Publishing Your Education Work in the *Journal of Graduate Medical Education*

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There's nothing to writing. All you do is sit down at a typewriter and open a vein.
Walter Wellesley "Red" Smith

The *Journal of Graduate Medical Education* (*JGME*) has lofty aims: provide a resource for graduate medical educators to learn about novel approaches as well as publish their own work and improve the quality of information guiding decisions about graduate medical education training. As one step to reach these goals, the editors have created general categories for submissions to *JGME*. These categories are expected to evolve over time as the needs of educators change. In this editorial, we outline the general categories, quality expectations for submissions, and common minefields to avoid. As always, we welcome your suggestions and comments (jgme@acgme.org).

Original Research

Currently, most submissions to the *JGME* fall into the "Original Research" category. Like other research, educational research needs a plausible intervention, outcomes that match the goals of the intervention, and methods that are likely to ascertain the outcomes fairly.[1] "Original Research" submissions must include a structured abstract with background/rationale, research question or objective, methods (including design, setting, participants, intervention, comparison group if applicable, outcomes, and analysis), results, major limitations, and conclusions. A well thought out research question or objective is critical and will lead to the most relevant methods. A focused question aligned with appropriate outcomes and analysis will also reduce the likelihood of finding spurious associations. The background should include what is known at present about the topic as well as what is unknown that the research study attempts to answer.

Methods should be appropriate to examine the intervention or question and will conform to usual quality standards.[2–7] At times, education research does not allow ideal experimental methods (eg, blinding of subjects [trainees] to the research question, blinding of observers/data collectors to the research question, randomization of subjects, uncontaminated controls, previously validated outcome instruments, stable medical practice environment). It is essential that the necessary choice of less than optimal methods be discussed openly. Similarly, qualitative research should adhere to usual methodologic standards, with any deviations explained.[8,9]

Objective outcomes, rather than subjective (eg, self-reported) measures, are more likely to persuade readers that the results are true.[10] In addition, outcomes relevant to the research question are essential. For example, if the intervention is designed to improve results on the in-training examination, then scores on the in-training examination are an appropriate outcome measure. However, if the intervention is geared toward increasing resident-patient discussions about smoking cessation, a knowledge test is not a suitable measure, but patient report of such discussions, with a valid instrument, would be relevant, as would amounts of tobacco use reported by patients.

Other issues that merit attention include the timing of postintervention assessments, intraobserver reliability, and choice of comparison or control groups. In studies in which the research question tests whether an educational experience can improve resident performance, the performance optimally should be measured at some distance from the intervention, not immediately postintervention. In projects in which there is more than one data collector/observer, comparisons among observers, preferably blinded to the study question, are important. Given the difficulties of randomizing trainees or educational experiences, historical controls (ie, past cohorts) frequently are chosen for comparison. In these situations, an analysis of the potential differences between the current and past cohorts' characteristics and environments should be included.

Discussion of the limitations as well as the strengths of the project are key to the reader's full understanding of the work and do not detract from the likelihood of the paper being published. Similarly, statistical significance does not always indicate that the results should change our current practice. After considering the limitations of the study, the conclusions should answer the question "Should these results change our educational practices and, if so, in what situations?"

In view of the diverse readership of this journal, jargon and terms specific to 1 discipline should be avoided. To be useful to most readers, extra care is needed to ensure that all aspects of the project are clear to most readers.

Educational Innovation

Research submitted for the "Educational Innovation" category will vary from "Original Research" in 2 ways.

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First, the background section will include a sufficient literature review to substantiate that the research question has not been posed previously or that the educational intervention is indeed new. A novel technique or educational approach rather than a new population (residents rather than fellows) or setting (hospital rather than clinic) is usually of greater interest to other educators and researchers. Second, the new idea or strategy may not be fully studied: The results may be preliminary in nature. For example, outcome measures may not be as robust, or previously well-studied, as they are for original research studies; self-reported outcomes may be used. The outcome measures may include feasibility measures (faculty time, curriculum time, costs), acceptability (faculty, residents, team, patients), or survey instruments that have been adapted from other settings or uses.

Innovations may take the form of full articles or brief reports. The novel approach must be described in sufficient detail so that other sites could replicate the technique; however, if the curriculum or material is extensive, only representative examples will be included in the article.

The goal of the ''Educational Innovations'' category is to share truly new ideas that either should or should not be tried elsewhere: Negative results can be equally as important to disseminate as positive ones. A consideration of future directions to improve the innovation is appropriate for the discussion section.

Brief Reports

''Brief Reports'' are short versions of original research articles; these should have application to educators in other settings or disciplines. Outcome measures may be less robust or preliminary. These articles include descriptions of new ideas in their first application or the best techniques to implement well-accepted curricular elements, that is, ''pearls'' for success, derived from highly successful programs.

Of note, authors may submit their work in any of these categories—''Original Research,'' ''Educational Innovation,'' ''Brief Report''—and be considered for the other categories as well. The editors will determine the best ''fit'' for the article and discuss the category with the authors.

Reviews

Both systematic and narrative reviews are welcome and will follow usual quality standards.[11] Appropriate topics will be relevant to more than 1 discipline or setting.

Resources for Educators

Many program directors, key clinical faculty, and designated institutional officials begin their jobs with little preparation in adult learning, curriculum design, evaluation, or education research. Being a good teacher and being excited about working with residents and fellows are essential qualities but are not sufficient for success. We have created 2 sections to provide some guidance in these areas.

The ''Research Resources'' section will provide ''bite-sized'' information on aspects of designing and conducting education studies that maximize the potential for valid and generalizable results. Topics under consideration include getting started, funding resources, Institutional Review Board issues, mentors, collaborators, planning narrative versus systematic reviews, electronic search strategies, use of surveys, outcome measures, evaluating assessment instruments, qualitative research considerations, statistical concerns, and writing successful grant and publication submissions.

Similarly, the ''Education Resources'' section will discuss, in a clear and concise format, topics such as adult learning theory; learner-centered versus teacher-centered education; existing educational tools and resources; goals, learning objectives, and competencies; measuring achievement of objectives; curriculum development; program evaluation; valid evaluation tools; block, longitudinal, and other structures; faculty development; needs assessment; faculty evaluation; writing multiple choice questions; PowerPoint slides and other audiovisual aids; lectures; clinical simulation; standardized patients; giving and receiving feedback; precepting; and use of role play.

Authors interested in these 2 types of submission are encouraged to contact *JGME* before submitting potential articles, as we are developing specific formats for these categories.

Other Categories

Medical education faces many challenges and critical questions. Although this is certainly not new, the pace of change has accelerated and the immediacy of questions is more acute than before. Graduate medical education content, format, settings, funding, and the nature of the profession are continually under scrutiny and discussion. We will ask individuals, from a variety of viewpoints, to contribute their considered opinions in a ''Perspectives'' article category. Articles may be submitted freely by authors or solicited by the editors.

Often insights into teaching and learning derive from personal experiences, seminal events that have stayed with us for a lifetime. These ''aha'' moments, when shared, may enhance the learning experience more widely. For the new ''On Teaching and Learning'' article category, we invite personal, candid stories from teachers as well as learners that can enlighten readers from a variety of backgrounds.

Common Pitfalls[12]

''Your manuscript is both good and original; but the part that is good is not original, and the part that is original is not good.''
Author unknown, commonly misattributed to Samuel Johnson

Areas for concern often seen in manuscripts submitted to *JGME* include the following.

Title

- Title does not clearly indicate the article's content

Introduction/Background

- Insufficient literature search performed to demonstrate an innovation is new

Methods

- Control or comparison group is not well defined
- Outcomes are not defined prior to study
- Extremely short follow-up time (eg, 2 weeks) for outcome measurement, after intervention is used (and significance of this not discussed)
- Institutional Review Board approval or exemption is not stated
- Literature citations are not provided for previously developed surveys used for outcome measures
- Nonvalidated survey is used (and not discussed as a limitation)
- Studies that find no difference in outcomes do not include calculation of β-error (ie, study may have had too few subjects to find a real difference)
- No correction for statistical significance (ie, downward adjustment of the *P* value, Bonferroni adjustment) is made when multiple comparisons are performed
- Statistical tests appropriate for continuous variables are used for categorical variables

Discussion

- Limitations are not fully discussed (see "Methods")

Conclusions

- Conclusions are overstated, given study results and limitations

Overall

- Writing is dense with run-on sentences
- Frequent use of jargon
- Article considerably over the desired word limit

We, the editors, commit to working with you to improve the clarity and reach of your work. Do not hesitate to submit your writing and ask questions. We will be more effective as a team with the common goal of improving the communication and dissemination of your efforts. We look forward to working with you.

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