Discussion Kernel

Good practices of publishing AYUSH research: A practical checklist for authors

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ABSTRACT

Since its inception, Journal of Ayurveda and Integrative Medicine (J-AIM) has been constantly striving to create an environment that inculcates and strengthens “Good Publication Practices (GPP)” amongst students, practitioners and researchers in AYUSH community. The J-AIM has been doing this in the form of conducting workshops on scientific writing and research methods on different platforms. This article is based on our experiences and varied discussions that we have had with students, teachers, practitioners and researchers during these interactive sessions, and is intended at addressing the gap that prevails in the domain. The need for such awareness is felt even more strongly ever since the Beall’s list of predatory journals has been unpublished. This article tries to fill the void this disappearance has created. We analyze the current scenario of AYUSH publications, enumerate the common perceptions and concerns among the workers in the field, and consider the periodicals where the doctoral and postgraduate level of Ayurveda research works are being published at present. The article also presents a practical checklist that will be helpful for students and teachers to refer authentic resources and submit their work to an appropriate scholarly journal.

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1. Good publication practices in AYUSH research

The Journal of Ayurveda and Integrative Medicine constantly strives to create an environment that would inculcate and strengthen “Good Publication Practices (GPP)” amongst the researchers, students, practitioners and teachers in AYUSH fraternity. Our efforts are evident in the series of workshops conducted on “Scientific Writing” on various platforms such as ‘World Ayurveda Congress’, ‘Global Ayurveda Festival’, ‘Update Ayurveda’ and other similar events. Apart from this, our editorial board members are involved in conducting training sessions in various ‘Training of Trainers programs’, AYUSH-sponsored ‘Continuing Medical Education Programs’, ‘Scientific Writing Workshops’ conducted by Rashtriya Ayurveda Vidyaapeeth, ICMR-sponsored ‘Grant Writing Workshops’, and in other events connected with different conferences, and so on. These efforts of the Editorial Board emerge from the strong sense of responsibility to create awareness about GPP within the peer groups and prospective authors [1].

This article is based on our experiences and varied discussions that we have had with students and teachers during such interactive sessions, and is intended at addressing the gap that still prevails in the domain. The need for such awareness is felt even more strongly ever since the Beall’s list of predatory journals has been unpublished [2]. This article tries to fill the void this disappearance has created, though it does not list ‘bad’ or ‘good’ journals. The article analyzes the current scenario of Ayurveda publications especially the journals in which the doctoral and postgraduate level of Ayurveda research works are being published at present. The article also gives a practical checklist that will be helpful for researchers, clinicians, teachers, and even to inexperienced students to plan and submit their work to an appropriate scholarly journal. These criteria are also important while selecting the journals for studying the subject content, and while citing the authentic information.
1.1. What actually happens to postgraduate and doctoral level of Ayurveda dissertations/theses?

Ayurveda research database developed by Baghel MS and Girish KJ provides access to more than 20,000 theses/dissertation titles submitted at different universities by postgraduate and doctoral students of Ayurveda [3]. However, on a PubMed search, the key word ‘Ayurveda’ returns only 4627 results as of now. So, what is actually happening with those dissertations and theses? The answer to this question is a complex one; however, the fact that a similar search on Google Scholar yields more than 73,300 results speaks something loud: possibly many of these works are being submitted to non-indexed journals, many of which are of dubious credentials and possibly ‘predatory’ in nature. In recent years, many spurious journals that lack transparency have come into existence in the domain of complementary and alternative medicine which includes AYUSH streams as well. The major challenge this trend is posing is that, the students and their supervisors develop the habit of routinely reading these journals resulting in bad research, which contributes further to the perpetuation of this vicious cycle. We need to look at a few more aspects of this situation.

2. Problem areas

We can enlist the following major problem areas that are responsible for a poor level of awareness among AYUSH students and teachers regarding good publication practices.

2.1. Not being aware of the differences between popular literature and scholarly literature

We frequently encounter many Ayurveda academicians who include their articles published in newsletters, magazines, newspapers and other periodicals in their curricula vitae under the ‘list of scholarly publications’. This occurs because they do not know the difference between scholarly literature and popular literature. Scholarly literature is mostly based on some kind of research (even if it is a review) and its intended readers are the scholars and experts in the field. It follows a specific format and always includes a reference section. The major feature of this kind of literature is that, it is peer-reviewed, meaning it has been read by some experts in the field and is published only after they approve of its quality and relevance; may be after many rounds of corrections and revisions. On the other hand, the popular literature is meant to be read by common people who are not experts in the field. This literature is written in a less-technical way and mostly gives an overview of the topic. It is less based on original research and does not follow specific format such as abstract, introduction, methods, results, discussion and references. Most important character of such popular literature is that it is not peer-reviewed, but is only reviewed by the editorial board [4].

Research-based articles must be submitted only to scholarly journals and not to the periodicals that publish popular literature. This lack of awareness is the reason why many dissertations and theses in Ayurveda are often published in the form of books, and many papers derived out of these theses are published in weekly magazines and newsletters of popular nature.

2.2. Perception that only a few good scholarly journals willing to publish AYUSH research are available

On a PubMed search, we found that there are more than 375 journals that have published at least two articles containing the term “Ayurveda” (March 2017 data). This is a considerably good number, and therefore, an argument that there are no good journals in the field looks frail. We suggest that the students must search PubMed for ‘Ayurveda’ and then sort the results based on ‘journals’ and then they will get to know how diverse kinds of journals belonging to the fields such as ethno-pharmacology, pharmacognosy, sociology, history of medicine, pharmacology, pharmaceutical sciences, integrative medicine, clinical medicine etc., have published Ayurveda-related work apart from the journals that publish works in Complementary and Alternative Medicine (CAM) and AYUSH disciplines. Another way of searching for appropriate journals is to look for therapeutic area-based journals, for example, paper on psoriasis can go in dermatology, inflammation or even immunology related journals. This way multiple avenues are opened to seek ahead.

2.3. Perception that negative results are not publishable

Though there appears to be a general bias towards papers reporting positive results among the journal editors, publishing negative results has become easier now than ever before. This is because, there are dedicated journals that publish exclusively negative results. Publishing negative results too is important for many reasons: such publications ensure that other researchers are made aware of the failures or of flawed designs to avoid their involvement in similar studies, and thereby preventing wastage of resources [5].

2.4. Perception that no good research is possible without good laboratory and other research infrastructure

Most of the Ayurveda colleges suffer from lack of good laboratory and other research infrastructure [6]. Therefore, many teachers and students argue that this situation is a major constraint that prevents them from engaging in quality research work. While the fact is that good research is still possible with whatever is available, the only impetus warranted is a good idea. In situations like this, research in the areas of education, history of medicine, literature, sociology, health economics and outcome research, pharmacovigilance, prescription quality, protocol designing, and other similar fields that require minimal infrastructure needs to be planned. Such work can have a powerful impact, if planned carefully and scientifically. J-AIM itself accepts a variety of papers apart from experimental (clinical or laboratory) work. These include the manuscripts on single case report, review, discussion or debate, life profiles of senior practitioners or researchers, vignette (interaction with an expert), initiatives by academic institutions or industry, review of landmark articles, letters to editors, product review, book review, practice guidelines, conference report etc. [7].

2.5. Not being aware of various guidelines available for different research designs

If a research work is not well-planned, it is unlikely to be published with a good journal. In many institutions, the standard guidelines such as SPIRIT, CONSORT, STROBE, ARRIVE, CARE etc., are not taken into consideration while planning, conducting or publishing the research work. This leads to erroneous study designs and other important omissions such as having no control groups, no clinical trial registration number, no ethical clearance, no voucher specimen of the plant materials, no signed consent forms, and so on. These aspects have a very high impact on the quality of study and its results and happen to be the most criticized and weakest aspect of Ayurveda research. Therefore, it is always ideal to read the appropriate guidelines and plan the work accordingly so that it becomes publishable. Table 1 provides a list of such important online resources, which can be used by researchers, students, teachers of AYUSH institutions.
study methodically

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why students do not develop an inclination for research because research fundamentally involves questioning [8]. What we see

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further adds to the problem. For developing research acumen, training in basics like research methods either clinical or basic

methods, biostatistics, epidemiological methods, good manage-

documentation of clinical practice, etc. is unavailable or even deemed unnecessary.

2.6. Lack of research literacy and scientific pursuit

It has been reported that questioning is generally discouraged in the

current AYUSH education system. This probably is the reason why students do not develop an inclination for research because research fundamentally involves questioning [8]. What we see more among the student and teacher population is an inclination only to practice AYUSH systems and not to study them as a researcher would. A lack of exposure to the research methods during the formal training of graduate and postgraduate students further adds to the problem. For developing research acumen, training in basics like research methods either clinical or basic methods, biostatistics, epidemiological methods, good management and documentation of clinical practice, etc. is unavailable or even deemed unnecessary.

2.7. Not being aware of the criteria to be followed while selecting a scholarly journal

Since UGC and other governing councils have made it mandatory to have specific number of publications to be considered for recruitment and promotion of teaching faculty, teachers often end up submitting their work in a hurry to those journals that are of inferior quality, predatory and spurious. The only criteria they consider before submitting their work to these journals is ‘quick acceptance and assured publication’. Unfortunately, this is not how science works. Science knows no quick fixes! It is worth mentioning here that a few Universities have implemented some criteria to curb substandard publications. A report of expert panel from Savitribai Phule Pune University, may be referred in this context [9].

3. Good publication practices: a practical checklist

In the following section, we propose an algorithm to help Ayurveda students and teachers so as to assist them get their work published in the right kind of journals.

3.1. Choose the research question carefully, plan and execute the study methodically

Needless to say, choosing the right research question is the first step towards good work. Choose, refine, and define your research question considering your interest, feasibility, novelty, relevance and ethics [10]. While planning the study, you are advised to go through the available literature thoroughly. Have a look at other studies where a similar problem is addressed. If some of these studies are not accessible for free of cost, write to the corresponding authors requesting for the full texts. Most of the times, they happily share their studies with you. Make note of essential information that you need to collect during your study. This could be applying the correct study design, calculating the sample size, obtaining the ethical clearance, methods of obtaining the clinical data, correct blinding procedure, retaining the laboratory reports, case sheets, signed consent forms, slides, photographs etc. Depending on the study design, go through the relevant guidelines. For instance, if you are planning in-vivo animal study, you need to follow ARRIVE guidelines. If you wish to plan a clinical trial, you need to follow CONSORT guidelines (for herbal interventions). If the study is observational, you need to read the STROBE statement carefully. If you are planning to write a case report, read CARE guidelines. Most of the important guidelines are available on Equator Network (http://www.equator-network.org/) [11]. In cases where the available guidelines do not exactly match with the study that is being planned (may be because of the epistemological uniqueness of AYUSH systems), try to follow a guideline that is least conflicting in its intentions. Choose the appropriate statistical tests to arrive at right conclusions. It is always a good idea to have a good biostatistician in your team from the stage of planning your study till the stage of final submission of your manuscript to a journal.

3.2. Choose the right journal

Following are a few important criteria to be employed while choosing the right journal. When more than one of these criteria is fulfilled, the journal should be of good quality.

3.2.1. Is the journal available online?

All the traditional journals were earlier published in the print form. However, after the emergence of Internet, all standard journals have migrated to online platforms. There are still a good number of journals that publish in both print and online format. Standard journals, when get indexed with online databases, automatically become visible and available online. However, in the field of Ayurveda, there are still a few journals that are neither indexed, nor are available online. We advise that the idea of submitting your manuscript to a journal that is not available online is not a good one.

3.2.2. Is the journal actually peer-reviewed?

Simply stating that a journal is ‘peer reviewed’ does not guarantee its genuineness. How much time it is likely to take for your article to

| No | Resource | Homepage                     |
|----|----------|------------------------------|
| 1  | EQUATOR Network (Information resources, toolkits, guidelines for writing and publishing health research) | www.equator-network.org |
| 2  | Committee of Publication Ethics (Code of conduct, guidelines, online learning resources, case studies of ethical publishing for authors, reviewers, editors, publishers; list of journals that follow these guidelines) | www.publicationethics.org |
| 3  | International Committee of Medical Journal Editors (Guidelines, recommendations and best practices about conduct, reporting, reviewing and editing health research; roles and responsibilities for authors, reviewers and editors; list of journals that follow these guidelines) | www.icmje.org |
| 4  | World Association of Medical Journal Editors (Global platform for improving health research, List of members journals of WAME) | www.wame.org |
| 5  | Science Citation Index (List of journals indexed in SCI, provides impact factor to the journals) | http://ip-science.thomsonreuters.com/cgi-bin/jrnlst/jloptions.cgi?PC
| 6  | Scopus (List of journals indexed in Scopus) | www.scopus.com |
| 7  | PubMed Central (List of journals available through PubMed) | https://www.ncbi.nlm.nih.gov/pmc/ |

Table 1: Important resources for authors, reviewers and editors.
receive the first editorial decision could be one of the criteria to assess the integrity of peer review process. The journals that assure you of publishing your manuscript within, say, seven days, are certainly questionable because obtaining good reviews from the experts takes reasonable time which usually runs into few weeks to few months. Consult the authors who have published in the journal in question about the quality of peer review they received. There are a few spurious journals that fake or imitate the peer review process. For instance, every single review in such journals may contain some standard comments regarding font size, line spacing and spelling errors. One needs to be very careful while evaluating the journal for the peer-review status. Medline, for instance, includes only those journals that are rigorously peer-reviewed. Most of the authentic peer reviewed journals publish a list of reviewers in their first or last issue of the year. A look at the list may give you an idea about the standards of peer-review based on the experts’ work in the field.

3.2.3. Is the journal indexed with standard indexing database?
There are a few standard indexing databases such as Web of Science, Scopus, PubMed Central, Medline etc. that index the journals only after subjecting them to some screening parameters such as whether a journal follows a transparent editorial policy, whether it follows some internationally accepted ethical guidelines for publications, whether the peer-review process is actual and transparent, etc. Therefore, a journal that is indexed with these databases must be of acceptable standards. Inclusion in Google Scholar or other lesser known online databases may not guarantee the authenticity of the journal.

3.2.4. What is the status of journal according to accepted journal metrics?
There are a few reliable journal metrics such as JCR Impact Factor, Scimago Journal Rank, SNIP etc. Higher the value of these indices, the better is a journal’s Notability. Unfortunately, in recent years, many dubious agencies awarding many suspicious journal metrics have emerged with invented impact factors of their own! However, these agencies do not explain the methods of calculating these metrics in a transparent way, and hence, one needs to be extra careful while evaluating the genuineness of these metrics. For instance, a journal may claim to have an Impact Factor, and the agency that awarded the impact factor may often be printed with an asterisk symbol in fine print somewhere in the corner of the journal. This is actually a trick that spurious journals play to attract innocent authors. Please gather some information about these agencies that award such Impact Factors and other metrics before submitting the manuscript. Only the impact factor assigned in the Journal Citation Report happens to be the genuine one, and all others, just the counterfeits. Spurious journals often display a disproportionately high impact factor, which is actually easy to detect.

3.2.5. Who is the publisher? Who is the owner? Who is the editor?
It is important to know the difference between the owner, editor and publisher of a journal. In many predatory journals, one can notice that the identities of these stakeholders are not disclosed clearly. Generally, a good journal is owned by a reputed institution such as a University, a discipline-specific society, or a reputed publisher. It becomes a matter of suspicion when the editor himself/herself becomes the owner. Sometimes, it is seen that the Editor-in-Chief may not have any standard publications to his/her credit at all. This means that probably the editorial board is inexperienced. Sometimes, the names of reputed academicians may be simply displayed on the editorial board without even their knowledge. Identifying such journals can be a challenge. When you are in doubt, you can write to the person concerned about his/her involvement in the editorial process. Editorial board gives some important information about the journal. Search for the publications authored by these members on standard databases such as PubMed and decide whether the members have sufficient exposure to general understanding of good research.

If the journal claims to be ‘International’ in its scope, the editorial board members too, must represent this international character. There are a few globally reputed publishers in the field of biomedical sciences. Elsevier, Oxford University Press, Nature publishing house, BioMedCentral, Sage, Springer etc. are a few to name. These publishers do not normally compromise with the ethics and standard procedures of publication. Scholarly journals being published by Research Councils/Research Societies/Academies and other reputed educational institutions too usually maintain standards. One single individual being named as the owner, publisher and also the Editor-in-Chief in multiple journals is a point that must raise suspicion about the integrity of the publication process.

3.2.6. Is the journal a member of COPE/ICMJE/WAME and other similar bodies?
Multiple efforts are going on in the field of science publication to keep track of the ethical publication practices. COPE, ICMJE, WAME, DAO are a few to name in this direction. Membership and listing of a journal in these organizations is one criterion to look for [12].

3.2.7. Does the journal make false/misleading claims?
Many journals claim that their journal is indexed with Google Scholar. In fact, Google Scholar is not an indexing database; rather, it is a search engine. Google Scholar has no archiving policy for any journal that it lists. If at all a journal shuts down its website, Google Scholar will no longer show the articles published in that journal. Therefore, each journal must have an archiving policy for ensuring the availability of its published articles for future. Good indexing databases play this role. Often the journals make false claims of being indexed with reputed databases. Verify these facts by checking the availability of these journals on these databases. If a journal claims that it is ‘in the process of being PubMed indexed’, it means that it is not indexed with PubMed. There is no such thing as ‘in the process of getting indexed’, which is a misleading statement. For the journals in the field of medicine and alternative medicine, PubMed Central and Medline happen to be the two important indexing databases. For basic science journals, it could be Web of Science, and for all fields of research including medicine, Scopus is a reliable database.

3.2.8. Does the journal charge article processing fee? Is this transparent?
‘Author pays’ model of open access is becoming a trend in the recent years, while the traditional journals still follow a ‘Subscription based access’ policy. While no model can be described as good or bad, it is the level of transparency that makes a journal good or bad. Certain funding agencies require a researcher to publish with Open Access journals only. If the journal charges the authors an article processing fee, the details of the fee must be clearly and legibly displayed on the webpage at such a place that is easy to locate. Mostly, this fee is payable only after the acceptance of the manuscript.

3.2.9. Is the look of the journal webpage professional?
Many spurious journal editors publish these journals because of their mediocrity in their fields of study. This mediocrity often thankfully extends to their general understanding of the publication process, adherence with the ethical standards and professionalism, which makes them easily identifiable. Most of this is usually at display on the webpages of spurious journals: bad and grammatically incorrect forms of English language, copied content from other journals, copied photographs from the Internet, extra colorful and oddly styled fonts, name of the journal that sounds
similar to the established one in the field, etc. are the few points that give an idea about the journal at a first glance.

Hosting the published papers in ‘search-disabled’ format is one more clue hinting at the lack of professionalism. Publishers do this to ensure that the “plagiarism detection tools” do not detect any plagiarized content that the papers in the journal may contain. Lack of a clearly displayed retraction policy is another point that must alert an author.

3.3. Draft and submit the manuscript according to standard format

Many informative articles, resources and guidelines are available to help you develop the skill of writing a scientific communication. A few are listed in the reference section for you to refer [13–15].

3.4. Principles of scientific publication

Publication of a scientific article is not a reward but a responsibility. The scientific papers directly touch clinical practice and have an impact on patients’ lives. The journals provide a platform for publication to the researchers. Reviewers screen the manuscripts for their scientific aspects, research methods and contribute based on their domain specific expertise. The authors have to vouch for integrity, correctness and ethical aspects followed in the study. Scientific quality, ethics and transparency are the principle foundations of any paper.

Conflict of interest

The authors do not have conflict of interests. Although they are members of J-AIM Editorial Board, they were not involved in peer review process and editorial decisions related to this paper.

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References

[1] Patwardhan B. Ethical and scientific aspects of research publications. J Ayurveda Integr Med 2013;4(3):129–31.
[2] Kulkarni S. in: Editage Insights. Beall’s list of ‘predatory’ publishers and journals no longer available. Available at: http://www.editage.com/insights/bealls-list-of-predatory-publishers-and-journals-no-longer-available. [Date last accessed 18 March 2017].
[3] Baghel MS and Girish KJ. Researches in Ayurveda-online directory of PG and PhD titles. Available at: https://www.researches-in-ayurveda.co.in/. [Date last accessed 18 March 2017].
[4] The Rutgers University Libraries Popular literature vs. scholarly peer-reviewed literature: what’s the difference? Available at: https://www.libraries.rutgers.edu/scholarly_articles. [Date last accessed 18 March 2017].
[5] Pfeffer C, Olson BR. Editorial: journal of negative results in biomedicine. J Negat Results Biomed 2002;1:2.
[6] Patwardhan K, Gehlot S, Singh G, Rathore HCS. The Ayurveda education in India: how well are the graduates exposed to basic clinical skills? Evidence-based complementary and alternative medicine. eCAM 2011;2011:197391.
[7] J-AIM guide for authors. Available at: https://www.elsevier.com/journals/journal-of-ayurveda-and-integrative-medicine/0975-9476/guide-for-authors.
[8] Patwardhan K, Gehlot S, Singh G, Rathore HCS. Graduate level Ayurveda education: relevance of curriculum and teaching methodology. J Ayurveda 2009;3(2).
[9] Report of expert panel from Savitribai Phule Pune University on publication guidelines. Savitribai Phule University, Pune. Available at: http://www.unipune.ac.in/uop_files/Report-Guidelines_20-5-15.pdf. [Date last accessed 18 March 2017].
[10] Aslam S, Emmanuel P. Formulating a researchable question: a critical step for facilitating good clinical research. Indian J Sex Transm Dis 2010;31(1): 47–50.
[11] Enhancing the QUAlity and Transparency Of health Research (EQUATOR). Available at: http://www.equator-network.org/. [Date last accessed 18 March 2017].
[12] Patwardhan B. Good publications need good research. J Ayurveda Integr Med 2015;6(2):73–4.
[13] Kotsis SV, Chung KC. A guide for writing in the scientific forum. Plastic Reconstr Surg 2010;126(5):1763–71.
[14] Bajwa SJS, Sawhney C. Preparing manuscript: scientific writing for publication. Indian J Anaesth 2016;60(9):674–8.
[15] Kallestinova ED. How to write your first research paper. Yale J Biol Med 2011;84(3):181–90.