits on the number of figures, tables, or references
Which (if any) abbreviations may be used without spelling them out
Where to put information on conflict-of-interest, funding sources, and institutional review board approval
The citation style (sequential numbers; superscript or in brackets; name-date citations)
How to format the references
The types and maximum sizes of text and graphic or image files
Any file-naming conventions (e.g., Lang Ms. 18022 Figure 3)
How to submit your manuscript

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most based on low-cost, high-volume, and fast-turnaround times, conditions that do not allow extensive, high-quality editing.

These companies typically charge by the number of the words and can tell you the final cost before you decide to use their services. Knowing the cost in advance can be useful, but it also means that editors lose money if they spend too much time editing your manuscript. I recommend not using these companies unless you know someone who has had a good experience with a specific one. If you do use them, use the premium service, which is more expensive but provides more value.

Editing companies provide substantive editing services and will also fix language problems and copyediting errors. They are more expensive than language-polishing services but typically hire more-experienced editors, pay them better, and allow them to spend more time on a manuscript.

Independent or freelance medical editors probably offer the highest level of service. Most are trained and experienced editors who edit for a range of authors but are preferred by established researchers who routinely publish in higher-ranking journals and who value high-quality editing. Most of these editors charge between US\$60 and \$120 per hour. A typical manuscript may require 4 to 9 hours of editing.

Other than peer review before acceptance, journals provide only limited copyediting services after your manuscript has been accepted. Although paid by the

journal, these manuscript editors generally do not have the time, training, or responsibility to do more than format and copyedit a manuscript. The article has already been through peer review and has been accepted, so major changes are difficult to make.

### **The cover letter**

The cover letter introduces your article to the journal editor and tells why your article is worth publishing. It is usually less than 1 page long. In it, you should identify your manuscript by title and, if necessary, indicate the journal section where it should be published (e.g., Original Research; Perspectives) (*Figure 2*). Tell the editor why you believe your manuscript will interest the journal's readers and what your research adds to the literature. Here, you can claim to be the first to have done something (a claim of "primacy"), which is not appropriate to do in the article (18). The editor wants to know why your research is important and whether your article is likely to be cited.

The editor also wants to know whether any part of the research has been published before and that the manuscript is not being considered for publication elsewhere. You do not have to tell the editor if your manuscript has been rejected before, you just cannot submit it to more than one journal at a time.

### **Submitting your manuscript**

Almost all journals now require that manuscripts be submitted through their websites. The instructions are

**Table 6** Levels of editorial review and who provides them (3). The levels are more of a continuum than discreet services. The quality of editing depends heavily on individual editors, including whether they were hired for their knowledge of a field of science or their editorial experience and how much training and supervision they receive

Level of editorial review	Description	Language polishing companies	Editing companies	Freelance medical editors	Journals
Editing for basic English	Make sure that the manuscript can be understood by a native English speaker willing to study it. Most native English speakers can supply this level of review				
Copyediting	Generally limited to correcting errors in spelling, grammar, punctuation, formatting, common facts, and so on. Many experienced copyeditors also provide more advanced editing	Possibly			Only after acceptance
Substantive editing	Concerned with verifying the organization, logic, and internal consistency of the manuscript. As such, it requires critical thinking and judgment on the part of the editor		Variably		
Analytical editing	Documentation-based review verifies that research methods, including statistical analyses, are described and documented correctly according to established reporting guidelines			Possibly	Possibly
Peer review	Addresses whether the research question, methods, results, literature review, and discussion are adequate and whether the conclusions are well reasoned and supported by the data				

usually easy to follow, but some may be unexpected, such as the need to provide fax numbers for all authors, word counts for each section of the article, and acceptable formats for text and graphics files.

Some journals charge authors a non-refundable submittal or review fee before they accept your article for review. This fee helps pay for managing a peer-review system, but it also encourages authors to follow closely the journal's instructions for authors. Many journals immediately reject articles not prepared according to the instructions, which means that authors lose the submittal fee and have to start the submittal process over.

### The peer review process

Peer review is the practice of having independent and impartial experts comment on a manuscript submitted for publication, with the goal of helping the authors and the journal editor improve its accuracy, completeness, and clarity before it is accepted for publication. In the West, the practice goes back to the first journals published in 1665, but only since the mid-twentieth century has the practice become widespread in science (29). Today, peer review is

seen as a valued and necessary form of quality control in science.

Despite this history, peer review does not always work as hoped: almost no evidence indicates that traditional peer review increases the quality of manuscripts (30). Agreement among peer reviewers on the same manuscript is often not much better than chance (31-33), and peer review has not prevented the publication of poor or even fraudulent research (34,35). Further, higher-ranking journals are no better than lower-ranking journals in publishing seriously flawed research (36). Neither does peer review seem to direct better research to better journals. Many articles in leading journals are not highly cited, whereas many of the most-cited articles are published in lower-ranking journals (37). The process also shows signs of bias against authors who are women (38,39), from developing nations (40,41), are from lower-ranked institutions (42,43), and are non-native English speakers (44,45).

At the same time, more than 85% of authors agree that peer review does improve scientific communications, and 90% agree that peer review has improved the quality of their own papers (46,47).

Dear Editor: Enclosed for your consideration is our manuscript, "Reactions to Pictorial Health Warnings on Cigarette Packages in Malaysia: A Cross-sectional Study." We are submitting it as Brief Research Article. The manuscript is not being considered for publication elsewhere.

Graphic images are effective in helping smokers to quit, but the nature of the most effective images is unclear. In our study of 150 Malaysian young men between the ages of 16 and 25, both smokers and nonsmokers, we found that the images they remembered the best and that caused them the most concern were images of illness (photos of advanced oral cancer) and pathology (photos of diseased, discolored, and misshapen lungs).

We believe this study is the first to show that the most vivid and explicit photos of diseased body parts have the greatest emotional and long-lasting effects.

We presented our findings as a poster at the 2nd International Conference on Public Health in Bangkok, Thailand, 2018.

All authors confirm that they meet the ICMJE criteria for authorship and approve the manuscript as submitted. None reports any conflicts of interest with this research.

Thank you for your consideration,

**Figure 2** An example of a cover letter accompanying a submitted manuscript. Details of the research and conference presentation are made up and are for illustration only.

Peer review can have several forms. The most common forms are single-blinded review, in which the reviewers know the names and affiliations of authors, but the authors do not know the names of the reviewers, and double-blinded review, in which the names and affiliations of the authors are also kept secret from the reviewers. In open review, both reviewers and authors know each other's identities, and the reviews may be published with the article (48). Single- and double-blinded reviews are pre-publication processes, whereas post-publication review is conducted after publication and may be open to large numbers of people (49).

All legitimate journals use some form of peer review. Single-blinded is the most common. The journal editor will send your manuscript to at least two peer reviewers identified through personal relationships or by searching the literature for authors working on the same or similar

research topics. Some journals ask authors to suggest the names of possible reviewers, and you have the right to request that certain people not review your manuscript if you believe they may be unduly biased.

The reviewers will be given a set amount of time to complete their reviews. The journal editor will consider the reviews and send them to you, along with an initial decision on your manuscript. Typical decisions are to reject (the most common), reject with an offer to resubmit, accept after minor revisions, accept after major revisions, or to accept without revisions (rare).

If the journal is interested in publishing your manuscript, the editor will ask to revise your manuscript according to the reviewers' comments.

### **Responding to peer reviewers**

When responding to reviewers' comments, be sure to (I)

respond completely to each comment; (II) tell the reviewer where in your article you have addressed the comment; and (III) always be polite and professional. Although you are responding to a reviewer, address your comments to the editor.

Remember that reviewers do not know what you know about your research, only what you tell them. Some questions may arise because you did not provide enough background information, for example. In any event, use the comments to improve your article; that's what they're for.

Some comments may seem unimportant and even senseless, but you must still take them seriously: "We have replaced 'patient' with 'subject' throughout the manuscript."

If you agree with the comment, say so, and tell what you did to address it: "We have explained how we recruited subjects by mail in the third paragraph on page 6 of the manuscript."

Do not be afraid to disagree with the reviewer, just tell the editor—politely—why the reviewer is wrong: say, "We respectfully disagree with the reviewer. Ishida *et al.* found that..."

### Proofreading the final galley

When your manuscript has been accepted and copyedited by the journal, it will typeset and returned to you as galley, usually in a PDF format. You should read the galley carefully because this is your last chance to correct any mistakes.

### Forms you must complete

Most journals require you to complete several forms before your article will be published. All authors need to sign a form confirming that they are authors of the article, another to declare any conflicts of interest, and another to transfer copyright to the journal. You may also need to submit forms if you want to include in your article identifiable information about specific people or to reprint tables, figures, or images that have been published elsewhere.

Finally, you may need to pay any APCs (for OA journals) or page charges (for print journals), perhaps an additional fee for publishing color photographs or for ordering reprints your article (printed copies of your article that you can give away without violating copyright).

### Conclusions

Good research takes a lot of time, effort, and money to

do right. So does publishing that research. The published article is often the only lasting product of the research, so it is well worth your time to make sure the publication is as good as you can make it.

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### Footnote

*Conflicts of Interest:* The author is a professional medical writer, editor, and educator who assists authors in preparing and submitting manuscripts for publication in peer-reviewed journals. As an author in this field, he receives royalties for two book cited in this article.

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