Excerpts from APAME 2015

The Asia-Pacific Association of Medical Journal Editors (APAME) is a nongovernmental, nonpartisan, and non-profit organization that supports and promotes medical journalism in the Asia-Pacific region by fostering networking, education, discussion and exchange of information and knowledge.[1] It is closely affiliated with the World Health Organization (WHO) Regional Office for the Western Pacific that hosts the Western Pacific Index Medicus (WPRIM) and the WHO Regional Office for the South East Asia that hosts the Index Medicus of the South East Asia Region (IMSEAR). The Philippine Journal of Ophthalmology (PJO) is a member of APAME and PAMJE (Philippine Association of Medical Journal Editors wherein Dr Khu is the secretary). It is also indexed by WPRIM.

The vision of APAME is to promote health care through the dissemination of high-quality knowledge and information on medicine in the Asia-Pacific region. Its mission is to contribute to the improvement of health in the Asia-Pacific region by ensuring the quality and dissemination of health-related information published in medical journals, which are utilized for better decision-making and effective delivery of health services.[1]

Since 2009, APAME has been holding an annual international meeting in the region aimed at promoting collaboration and communication among medical journal editors in the region and globally; facilitating training workshops and seminars on research writing and publication, peer-review processes and editorial standards; and fostering continuing education of editors, reviewers, editorial staff, publishers, and librarians. This year, Manila played host to the recently concluded APAME International Convention held last August 24-26 at the Sofitel Philippine Plaza Hotel in Pasay City. It was well attended by members and guests of APAME, promoting collaboration and exchange of information and knowledge among the stakeholders in different countries, with the theme *"Advancing Access to Health Information and Publication: Shifting Paradigms, Trends, and Innovations."* It was hosted by PAMJE, together with the Philippine Council for Health Research and Development (PCHRD) and the Department of Science and Technology (DOST), and the University of the Philippines Manila (UP Manila), in collaboration with the libraries of the World Health Organization (WHO) South East Asia and Western Pacific Region regional offices, and the Medical and Health Librarians Association of the Philippines (MAHLAP).

Three relevant topics discussed during the meeting are presented below.

[1]http://www.wpro.who.int/entity/apame/about/en (accessed November 27, 2015)

Authorship

Discussion by Marissa N. Valbuena, MD, MHPEd

Authorship of a scientific paper is important because of its academic and even financial implications. Authorship also implies responsibility and accountability for the published paper.

Bennet and Taylor[1] summarized the benefits of scientific authorship in the table below.

Table 1. Benefits of scientific authorship.[1]

1. Contribution to the progress of science
2. Personal sense of achievement
3. Evidence of an individual's intellectual efforts
4. Contribution to an individual's professional reputation
5. Creation of currency for:
Academic appointment
Academic promotion
Research funding
Entry to professional bodies

There are many problems with authorship that can be categorized to either misattribution of credit or failure to take responsibility.[2] Numerous organizations, universities, and research institutions abroad have established formal authorship guidelines.

The Asia-Pacific Association of Medical Journal Editors (APAME) in their convention this year in Manila adopted the International Committee of Medical Journal Editors (ICMJE) criteria for authorship.[4]

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
2. Drafting the work or revising it critically for important intellectual content; AND
3. Final approval of the version to be published;

AND

4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

The above criteria were intended to reserve authorship to those who deserve credit and can take responsibility for their work. It is also the responsibility of the authors collectively that all conform to the four criteria. An author should not only be accountable to the parts of the work he or she has personally done, but should be knowledgeable as to the contributions of the other authors and should be confident of the integrity of the work done by the other authors.[4] Many journals now require a description of author contribution, as well as identification of the author responsible for the integrity of the work as a whole.[4,5]

Because of the many benefits of authorship, it is open to abuse. Strange[3] listed several types of authorship abuse as follows:

1. *Coercive authorship* is authorship given to individuals because of their authority over their subordinates. A common example is the inclusion of the department chair where the research was done even if he or she has little or no intellectual input to the paper.
2. *"Honorary," "guest," or "gift authorship"* is authorship given to individuals out of respect or friendship or to curry favour or to enhance the legitimacy of the paper.
3. *"Duplication authorship"* is the publication of the same work in multiple journals.
4. *Ghost authorship* occurs whereby individuals or organizations make significant contributions towards the writing of a scientific manuscript, yet are omitted as named authors. This commonly occurs in the setting of academic researchers hiring industry-employed writers or where senior researchers are included as primary authors without contributing to the scientific work. Or when a pharmaceutical company hires a professional writer to favourably write about their product or an academic is hired to give the paper legitimacy.
5. *Denial of authorship* occurs when individuals who are part of a collaborative study generate significant amount of data for the study and are not acknowledged.

There are contributions to the scientific paper that do not warrant granting authorship. These non-author contributions[4] can be any of the following:

1. Acquisition of funding
2. General supervision of research group
3. Administrative support
4. Statistical support
5. Writing assistance, technical editing, language editing, and proofreading
6. Collection of clinical data (clinical investigators)

Those whose contributions do not justify authorship may be acknowledged individually or together as a group under a single heading (e.g., "Clinical Investigators" or "Participating Investigators"), and their contributions should be specified (e.g., "served as scientific advisors," "critically reviewed the study proposal," "collected data," "provided and cared for study patients", "participated in writing or technical editing of the manuscript").

In summary, authors of scientific papers must have contributed in an intellectually significant way to the work, must be able to take public responsibility for that contribution, and must have participated in writing the manuscript.

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THE PEER REVIEW PROCESS WHY IS IT IMPORTANT?

Discussion by Patricia M. Khu, MD, MS

Most reputable journals require a peer review of the submitted scientific manuscripts. The increased use of the peer review process is due to two main factors.[1] The first is the proliferation of manuscripts. In the past, editors of journals often had to struggle to collect enough papers to fill the pages of their journals and, thus, did not need to be selective. When the need for evidence-based practice evolved, submissions to scientific journals increased such that editors have to be more selective in what get published in their journals. The second reason is the explosion of new information and technology. Areas of expertise have expanded to become more specialized and sophisticated. The editors were no longer able to be experts in all areas and had to seek opinions and advices from others.[2]

Nowadays, the peer review process is used by all scientific journals indexed in MEDLINE and other regional indices to assist in the selection of the papers they want published. It is part of quality control used to determine what is published, and what is not. It also acts as a filter for interest and relevance to the objectives of the journal. The International Committee of Medical Journal Editors (ICMJE) defines peer review as "the critical assessment of manuscripts submitted to journals by experts who are usually not part of the editorial staff."[3] Moreover, since "unbiased, independent, critical assessment is an intrinsic part of all scholarly work, including scientific research, peer review is an important extension of the scientific process."[3]

The peer review process serves the following purposes:[1]

1. To help select quality articles for publication and filter out studies that were poorly conceived, designed, or executed, with the selection based upon the following:
   a. The scientific merit and validity of the article and its methodology;
   b. The accuracy of the results obtained and whether they support the conclusion;
   c. The relevance of the article to the specific clinical practice;
   d. The presentation and readability of the article.
2. To improve the manuscript whenever possible.
3. To check against malfeasance within the scientific community.
4. To provide editors with evidence to make judgments as to whether the articles meet the selection criteria of the journal.

Reviewers are chosen for the expertise they have in a particular field, obtained by training or research works in the same field or related disciplines. Moreover, it is preferred that they have published papers and are familiar with conducting researches and submitting scientific manuscripts. Major journals indexed in MEDLINE generally have more rigorous peer-review processes and high-calibre peer reviewers who have published extensively, in contrast to journals from developing countries that lack dedicated reviewers and quality papers to review. Hence, it is not surprising that a clinician will prefer to peruse a major journal from a developed nation with high impact factor. This occurs because individual clinicians with varied levels of experience know that a peer-reviewed, published manuscript has been reviewed and deemed worthy by others who often have greater or more varied experience than they possess.[1] While most clinicians have the ability to critically read a research manuscript, they cannot be expected to be experts in all areas and make judgments about topics about which they know little.[4]

Many journals use some form of a checklist for the reviewer to critically appraise the article submitted. Below are some sample review guidelines on how reviewers appraise an original article and which authors should be cognizant of to help them in the preparation of their manuscripts.

SAMPLE REVIEW GUIDELINES (adapted from *Int J Sports Phy Ther* 2012; 7: 453-460)[1]

Title: Does it accurately reflect the purpose, design, results, and conclusion of the study?
Abstract: Does it correctly summarize the salient points of the study?
Introduction: Does it provide adequate background and rationale for performing the study?

- Is the literature discussed in the introduction adequate to introduce the purpose of the manuscript?

- Is the clinical significance of the topic established?
- Are the strengths and limitations described such that a need for further study is established?
- Does it clearly state or imply the study hypothesis or null hypothesis?
- Is a clear and strong rationale provided for the importance of the manuscript?

Study design and methodology: Is the sample described in appropriate detail; procedures and data analysis described clearly and in sufficient detail?

- IRB approved?
- Type of study described?
- Is the study design appropriate to answer the research question?
- Is the methodology described in sufficient detail for others to repeat the study?
- Is the study population clearly identified? Informed consent obtained? Inclusion and exclusion criteria clearly specified?
- Power analysis provided? Were enough subjects studied to detect a difference?
- In clinical trials, were subjects randomized? What methods were used? Was randomization assignment concealed?
- External validity: Were the subjects asked to participate in the study representative of the entire population from which they were recruited?
- Internal validity: Was there an attempt to blind study subjects to the intervention they have received? Was there an attempt to blind those measuring the main outcomes of the intervention? Any analysis that had not been planned at the outset of the study should be clearly indicated.
- Was the therapeutic intervention clearly defined and clearly described?
- Was the measurement instrument or method clearly described?
- Are the details as to how the data were derived adequately explained so that they can be confirmed by the reviewer and reproduced by future investigators?
- Is it clear how the data will be interpreted to either support or refute the hypothesis?

Soundness of the Results: Is the outcome of the statistical analysis presented appropriately and interpreted accurately?

- Are the data reported in a clear, concise, and well-organized manner?
- Are the main findings of the study clearly described? Simple outcome data should be reported for all major findings so that the reader can check the major analyses and conclusions.
- Are the results reported relevant to the study or research problem?
- Do the tables and figures clarify or confuse? Are all the tables and figures needed? Are the tables and figures properly labeled with titles and the correct units?
- Was the appropriate statistical test used? Have the actual probability values been reported rather than <0.5 for the main outcomes except where the probability value is less than 0.001? Have adjustments been made for multiple comparisons?
- Does the study provide estimates of the random variability in the data for the main outcomes?
- Does the analysis adjust for different lengths of follow up of patients, or in case-controlled studies, is the time period between the intervention and the outcome the same for cases and controls?
- If findings are negative, was a sufficiently large population studied?
- Are findings clinically significant? How do the group differences shown compare with the measurement variability?

Discussion and Conclusion: Are the implications of the study consistent with the purpose, methods, and data analysis?

- Are the major findings of the study clearly described and properly emphasized? Is the significance of the present results described?
- Does it point out weaknesses and limitations of the study? Any biases?
- Does it point out the strengths of the study?
- Appropriate discussion on similarities and differences with other studies in the literature?
- Do the authors support their statements with appropriate references?
- Do the authors discuss their data in a manner that provides insight beyond that presented in previous sections?
- Does it suggest the possible direction of future investigations?
- Are conclusions justified by the results of the study?

Organization and Style: Is the manuscript concise?

- Was the paper well written, properly organized, and easy to follow?
- Was proper grammar, spelling, and punctuation used throughout?

References: Are all major references included?
- Are all references cited completely and in the desired format of the journal?
- Are references chosen directly related to the study?

The peer review process is generally similar for all journals. Once an author submits a manuscript, it is initially reviewed by an editor of the journal to determine its suitability according to the guidelines set by the editorial policy. The manuscript could be rejected without additional review if the content does not fall within the scope of the journal, if it does not follow editorial policy and procedural guidelines, or it has already been accepted in another journal (in press). If the manuscript is not rejected when first received, it is then sent out for review to a minimum of two additional reviewers in the journal's list of reviewers who are considered experts in the content of the paper. This process is usually a closed review adopted by most journals and can be a single-blinded review where the reviewers' identities are withheld from the authors but the reviewers are aware who wrote the paper they are evaluating, or a double-blinded review where the identity of the authors is also concealed during the review process.[5] When the chosen reviewers have accepted their assignment, they are given a time period to review the paper, usually with the help of a checklist similar to the sample given above. The reviewers return their recommendations and report to the editor who assesses them collectively and then makes a decision whether to reject the manuscript outright, to withhold judgment pending major or minor revisions, to accept it pending satisfactorily completed revisions, or to accept it as written (which is rare).[1] For a manuscript requiring revisions, the authors have to submit the revised manuscript incorporating the recommendations of the reviewers. Once the manuscript has been revised satisfactorily, it is accepted and prepared for publication that may take several months.

The review process generally does not change the basic nature of the submitted manuscript; rather, it assists the authors in improving the presentation of their work. This can only happen when knowledgeable reviewers take time to participate in the peer review process and evaluate submissions with care and sensitivity.[1]

For in-depth discussion of the peer review process, please refer to reference 1.

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WHEN TO USE P VALUES & CONFIDENCE INTERVALS FOR REPORTING INTERGROUP COMPARISONS

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Reporting research results usually requires the investigator to subject the collected data to a statistical procedure determining the degree to which the data are consistent with the specific hypothesis under investigation. This is the test of significance for the p value.

There are six features common to significance tests.[1] First, there is a hypothesis about the population; that there is no difference between the two groups to be compared or the null hypothesis (H_o). Second, the sample taken from the population is random. Third, there is a set of comparable events (2 x 2 tables). Fourth, the probability distribution of the test statistic is based on the assumption that the null hypothesis (H_o) is true and the sampling uncertainty is random. Fifth, there is a ranking of all possible outcomes in a set of comparable events according to their consistency with the null hypothesis. Lastly, the probability that sample uncertainty, called chance, would produce outcome no more consistent with H_o than the outcome observed is calculated. This probability is called the significance level of the data with respect to H_o.

The resulting p value obtained is the likelihood

that the result observed is due to random occurrence if H_o is true. It usually does not take on an exact value; rather, it is more correctly denoted as a probability greater than or less than a given value. The significance level is the value of p at which we are willing to reject H_o even if it is correct. The most commonly accepted level of significance is $\alpha = 0.05$ or 5%; this significance limit is usually specified in advance. This means that the probability of observing the results obtained even if there were truly no treatment effect (if H_o was true) is less than 5%. In other words, it is quite possible that we would be wrong in rejecting the null hypothesis but this would happen only 5 times out of 100 (or 1 out of 20) over repeated studies using different samples of the same size.[2]

Smaller p values correspond to stronger evidence that the results are significant and the probability is small that the difference is due to chance. There is also less likelihood of committing a Type I (α) error that occurs when we conclude from the significant findings that there is an effect (reject H_o) when in fact there is no true effect.[3] It is said that approximately 1 in 20 significant findings will be spurious or arising from chance.[3]

If the p value is less than the pre-defined limit, the result is designated as "statistically significant" and H_o is rejected and the alternative hypothesis (H_1) is accepted. P value alone, however, does not give any direct statement about the direction or the size of the difference or relative risk between different groups.[4] A directional test is a one-tailed test that looks for a treatment difference in one direction only, such as the study drug is more effective than the control and not vice versa. A non-directional test is a two-tailed test that looks for treatment difference in either direction, either the study drug is more effective than the control or the controlled treatment is better than the study drug. Some statisticians believe that p value is more useful when the results are not significant.[4]

What does "not significant" really mean? When the test statistic is bigger than 95% of the values that would occur if the treatment has no effect, the null hypothesis is rejected and we conclude that treatment has an effect and is statistically significant. When the test statistic is not big enough to reject the null hypothesis, we conclude that the test failed to demonstrate an effect and report as not statistically significant. It has been observed that many researches discussed the results not statistically significant as if there is no treatment effect when in fact the test just failed to show an effect.

The other error, Type II (β), is much more common and occurs when we conclude from non-significant findings that there is no effect (reject H_1) when in fact there is a real effect. This can happen when the sample size is too small to detect a significant difference when one exists. Power calculations are designed to minimize this error. The ability to detect a treatment effect with a given level of confidence depends on 3 parameters; namely, 1) the size of the treatment effect; 2) the variability within the population; 3) the size of the samples used in the study.[4] Bigger samples are better able to detect an effect compared to smaller samples. Thus, studies on therapies involving few subjects (small sample) that failed to show an effect may lack the statistical power to detect the effect. Conversely, in large databases with numerous variables, very large sample sizes will tend to pick up statistically significant differences in variables, even if the difference is minute.[4] Hence, it is prudent to always consider what is being compared, the cost of treatment, the potential side effects, and the overall benefit to the population under study.

Statistical versus clinical significance. Statistical significance may not always translate into clinical significance. Doing significance testing simply asks whether the data collected in a study are compatible with the notion of no difference between the two groups compared. When we reject equivalence, this does not mean that we accept that there is an important difference. A large study may identify as statistically significant a small difference. As clinicians, we also have to consider the clinical relevance. In assessing the importance of significant results, the size of the effect (not just the size of the significance) also matters.[4]

Using confidence interval (CI) in reporting research results gives not just the size and direction of the effect, but also the level of confidence that the point estimate or true parameter is within the confidence limits. The point estimate provides the best approximation to the true value, but does not provide any information on how exact it is. This is provided by the confidence interval that described the probability that the true value is within a given range. The 95% CI is usually selected; meaning that the interval covers the true value in 95 out of 100 studies performed.

The size of the confidence interval depends on the sample size and the standard deviation of the study groups. A larger sample size will have a narrower CI and the conclusion is more certain. A small sample size will have a wider CI, higher dispersion, and the conclusion is less certain. Values within the CI but near the confidence limits are less probable than values near the point estimate. Values below the lower limit or above the upper limit are not excluded but are improbable and with 95% CI, each probability is only 2.5%.[4]

The size of the confidence interval is also influenced by the selected level of confidence; 99% CI is wider than 95% CI, indicating that the wider the interval the higher the probability of including the true value.

Conclusion about statistical significance is also possible in confidence interval; if the zero value is not within the interval, it is said to be statistically significant.

In summary, confidence interval provides information on the statistical significance, the direction and strength of the effect, allowing decision on clinical relevance of the results. P value, on the other hand, allows quick decision whether the value is statistically significant or not, but can be misleading, leading to decisions solely based on statistics.[4]

For in-depth discussion of p values and confidence intervals, please refer to the references below where most of the information in this article were obtained.

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