Special Contribution

Systematically Reviewing a Journal Manuscript: A Guideline for Health Reviewers

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Introduction

There is growing demand for peer reviewers in health sciences publications, and the Journal of Medical Imaging and Radiation Sciences (JMIRS) is no different. The expanding footprint of medical radiation sciences on the international stage has broadened both the readership and origins of authors [1–3]. Increasing numbers of manuscript submissions demand greater collegiality within the profession to maintain the integrity of the literature. Journals therefore have an obligation to dilute the workload across the profession rather than increasing the demands on just a few experienced or known reviewers, while maintaining the integrity and rigour of the review process. To that end, this article provides insight into the process and expectations, and a systematic method by which the task can be approached. It aims to empower the novice reviewer, refine the experienced reviewer, and inform potential authors of the process.

The purpose of peer review is above all to judge the quality of science. It is common for peer reviewers to be health care professionals that have baseline knowledge of the practice (relevance, novelty and so forth) but that does not mean they necessarily know how to read a manuscript and provide a constructive review. Many medical radiation sciences professionals do not undertake research themselves; therefore, they need to take care in how they review. It is a learned process. Published authors who have been on the receiving end of peer review have a definite advantage. However, the capability to perform quality manuscript reviews is within all medical radiation scientists and/or clinicians.

Traditionally, learning to review a journal manuscript has been an organic process that in some cases can create variability and a lack of reliability. Although journals provide a “tick-the-box” template for directing reviews, a quality review goes beyond the scope of those templates. Although a number of guidelines already exist on specific aspects of the process, this guide attempts to outline a systematic approach that might best suit the review process in technical journals like the JMIRS (as opposed to a social sciences publication). It should be noted, however, that any guidelines are just that, a guide. Indeed, like good writing that models other writing but creates a unique writing style, a good review will be influenced or shaped by guidelines and mentoring, but each reviewer will evolve with a unique style and approach.

The Role of the Reviewer

The role of the reviewer is important and might be best divided into three key responsibilities:

(1) To recommend whether the manuscript content, theme, or topic would be of interest to the readership of the journal. This is important because it contributes to journal visibility and metrics [4]. A very good article (but of no interest to the journal) might be rejected. A poor article of great interest might attract more constructive feedback to help the authors bring it to a publishable standard. Note that most journals will have screened the submission before inviting reviewers and determined it to be suitable for review. This is important to avoid taxing reviewers with obviously flawed manuscripts but does not preempt manuscript acceptance.

(2) To recommend whether the manuscript is suitable for publication based on its scientific merits. This should be independent of how well or poorly it is written but
rather focused on how sound the research is, the presence or absence of methodological flaws, internal and external validity (meaning, respectively “did the treatment cause the effect?” and “can you generalize the results?”), and the contribution to the knowledge economy (is it new information?). If a manuscript is scientifically sound, poor writing can be corrected.

(3) To provide the authors with constructive feedback that will improve both this manuscript and future writing (see Table 1). This is a key responsibility that is generally not well handled. A reviewer can be overly critical, offer no way forward or omit this kind of feedback altogether. Journals do not want to publish poor quality manuscripts but they do want authors to gain something from the process so they consider that journal in the future. This role of the reviewer is perhaps the most time consuming, but offers the most benefit.

Reviewers are afforded an important role in developing the academic practice of clinicians and, thus, they must be able to influence, or at minimum offer benefit to the process itself. Effective reviewers are those who regularly read journal articles and have a good sense of the published research in their particular area. Indeed, many reviewers are authors themselves and will know the process of the review from the author perspective. These reviewers will know the disappointment of a rejected manuscript, overly critical reviews, and no real direction being offered. For this reason, all reviewers should think about how they would like their own manuscripts reviewed. Not the outcome itself, but the process, the integrity, the tone, and the feedback. In the same way we expect authors to write professionally, the review should be professional. Indeed, the review is a form of professional communication that reflects the reviewers own professional approach. As a general rule, one might consider providing reviews with the tone and respect we would provide if face-to-face with a colleague. There is no place for hostility, sarcasm, or insults. Constructive criticism provides scope to move forward; “the manuscript provides an interesting insight but could benefit from more attention to detail with English language and professional tone,” for example (see Appendix). When circumstances are more dire, provide an insight to inform the author; “the methodology is fatally flawed” might be better phrased as “a number of methodological limitations (listed in the following) need to be addressed for this manuscript to be reconsidered for publication.”

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<th>Table 1</th>
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<td>Examples of Standard Comments to the Author with Corresponding Alternative Approaches</td>
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<td><strong>Candid Approach</strong></td>
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<td>English is clearly a second language. Poor grammar and writing style. The introduction is turgid. Key pieces of literature have been omitted. The methodology leaves the article fatally flawed. Methods are poorly defined. Statistical tools are not defined. There are no statistics. Statistics are flawed. Discussion is disconnected from the actual results. The conclusion is not supported by the research. There are too many figures. Some data should be summarized into tables.</td>
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Getting Started

A potential reviewer may be approached by a journal for a specific review, especially if they have published previously on a similar topic or have been recommended by a member of the editorial board. If not already registered as a reviewer with a journal in your field, contact the Managing Editor. Be prepared to submit a curriculum vitae or to complete an online profile to allow appropriate matching to manuscripts within various fields of expertise. Completing a proper profile (and keeping it updated) should include not only your area of clinical practice but also expertise in methodological theory and principles (eg, qualitative research). Simply adding “radiation therapy” could be too broad and result in invitations that are outside your area of expertise. The more specific you can be, the better the match the journal can make, resulting in less declined invitations and wasted time. Whether you choose to accept or decline an invitation, it is important to respond in a timely manner.

No one reviewer needs expertise across the whole manuscript; in general, a well-written manuscript should be understood by any reviewer. That is why each manuscript is reviewed by at least two reviewers plus an editor. Furthermore, the editor or reviewers can elect or recommend, respectively, having a statistician independently examine the paper. As an example, if an invited reviewer has considerable expertise in magnetic resonance imaging and the manuscript is based on qualitative research in MRI patient care, that reviewer should feel confident with their contribution to the review process and know that the second reviewer is likely to have some qualitative expertise. This also highlights the need to ensure reviewer profile expertise is up-to-date. Conversely, if the manuscript related to computed tomography for several years, they might elect to decline the review and update their expertise profile with the journal.

The success or failure of a research paper is more dependent on adequate planning than the results and writing itself; the latter of which can be corrected, the former not so much. Similarly, a review of a submitted manuscript might indeed be more dependent on the reviewer rather than the entire review process. When considering an invitation, it is not adequate to simply be interested in the topic; the reviewer should have a sound understanding on which to base an informed review.

The Macro Approach — The First Reading

Perhaps the ideal manner in which to start a review is to examine the macro issues with the manuscript. Major macro issues make a time-consuming microexamination redundant. A reviewer may elect to have a quick read of the manuscript and identify key themes that help to define the approach to a more detailed read and review. Reviewers may use formalized questions to guide thinking of the first read, such as:

1. What are the objectives or purpose of the manuscript?
2. Is that purpose consistent throughout?
3. Do the methods and results appear to be reasonable in addressing the authors’ purpose?
4. Would the manuscript be of interest to the journal’s readership (recognizing who that readership is)?
5. Does the manuscript offer a new knowledge, a new perspective, or something interesting?

After completing the macro read, in the vast majority of cases a second, more detailed read is required. Only rarely will a manuscript be of such poor standard that it would be rejected outright after a cursory reading. Indeed, these are often “filtered” by editors before requesting reviewers. This informal and unstructured process is meant to create mental notes and impressions. At the completion of the macro process, there is some value in setting the review aside for a short time (eg, one or two days) to allow a period of “fermentation.” During this time, core issues, context, or themes may crystallize or “bubble to the top.”

After the initial read, the reviewer should also have an idea of any gaps in their own knowledge that might require augmenting before the review proper is undertaken. It would...
not be uncommon for a reviewer to identify a small number of terms, concepts, or principles that they require some definition of or refreshing of their understanding. It also affords the opportunity to familiarize oneself with the current literature in the same area. A quick search of PubMed, for example, would allow the reviewer to get a general overview of current themes, issues, and understanding of the field. Many journals also offer trial access to relevant databases (eg, Embase and Scopus) that can assist in a search.

The Micro Approach–The Detailed Read

Having digested the macro read, a reviewer might like to take a more “critical” approach to the review. Critical suggests a scientific approach rather than a negative approach. Ask questions of the content and seek clarification. The following “headings” are generic and recognize that any given manuscript or type of submission may vary in structure. Nonetheless, most manuscripts will have a standardized format that resembles an introduction, materials and methods, results, discussion, and conclusion, and as such these headings are often universally adopted by all authors. The content itself may be embedded under different headings.

Abstract

The abstract should be the last section of the manuscript that the author writes. Although it is perhaps the first thing a reader reads, a reviewer should examine the abstract in the context of the broader manuscript and, as such, purposely read it last. Structure and length are two factors for examination, but the more important issue is whether the abstract is an accurate reflection of the full manuscript. Proper scientific abstracts mimic the structure of the paper, with succinct sentences each describing introduction and/or purpose, methods, results, discussion, and conclusion. From this perspective, each section should be assessed. Does the introduction concisely introduce the problem? Are the methods stripped back to the key approach? Are the main outcomes accurately represented in the results? Are the discussion and conclusion concise, focussed on the core problem and reflective of what the manuscript provides evidence for?

Introduction

The introduction sets the tone of the manuscript and is the ideal place to highlight any issues around tone, structure, grammar, spelling, and form. A reviewer is not required to edit the manuscript; at this point, making an annotation of any of the general issues requiring correction can be summarized in a few sentences with examples. The introduction should provide a clear context for the manuscript and should not be excessively wordy, especially if the manuscript is written for an audience with some expertise. Some judgment needs to be made in this regard with research that might require more detailed explanation. The reviewer should customize this evaluation based on the content of the manuscript and the intended journal readership in relation to their inherent familiarity with the core concepts. Other than the broad issues of quality of writing outlined previously, the introduction should be evaluated for its capacity to:

(1) Succinctly review the current literature: what is known and why is it important?
(2) State what is not known/the gap. What is the problem?
(3) Provide a clear statement of the purpose and rationale for the manuscript.

An introduction should keep references to a minimum, and it should not include data or conclusions.

Materials and Methods

The Methods section provides an explanation of how and why a study was done in a certain way. It is important to verify that any research study discloses ethical concordance–informed patient consent and approval from review committees are essential and need to be clearly stated within the manuscript. If they are not necessary for the nature of the manuscript this should also be stated for clarification, with supporting rationale.

Reviewers should keep in mind that in clinical research it is not possible to control all possible confounders and, indeed, it is often not possible or practical to undertake a research project with textbook methodology. For example, a prospective study is ideal, and yet, a retrospective analysis of data might be the only practical or ethical approach to data collection. It is crucial that reviewers are objective in the evaluation of methods:

(1) Are the methods clearly described and justified?
(2) Are methods reproducible?
(3) Are population and sampling method clearly defined and justified?
(4) Are measures and instruments clearly detailed and justified?
(5) Is there internal and external validity?
(6) Do the methodological approaches match the research question?

The Methods section is the crucial ingredient for a successful manuscript. Genuine methodological flaws render the results invalid. No journal wants to publish a retraction whose results inform practice and are later shown to be associated with flawed methods. The reviewers’ role is to detect these kinds of flaws. When reviewing the methods, one should reflect on the approach. The reviewer should consider whether they would adopt the same approach, introduce a new dimension, eliminate a step, and determine whether the results would be reproducible following those methods. Most important, are the methods designed to (and adequate for) testing the proposed hypothesis or answering the stated research question?
There should be no results reported in the Methods section (and vice versa). This is a common author error, and it is a simple matter for the reviewer to note what needs to be moved to another section.

**Results**

The results are a narrative, and they need to tell that story clearly. The results need to progress logically and systematically, often starting with descriptive statistics around demographic data for example, and building to univariate and multivariate inferential statistics. Perhaps the greatest challenge for the reviewer is to determine, in the presence of results that lack clarity, whether the analysis is inappropriate or whether the data are just poorly presented. The former is likely to warrant rejection or a major revision, whereas the latter may escape with a minor revision recommendation. From a reviewer perspective:

(1) Do the results presented answer the questions posed? Are they representing what they said they would in the Methods section?
(2) Are the results succinct?
(3) Are all presented results relevant to the purpose of the research?
(4) Are tables and figures linked to key results and provide additional meaning to the written results or do they repeat what is already stated?
(5) Are results reported with appropriate statistical support? (see Discussion section below)
(6) Are the results presented supported by the data (ie, are they accurately conveying the results, or skewing them to suit their needs?)

If the manuscript presents the methods in a thorough and systematic manner, the Results section can follow that map logically. The Results section, however, should simply present the results. Discussion should be held over for the Discussion section. Data from any included tables or figures should not be repeated by writing it out in text form in the Results or Discussion; only key observations should be summarized if they are presented in full elsewhere. This is another common author error, and the reviewer should note what needs to be moved to another section. Qualitative research may include quotations in Results and Discussion to act as an example of the results described and/or to offer additional insight or support to the discussion.

**Discussion**

The Discussion section of any manuscript should bring the content together neatly. Not only do the authors have the opportunity to highlight the key findings of the manuscript, but it is also an opportunity to provide the context in which those results are important. This section should not simply restate the results but rather should tease out the key findings, make connections between findings within the manuscript and then link those findings to the outside world. There should be no new results here that were not discussed in the Results section, either in text or table form, although tables can be included here if they are relevant to the discussion.

A few key things for the reviewer to examine:

(1) Is the discussion an accurate representation of the results?
(2) Are the key findings identified and put into a clinical context?
(3) Are the interpretations of the results and extrapolation to the clinical context accurate and plausible?
(4) Are connections made to the broader literature, including what was cited in the Introduction?
(5) Has the discussion detailed the importance of the results and defined the “place” the outcomes have in the knowledge economy?
(6) Has new insight and understanding been offered, conceptually or theoretically?
(7) Are unexpected findings explained or discussed?
(8) Are results discordant with the authors’ hypothesis overlooked?
(9) Are the limitations of the manuscript identified and adequately addressed?
(10) Are recommendations made for further work or direction?
(11) Are the conclusions reflective of and supported by the findings presented in the manuscript?

**The Fine Detail**

**Copyright and Plagiarism (Including Self-Plagiarism)**

The reviewer should use their intuition to assess whether there are any risks of copyright infringement. Any figures or tables should be original—does anything look like it may have been copied from somewhere else? If a previously published table or figure is used, including from the same author, copyright approval should be both sought and indicated in the figure caption. On publication the author transfers copyright ownership to the journal, so an author is not at liberty to reuse their previous work. The use of a figure or table published in the same journal provides a clear pathway of copyright ownership. If the reviewer is unsure, ask the author to verify that all figures are original; if the reviewer is certain the figure is plagiarized, mention it in the “Confidential Comments to the Editor” section so the journal can follow-up with the author.

Plagiarism is a more difficult problem to detect. In essence, using text from another source requires citation for each sentence in which that occurs. This includes when those words are paraphrased from one or more sources and does not exclude an author’s previously published work. Plagiarism does not simply apply to text that is copied word-for-word (which should be avoided entirely). For a reviewer, plagiarism is perhaps easiest detected using two approaches:
(1) Having familiarized oneself with the field, the reviewer may read text that is very familiar to them. When a reviewer feels they have read the text somewhere previously, they can either source the text directly or simply enter the suspicious text into a Google or PubMed search enquiry.

(2) Each author develops a unique writing style. A sudden change in the writing style, grammar, structure, or the like may be a signpost that the text has been copied from elsewhere. Again a Google or PubMed search may provide insight.

Plagiarism is a very serious form of professional misconduct. Although authors need to be very careful to avoid plagiarism, reviewers need to be very cautious of making an unfounded accusation of the same. Nonetheless, if substantial evidence of plagiarism exists, it provides strong grounds to reject the manuscript. Rather than manage that directly through the review process, a reviewer should draw this issue and the evidence to the attention of the Managing Editor, who can investigate further.

Statistical Analysis

A thorough review of the statistical analysis is beyond the capabilities of most reviewers, and a detailed insight into statistical review is beyond the scope of this guideline. For the average reviewer, however, a detailed insight into statistics is not required. Where a research article involves detailed quantitative or qualitative approaches, the editor will either select a reviewer with capacity to critique those approaches, or will employ a third specialist reviewer specifically charged with reviewing the statistical analysis. Indeed, the JMIRS has expert reviewers for quantitative statistics and qualitative research. Furthermore, specialist skills in meta-analyses, cost-effectiveness analysis, or similar methodologies will also attract expert reviewers. In some cases, the editor themselves will provide that review. The key message in this context is that reviewers should feel comfortable making recommendations in their sphere of expertise, and within the comments to the editor, identify areas where the reviewer does not feel they can adequately or competently assess. Indeed, struggling through a review of statistics beyond the capability of the reviewer will undermine the quality of the broader review, be unfair on the authors, and leave the journal vulnerable to criticism. There are excellent guides available for beginners or those wanting to refresh their knowledge [6].

Despite the discussion previously mentioned, there are a number of simple insights a reviewer might glean from the statistical analysis within a manuscript. First, the statistical approaches should be clearly outlined in the Methods section. This should be more than simply indicating what software program was used to perform the analysis. Authors should make an account of how they treated (statistically speaking) different types of data; continuous data vs. categorical data, nominal vs. ordinal data, normally vs. non-normal distributions, matched vs. nonmatched variable, and grouped data, for example. How was normality of distribution determined? Standard tools (eg, Student’s t-test) do not require definition or justification; however, any non-standard statistical tools (or those less commonly reported) need both definition and brief justification for their use, particularly if they differ from approaches taken in similar published work (eg, Bland Altman analysis or receiver operating characteristic analysis). The authors should also define any values used to determine statistical significance, including the limits for significance for the \( P \) value. By convention, that is 0.05 or less, and the authors should define whether a one- or two-sided test was performed (and justify if one-sided). The statistical analysis section of the Materials and Methods should generally provide an insight into how sample size was determined or justified. Reviewers should not be too critical of sample size outside the context. That is, small sample sizes are perfectly acceptable for proof of concept or pilot data, and indeed, without such research being published, larger trials may fail to gain financial support. Nonetheless, larger trials should provide a mathematical justification of sample size (including placebo groups) based on study power, effect size, and the statistical certainty expected.

For the reviewer, a basic insight into what commonly cited statistical tools mean is useful.

\( P \) Value

The \( P \) value is highly cited and might be best seen as the probability of erroneously rejecting the null hypothesis. That loosely translates to a \( P \) value of .05, suggesting that there is a 5% probability that the null hypothesis was rejected falsely or a 95% chance that the hypothesis is supported correctly. Thus, a \( P \) value of .01 suggests that there is only a 1% chance the inference being made is wrong. As a reviewer, suggesting all \( P \) values be expressed as simply <.05 or rounded at .01 is not adequate because it fails to delineate important degrees of certainty (eg, 0.01 vs. 0.001 represents a 1% error vs. a 0.1% error and is important).

\( R^2 \) Value

Another commonly cited value is the \( R^2 \), which is perhaps more insightful in clinical research than the correlation coefficient. A perfect correlation is achieved with any straight line and does not specifically say much about the causal relationship between two variables. The \( R^2 \) specifically provides the causal strength between two variables with a 0.9 value, suggesting that 90% of the change seen in the variable expressed on the Y-axis is caused by the change in the variable expressed on the X-axis. By convention, an \( R^2 \) value as low as 0.1 provides valuable clinical insight.

95\% Confidence Intervals

Where 95% confidence intervals are quoted, an overlap between the 95% confidence intervals of two means or proportions being compared suggests the differences are associated with chance, and is almost certainly associated with a \( P \) value
greater than .05. Where the 95% confidence interval of a “difference” includes zero again, chance cannot be excluded as the cause.

The reviewer can use the above tools to assess whether the claims of the authors are supported statistically in the manuscript and to get a general feel for the importance of the outcomes. It is also possible to examine the results section of the manuscript to ensure the correct tools were used for various data types. Treating categorical data as though it were continuous data is an obvious sign that the authors have inadequate statistical training and would justify referral for more rigorous statistical review. Indeed, this is a common error in manuscripts, arising perhaps because computerized statistical packages allow the user to define the type of data inputted. For example, Likert scale data gleaned in a survey is not continuous in nature, and thus neither a mean value nor a Student’s t-test can be performed. Another sign that statistical analysis needs a closer review would be incorrect mathematical assumptions. A common error is simply incorrect rounding of data or expressing data to a greater degree of certainty than the original data. For example, the mean of a series of numbers expressed as whole numbers (eg, 45, 46, and 48) might yield a mathematical mean to two or three decimal places (eg, 43.333) but this should be expressed to the same degree of certainty as the original data (eg, 43). Authors often incorrectly interpret the meaning of statistics, and this is also a sign that more rigorous statistical review is required (eg, rejected the significance of $R^2$ because it falls below 0.9 or 0.8 cutoffs).

Tables and Figures

All tables and figures should add value to the text and highlight key aspects. To that end, the reviewer should ensure the figures are clear and that they do not duplicate data elsewhere (text or tables).

There are a few common flaws that a reviewer should look for:

1. Tables that are too busy or contain superfluous information.
2. Incorrectly cited statistics in tables, or on figures, or columns that do not add up.
3. Incorrect, inconsistent, or misleading axis origins on charts.
4. Failure to use arrows or highlights of key aspects of a figure or table.

Other Considerations

Good writing requires practice, and it is not always intuitive. Even experienced writers require some refining. Although the copy editor for the journal will refine some of the finer detail, the process is more successful if a manuscript is “polished.” Clearly, there is little point spending a great deal of time on the finer detail for a manuscript that is to be rejected, in which case a general comment might direct their attention to those kinds of limitations; “attention is required to professional language and the use of jargon,” for example. Conversely, there is a benefit to spelling out some of the fine points in a manuscript returned for revision. Some areas to consider in a review include:

1. Is past tense and first person employed throughout?
2. Are the results and conclusion concordant?
3. What questions have been raised or remain unanswered, and have these been identified by the authors?
4. Does the title of the manuscript reflect the content and outcomes?
5. Have the authors considered alternatives explanations for their findings?
6. Is the writing seamless? Does the structure and style allow flow and clarity of logical thought through the manuscript?
7. Is there repetition that can be eliminated?

It is worth remembering that authors have an opportunity to respond to reviewers and explain or justify their approach. This is not possible if the reviewer does not clearly outline where the issues lie. No journal wants hostile responses to reviewers that indicate their queries and comments were unclear and consequently do not warrant a response (eg, “there are not enough references” is unjustified, the reviewer needs to specify what they think is missing).

Choosing Your Recommendation

Generally, a journal will require a reviewer to make an overall recommendation or rating of the manuscript. Although this is not the final decision sent to the author, it forms an important component of the decision process. The journal does not want to waste the time of reviewers or authors, and does not want to mislead authors about the quality of their manuscripts or likelihood of publication in the future. It is important to make the correct recommendation. There are a wide variety of approaches to the overall recommendation, but these are perhaps summarized as four outcomes: acceptance, accept with minor revision, review after major revision, and rejection.

Acceptance

Three of the more common reasons for acceptance include [7]:

1. The manuscript presents information that is timely, relevant, or topical.
2. The method was appropriate and well-designed.
3. The manuscript was well-written, easy to read, or logical.

Clearly the first two points are crucial, and whereas the third point is ideal, a well-written manuscript alone is insufficient grounds for acceptance. Indeed, excellent writing can be a tool to hide flaws and limitations. An outright accept should be reserved for those manuscripts that are almost
flawless in their writing, are methodologically and scientifically sound, and are of interest to the readership of that journal. There will, however, be an opportunity for the authors to do a final edit and for the copy editors to fine tune text, spelling, grammar, and the like.

Accept with Minor Revision

When a manuscript is very well written and generally sound, there may be minor corrections required. For example, a key article may have been omitted from the discussion; the authors may have overlooked a key limitation, or failed to clearly justify a measure or instrument. In general, a minor revision decision means that a paper is essentially going to be published if the authors address the comments. Typically, the author is invited to make those adjustments or refute them to the satisfaction of the editor (the reviewer may or may not see the minor revisions).

Review after Major Revision

The vast majority of manuscripts that are published are initially recommended for a major revision. This is not necessarily a reflection of the quality of the paper or research, but can simply be refining the paper for greater clarity, accuracy, and relevance to the target audience. These deficiencies are often simple oversights and are readily addressed by the authors. This recommendation should be accompanied by a detailed review with comments to the author that highlight strengths and weaknesses, and which provide adequate information to guide the authors to make the required corrections (or refute them in the response to reviewers with supporting rationale, explanation or evidence). The reviewers need to add evidence of their argument in the same way the author has to build evidence in the manuscript (eg, is the author wrong in saying X has not been studied before? Then list the missing references). Reviewers should always keep in mind the authors’ purpose and review the paper based on that. It is not the job of the reviewer to change the study into what they want (vs. helping the authors convey what they already did)—a subtle, but important distinction.

Authors should be under no illusion, however, that the manuscript will be published. On receipt of the revised manuscript, it will be re-sent to reviewers for a second review. The outcome is typically either reject or accept (including with minor revision), but authors are rarely afforded the opportunity to provide a second major revision.

Rejection

There are generally four categories of rejection:

1. The underlying science, clinical utility, theory and/or assumptions, or methods are fundamentally flawed,
2. Similar experiments have been already published and the current manuscript does not add anything substantial to the field,
3. The major issues are so numerous and extensive that while the work may be of value the manuscript needs a complete redo (and in this case the authors can resubmit it as an entirely new article),
4. The paper is not suitable for the journal readership (as mentioned previously, these are often screened by the board and rejected without review).

Writing Your Review

There are typically three aspects of a written review. The first is the “tick-a-box” template or, in some cases, providing a “yes” or “no” response. These checklists should be used as more of a guideline; no editor wants to receive a list of “yes” and “no” answers without additional feedback. Second are the comments provided to the authors themselves, which should provide sufficient feedback so that the authors either know why their manuscript was rejected, or if a revision was requested, what they are expected to do to meet the standard for publication. Third are the confidential comments to the editor, which can be a little more candid, but remain a reflection of the reviewers’ respect and professionalism. The editor can use those comments to shape the overall response to the authors, remembering that there will be at least two reviewers’ assessments to synthesize into a single, coherent response to the authors. It is important for the editor to have that context, especially when two reviewers differ in their assessment of a single manuscript. The editor will use detailed comments to decide on final recommendation and directional comments to the author. Not all comments will be passed on to the author, either to avoid repetition, conflicting comments, or to remove comments that the editor does not agree with. For this reason, do not include the recommendation in the comments to the authors. The editor makes that recommendation based on multiple reviews.

As previously mentioned, each reviewer will evolve with a unique style and approach. An example of a common reviewer style would be 1–2 sentences summarizing the study in the reviewers’ own words; 1–2 sentences saying if it is a potentially good fit for the journal and what (if any) are the major issues with it currently; then subheading “Major Comments” listing the major issues (if any), numbered; then subheading “Minor Comments” listing the major issues (if any), numbered. Alternately, some reviewers combine the minor and/or major comments, but break down the review by section (Abstract, Introduction, and so forth). Either way, a numbered list makes it easier for the author to respond.

Comments to the Authors

It is worth considering some of the concepts we adopt in patient care and broader communication, particularly associated with dispute resolution or conflict, when composing a review. If a patient complained about an issue, they are more easily satisfied if they know that the person dealing with the complaint genuinely understands the issue. Summarizing the problem back to the patient in one’s own words is a key tool in this approach. Whether the review outcome is positive or negative for the author, starting the written review
with a short description of the manuscript in the reviewers’ words, and then concisely defining the manuscript according to the academic “spirit” that has fermented shows the authors that the reviewer engaged in the work and has command of the topic area. Typically, a reviewer will follow this with a general statement about the relevance or importance of the topic area to the field (independently of the manuscript findings itself). Another key approach is a courtesy and salutation; a polite appreciation for the submission and recognition of the work and enthusiasm of the author is a great starting point, particularly if the review is critical. For example, “I want to thank the authors for sharing their work, it is evident they are very passionate about their research, and I enjoyed reading the manuscript.”

The remaining content of the review will depend on the recommendation. A rejection might attract a description of the key flaws that warrant a rejection. A major revision will generally warrant a clear articulation of the major deficits that need to be addressed, combined with a summary of other, more superficial issues that might need refinement (eg, structure or grammar). A minor revision might provide a numbered listing of the issues requiring attention. Good reviews adopt a constructive approach that provides a sense of support, fairness, and encouragement. Key to this is teasing out both strengths and weaknesses, providing direction on addressing weaknesses, and identifying the “silver lining” around a flaw when possible. A good reviewer will take the time to justify their review.

Conversely, a poor review offers no guidance, justification, or explanation and lacks formative feedback. A poor review may be clouded by reviewer bias, arrogance, or pettiness and consequently focus on and exaggerate the weaknesses. Those kinds of reviews discourage authors from submitting to the journal in the future, and the journal from asking that reviewer to review again. In any business, repeat and referral business are more about the service or way someone was treated than the outcome or product itself. So, a well-written review rejecting a paper is more productive for the author and journal than a poorly written review that suggests acceptance after revision. It is not the responsibility of the reviewer to rewrite a manuscript that is poorly written. The reviewer should identify the issues, provide examples to highlight the issues, and suggest potential solutions to guide the authors in making the corrections. A quality review not only ensures the integrity of journal publications (and the health professions), but also provides an opportunity for author development. When revising a manuscript based on reviewer feedback, authors can use objective critical analysis skills, requiring a thoughtful, appreciative inquiry of each comment. Some journals, like the JMIRS, have a mentor program that, where appropriate, can link the authors of a technically sound and important manuscript with a mentor to fine tune the writing; including where English is not the native language. A reviewer can recommend to the editor that the authors might benefit from such a program.

Comments to the Editor

Comments to the editor are not viewed by the author and so can be more candid, but should still remain professional and respectful. The comments to the editor serve three purposes generally:

1. Provide a clear and concise explanation to the editor for the reviewer recommendation (reject, major revision, minor revision, or accept).
2. Provide the editor with key pieces of information they might use in providing an overall recommendation. This is especially important when multiple reviewers make different recommendations.
3. Provide an insight to the editor of your approach or engagement with the process, and any barriers or limitations. This serves to improve the process for the journal, but also to identify the usefulness of an individual reviewer for future manuscripts.

It is worth considering that a very good manuscript might be rejected simply on the basis that it is inappropriate for the journal it was submitted to. This kind of feedback and encouragement serves the journal and the authors well. The comments to the editor should also include any perceived limitations in the review. A reviewer might indicate that the review is based on their clinical expertise alone and further evaluation of the methods or statistics is recommended. This may or may not have occurred in the original appointment of reviewers. Conversely, a reviewer may feel their expertise and contribution was related to methodological design, and might suggest to the editor that a more rigorous evaluation of the clinical context might be warranted. Although this helps both the review process and the editor, adopting this approach also provides a “disclaimer” for the reviewer, clearly demarcating the basis of the review. A reviewer is also encouraged to connect with the editor if they would like a discussion before submission of recommendation.

Tips

1. Accepting, declining, or completing a review in a timely and thoughtful manner is a common courtesy that helps keep the publication process moving. Do not be afraid to ask questions of the Managing Editor if unsure about any aspect of the process.
2. Approach the review with a macro reading, allow it to digest for a few days, and then tackle the micro reading details, keeping notes along the way.
3. Use online searching to highlight the wider literature on the topic, and refresh and/or update insight and understanding if necessary. Peer review is an excellent method of continuous learning, and acting as a reviewer provides early access to the latest research as well as refining your own skills as an author.
(4) When preparing feedback, reviewers should remember to keep it as positive and encouraging as possible; writing a manuscript is a lot of work and authors deserve a respectful response that will not only improve their manuscript but potentially all future writing. A manuscript is the deliverable which is the result of an author’s dedication, commitment, enthusiasm, and investment to a project.

(5) Remember that a good review will be influenced or shaped by guidelines and mentoring, but each reviewer will evolve with a unique style and approach. Reviewing papers in turn can improve the research and writing skills of the reviewer.

Conclusions

Acting as a peer reviewer is an important responsibility and service to your professional community in shaping our academic practice. Reviewers are shaping the knowledge base within the discipline, which can ultimately affect front-line practice and patient care. Potential reviewers should not be intimated by the process or feel that you do not have anything to offer; all practicing health professions should have an area of expertise to contribute.

References

### Appendix 1
Mock Examples of Reviews

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Minor Revision</th>
</tr>
</thead>
</table>
| Comments to the Authors: | The manuscript is well written and provides a novel insight into… The research is both current and of interest to the readership of the journal. Although the manuscript is well written and flows fairly seamlessly, there are a number of recommended corrections as outlined below. Major comments:  
• The authors need to confirm ethics approval for the project.  
• The authors should provide a brief justification for adopting the methodological approach that various from previously published work in the same area (eg, Smith et al…).  
• Any others… Minor comments:  
• There are a number of minor grammatical and spelling errors that should be correct including:  
  o Page 2, paragraph 3, 2nd sentence the word “ascertain” is misspelt.  
  o Page 4, paragraph 1, 1st sentence consider rephrasing to better capture meaning.  
  o And continue to list…  
• Figure 2 title/caption requires an outline of the acronyms used in the figure.  
• Any others… |
| Comments to the Editor: | This is a well written manuscript that is of significant interest to the journals readership and is currently quite topical in the profession. It is current and adds to what is currently known. There are a number of minor corrections I have recommended (outlined previously) that do not affect the overall quality of the manuscript. Confirmation of appropriate ethics approval is perhaps the only major barrier to publication. Although I do not see any obvious errors in the statistical analysis, my expertise is more in line with the clinical and methodological aspects and as such, unless other reviewers have some statistical expertise it may be worth a quick critique of the statistics by a statistician or the editor before publication. With confirmation of statistical rigor and ethics approval, the manuscript will be well placed in your journal. |

Note: “minor review” indicates that the manuscript requires only very minor changes and these will be approved by the editor rather than requiring another review. Comments to the author need to be very explicit in terms of what minor changes are required. The comments to the editor need to be consistent in terms of the recommendation to that of the comments to the editor. The comments to the editor should be used to clearly articulate why the manuscript is almost ready for publication and what issues require addressing so the editor can ensure the expected standard is achieved.

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Note: “accept” indicates that the manuscript is near flawless. No comments to the authors are required; however, it is worth making mention of the strengths and any limitations so that authors have feedback if, based on all reviews, the editor requires a revision. It is important to use comments to the editor to highlight any minor issues that require attention before publication and the justification for recommending “accept.”
Recommendation | Major Revision
---|---
Comments to the Authors: | The manuscript provides an insight into … Although the research is both current and of interest to the readership of the journal, there have been a number of recent publications in the same area in other journals in recent times. Nonetheless, I believe this manuscript has the opportunity to provide a valuable insight not captured by other publications. The authors should consider including discussion of … and identify this translational approach as a limitation of previous work in your introduction. Although the manuscript is largely well written, it reads a little as though sections were written by individual authors. A more integrated approach to writing and attention to consistency of vernacular between sections would improve the overall quality and readability.

Major comments:
- The manuscript needs a change in scope to include translational aspects of…, and thus provide a contribution of new knowledge.
- There are a number of structural modifications that might be considered to improve overall flow and integration, including:
  - Consider using more conventional headings and titles for research papers as per the instructions for authors.
  - Provide consistency of vernacular and writing style across all sections.
  - And so forth…
- The authors need to confirm ethics approval for the project.
- The authors should provide a brief justification for adopting the methodological approach that various from previously published work in the same area (eg. Smith et al …citation…).
- Any others…

Minor comments:
- Overall the language and grammar needs attention and sharpening up, especially with respect to English language conventions.
- There are a number of spelling errors that should be correct including:
  - Page 2, paragraph 3, 2nd sentence the word “ascertane” is misspelt.
  - Page 4, paragraph 1, 1st sentence consider rephrasing to better capture meaning.
  - And continue to list…
- Figure 2 title/caption requires an outline of the acronyms used in the figure.
- Any others…

Comments to the Editor:

This is not a bad manuscript and would be of significant interest to the journals readership if the authors changed the scope a little. The paper is geared toward a medical and/or scientific audience and repeats work previously published by others; however, there is an opportunity for the authors to reshape the manuscript to be aimed at the technical audience of your journal and this would make it both more interesting and novel. If the authors are reluctant to make those changes, I would not recommend publication in your journal.

There are a number of language issues around both English conventions and professional language and probably reflects English as a second language for the authors. It may be worth recommending an English writer or support for the same from your journal.

There are a number of minor corrections I have recommended (outlined previously) that do not affect the overall quality of the manuscript. There are a number of major corrections I have recommended that I believe need to go back to review. The statistical analysis looks sound; however, I am unfamiliar with the use of ROC analysis so it may be wise to have a closer look at that as editor.

Note: “major review” indicates that the manuscript requires significant changes and these will require another review. Comments to the author need to be very explicit in terms of what changes are required. The comments to the editor need to be consistent in terms of the recommendation to that of the comments to the editor. The comments to the editor should be used to clearly articulate the limitations of the manuscript to allow the editor to make a final decision when there is discordance between reviewers in terms of recommendations.
**Recommendation** | **Reject**
---|---

**Comments to the Authors:** The manuscript is largely well written and provides an insight into... Although the research is topical, there are a number of limitations that need consideration.

Major concerns:
- The manuscript is excellent but is unfortunately not suitable for this journal because...
- In its current form, the manuscript is inappropriate for this journal and its readership because...
- While the manuscript provides a number of highlights, it is not in keeping with the vision and direction of the journal because:
  - The content is inaccurate, inconsistent or does not represent the breadth of current knowledge.
  - The content, conclusions, or methodology have obvious bias that limits validity. For example, …
  - There are significant flaws in the statistical analysis that question the validity of outcomes. For example, …

**Comments to the Editor:** I have recommended that this manuscript be rejected. There are significant flaws that raise concerns about internal and external validity. There are significant limitations and errors associated with the statistical analysis. The authors make incorrect assumptions that bias the outcomes and discussion. Regardless of these limitations, the content of the manuscript itself is outside the scope of your journal.

Note: “reject” indicates that the manuscript is not suitable for publication in the journal. Comments to the author need to be very clear, highlighting strengths, and weaknesses. It is important to use comments to the editor to highlight any major issues, clearly outlining the justification for rejection.