RESEARCH NOTES

SCIENTIFIC PAPER WRITING

DR. HAIDER A. NAQVI[1], DR. FATEMA JAWAD[2]
Associate Editor, Journal of Pakistan Psychiatric Society,[1] Editor in-chief, Journal of Pakistan Medical Association[2]

"Read! In the name of your Lord Who has created (all that exists)…Who has taught (the writing) by the pen" (The Clot XCVI; 1-4, The Holy Quran).[1]

The craft of scientific paper writing could be developed through patience and practice[2]. Most science publications are in English, which is not the first language for most physicians in Pakistan.This requires double efforts of learning the language and scientific terms. Some prerequisites will be discussed in this commentary followed by practical advice on scientific writing.

The time for writing and the location are equally important. Some people write during the night, while others prefer to get up early in the morning to do their writing. The basic idea is to have your best time committed (and protected) to writing on regular basis. The location can be your office, the library or perhaps PC at home. All need the necessary reference material at hand. The culmination of protected time, organized thoughts and ideal physical space, facilitates free flow of thoughts, making writing easy and enjoyable.

The most difficult part of writing is the beginning, making the first line and the first paragraph most challenging. Novice writers should write down their thoughts initially. The style, grammar and other details could be left for the subsequent revisions. Ample undistracted time, away from busy hospital (office) routine, phone calls and the emergency assignments are a necessity.

Often it is helpful to make an outline of your conceptual framework on a paper through figures and diagrams in a systematic manner. This will bring clarity to the thought process and the paragraphs will be well connected with each other. It is generally said that writing helps clarify the thinking. Rather, writing is the thinking.[2] Therefore the best part of an essay is at the end. The initial part should be a prelude and the last few lines of the paragraph should summarize the contents. With the basic theme listed down it is easy to move from section -to-section.

The ability to monitor the flow of information, within a piece is the hallmark of a good writer. The choice of words, the sentence structure is a personal style, which improves with practice. The strength of the writing depends on the quality of your reading, reference-writing, summary statements and citation of other resource material.[3] While the internet search would yield a thousand searches, the ability to summarize, revise and organize the thinking depends on the "reflection" (morale in case of a short story) which goes behind the write-up. It is apt to say that 'Silence is the element in which great things fashion themselves'.[4]

An important aspect of writing is reviewing what has been written after a "cooling-off" period. This could be over a weekend or over few weeks in some circumstances – a critical relook will reveal the merit of writing. However, a long delay could very well be detrimental to the interest and subsequent publication. There is a category of writers called "bleeders" who just happen to open the vein and let the succinct piece come through. For rest of the population, it is best to review the piece in-house, since it will be subjected to critique through a formal peer review process.

Writing is like any other form of communication and persuasion. Sharing your views in a public domain and opening yourself to critique from your contemporaries. Therefore, the responsibility, the authenticity and the commitment required for public-speaking goes with the writing. Remember, it's the finished (not the first) draft which matters.

In scientific journal contents of the articles is the most important aspect with the nuances of expression remaining at the periphery. The language is intentionally kept simple, calculated and understandable to an educated layman – even when done for experts in the field.[5] Unlike writing, editing is conspicuously noticed by its absence; it serves to enhance the written material. In our scenario, editors are an underutilized resource. They have the responsibility of deleting the errors and making the written material process simple and understandable.

Critically revising the article for clarity and editing is of paramount importance. A tangential theme if detected while reviewing a draft should be placed in parenthesis with a note. [Example: develop separate piece on the actual contents of the scientific paper writing and include this paragraph] The figures and tables should be creatively drawn. Using a Table to show results needs an artistic mind. It is preferred by editors. "Track change option" and "insert comments" in Microsoft word greatly helps with the process of revision(s).

It is best to take a feedback on your writing from someone who is more experienced. However the person giving feedback should be encouragingand help to develop the piece. A balance between encouragement and critique will

motivate the writer to continue with the passion of writing. A senior co-author could very well review the original manuscript, looking at the construct of an argument as well as the nuances of the language. A writer should not be compelled to delete his original idea; therefore, the coauthors could always bring in the required balance. Writing therefore becomes a team game where rules have to be observed. Writers discovers that certain editors or colleagues bring the best out of their effort. Writing is therefore learning to develop a community which encourages and supports the purpose.

REFERENCES

1. The Holy Quran. English Translation by: Mohammad Marmaduke Pickthall. Quran Foundation of Pakistan, 1974.
2. Albert T. Winning the Publication Game: How to writ0 a scientific paper without neglecting your patients. Radcliffe Publishing Ltd, United Kingdom, 2000, 17-29.
3. Linda F, Hayes RJ. A cognitive process theory of writing. College composition and communication 1981; 32: 365-87.
4. Wolcott HF. Writing up qualitative research. Qualitative research methods, 20. Sage Publications, Inc., 1990. 10-25.
5. Carlyle T. Available from: www.http://quotationsbook.com/quote/36205/#axzz1Bbhdnhcp[cited, May 26, 2014]
6. Wager E, Godlee F and Jefferson T. Peer review in health sciences. 2nd edition. London: BMJ Books, 2003.

SYSTEMATIC REVIEWS:PRISMA GUIDELINES

DR. HAIDER A. NAQVI[1], DR. ROMAINA IQBAL[2]

(MBBS, FCPS, D ClinEpi, MSc CT) Assistant Professor Department of Psychiatry, Aga Khan University[1], Assistant Professor Departments of Community Health Sciences and Medicine Director, Masters in Epidemiology and Biostatistics Program, Aga Khan University[2]

Well conducted systematic reviews and meta-analysis informs the readers on what works best in what conditions. Chalmer& Altman (1995) has defined systematic reviews as "reviews prepared using a documented systematic approach, in order to minimise bias and random errors".[1] Systematic reviews are considered to be more robust then individual randomised controlled trials (RCTs).[2] A single trial is expected to be a point estimate among many other statistical inferences. Additionally, the random variation can be influenced by systematic error or bias associated with faulty conduct or analysis of the trial.[3] Given the centrality of systematic reviews, various guidelines have come forth on how to report them correctly.

An International group developed a guidelines called QUOROM Statement (Quality Of Reporting Of Meta-analysis) in order to address the suboptimal reporting of results (1996).[4] These guidelines have been revised, renamed as PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analysis).[5] The PRISMA provides step-by-step guidance on the various stages of developing a systematic review. This allows the readers to assess the quality of the report. An omission, due to lack of reporting or conduct, at any stage of the systematic review can jeopardize the conclusions. The PRIMA checklist consists of seven sections, including the Title, Abstract, Introduction, Methods, Results, Discussion, and Funding. There are 27 items that provide readers with information regarding the eligibility criteria, searches, validity assessment, data extraction, risk of bias (within, individual, and across studies), synthesis of results, study characteristics, limitations of the review, and the funding for the review. In contrast to QUOROM, PRISMA requires that the objectives of the review include the PICOS reporting system (which describes the Participants, Interventions, Comparisons, Outcome(s), and the type of Study design). An important addition is the inclusion of Protocol and registration in the Methods section. This requires the authors to indicate if a review protocol exists, and, if available, provide registration information. It also requires authors to provide information on the sources of funding for the systematic review.

PRISMA guidance can help identify problems related to identification of eligible studies through database searches, screening of records and extraction of relevant material from the records, which can impact the pooled estimates by introducing various biases.[6] Publication bias can lead to erroneous conclusion of (statistically) significant outcome(s).[7] Reporting of a comprehensive search strategy can identify potentially missing studies. Biased reporting of favorable outcome measures, avoiding adverse events, can also interfere with overall inference. PRISMA gives explicit guidelines on assessment of study level and outcome level bias. The reporting guidelines makes it explicit that various stages of the search and subsequent pooling is done in a way to make the reader aware of the potential pitfalls in the process of organizing and reporting of systematic review.[8]

PRISMA guidelines recommends assessment of study quality which has to do with the conduct of the (actual) RCT. In the past, there have been many deficiencies in trial reporting and various suggestions have been made to improve reporting. These suggestions have included checklists and flowcharts and other forms of guidelines. The best known guidelines were produced by the CONSORT (Consolidated Standards of Reporting Trials) group (Schulz et al 2010).[9] True to the adage, garbage-in, garbage-out, non-reporting of measures which are indicative of study quality will interfere with the review's conclusion. The study level factors have to do with the randomisation sequence generation, allocation concealment, blinding of the study participants/outcome assessors or events adjudication to treatment allocation; differential loss to follow-up, intention-to-treat analysis. The selective enrollment of (low-risk) patients could lead to selection bias, therefore threatening the validity of the results. Random allocation and concealment of this process ensures that recruitment of participants in to the trial is not influenced by preconceived ideas or preferences of the clinicians and participants, respectively. The internal validity of the trial is compromised due to differences in the

baseline (socio-demographic) characteristics and the level of (prognostic) risk associated with the outcome. The external validity of the trial will also be compromised since the findings of the trial could only be extrapolated to the (near enough) characteristics of those enrolled in to the trial. The proper reporting of these aspects, which represent the conduct of an RCT, allows the reader to assess the bias introduced in to the pooled estimate.[10]

Previous research has shown that trials with non-rigorous methodology tend to overestimate the results thereby introducing an element of bias in the systematic review results. Therefore assessment of study quality allows the readers to make their own inference about the individual study and subsequent (heterogeneity) pooling of estimates. A formal assessment of heterogeneity, as specified in the PRIMA items, allows the readers to make their own assessment of the intra-study variation. PRISMA not only expects the reviewers to report the formal statistical tests of I^2 but also guides the reviewers to report individual patient data (proportion, risk reduction) in each group.[11] The numerical data in the forest plot, with visual display of box and whisker image, allows graphical display to go along with facts. A separate forest plot for each outcome measure allows the readers to gauge the pooled estimate on important aspects of the study. A well conducted & reported systematic review informs the readers of potential gaps in the literature requiring further research. This has utility not only for practicing clinicians but funding bodies looking to allocate resources in order to make informed decisions. It is important that researchers in resource poor settings should use these guidelines. The cycle of knowledge can only be improved through doing (quality) research and reviewing (systematically) what has to be done. The identified gaps are especially relevant for designing studies which answer clinically meaningful questions in the context of Pakistan.

REFERENCES

1. Chalmers I, Altman D. Systematic reviews. London: BMJ Publishing Group, 1995.
2. Antes G, Chalmers I. Under-reporting of clinical trials is unethical. The Lancet 2003; 361; 978-9.
3. Egger M, Smith GD, Altman DG (eds). Systematic reviews in health care: meta-analysis in context (2nd edition). London: BMJ Books; 2001.
4. Moher D, Cook D, Eastwood S, Olkin I, Rennie D, Stroup D Improving the quality of reports of meta-analyses of randomised controlled trials: the QUOROM statement. Lancet 1999; 354: 1896- 1900
5. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097
6. Dickersin K, Scherer R, Lefebvre C. Identifying relevant studies for systematic reviews. BMJ 1994; 309: 1286-91.
7. Edwards P, Clarke M, DiGuiseppi C, Pratap S, Roberts I, Wentz R. Identification of randomised controlled trials in systematic reviews: accuracy and reliability of screening records. Stat Med 2002; 21: 1635-40.
8. Egger M, Juni P, Bartlett C, Holenstein F, Sterne J. How important are comprehensive searches and assess ment of trial quality in systematic reviews? Empirical Study . Health Technol Assess 2003; 7(1)
9. Piaggio, G., Elbourne D.R., Altman, D.G., Pocock, S.J., Evans, S.J., CONSORT Group. Reporting of noninferiority and equivalence randomized trials: an extension of the CONSORT statement. JAMA 2006; 295; 1152-60.
10. Schulz K, Altman D, Moher D, the CONSORT Group. CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. Trials 2010; 11:32.
11. L'Abbe KA, Detsky AS, O'Rourke K. Meta-analysis in clinical research. Ann Intern Med 1987; 107: 224-33