CRITICAL APPRAISAL SKILL FOR THE ARTICLE PUBLISHED IN AYURVEDIC HEALTH DOMAIN

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ABSTRACT

It is the need of all Ayurvedic students, teachers and scientists to have complete knowledge of the process of evaluation and appraisal of research, review or original articles published in peer reviewed valid journals. Most of the students (and more or less teachers also) are ignorant on the appraisal of a published article since this was not part of their designed curriculum. Central council of Indian medicine have designed curriculum of research methodology recently, which includes publication skills. Published articles on Ayurvedic subjects must be evidence based. This article will help to develop an innovative approach on how to teach and learn critical appraisal skills to Ayurvedic students and hence user could decide how much he/she can rely on the results of the article and, therefore, shall or shall not use the results of that article in his/her practice. Research studies, including qualitative studies, form the basis for evidence-based practice among health professionals. However, many practicing Ayurvedic health educators do not feel fully confident to appraise qualitative and quantitative research studies. This review provides guidelines for appraising the strengths and weaknesses of published qualitative research articles and Health educators will be better equipped to evaluate the quality of the evidence through critical appraisals of qualitative research publications. Published research studies, including qualitative studies, provide the evidence for the selection of evidence-based practices in health education and promotion. For health educators, critical reading of research studies can be time consuming and challenging, however they can increase their confidence in appraising research studies by using the guidelines described in this article.

KEY WORDS: Evaluation, appraisal, central council of Indian medicine, evidence based medicine, quantitative and qualitative study, Ayurveda

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INTRODUCTION

Critical appraisal has been defined as The application of rules of evidence to a study to assess the validity of the published research data (wikipedia.org), completeness of reporting, methods and procedures, conclusions, compliance with ethical standards,” etc. Critical appraisal is the skill that the science of epidemiology offers to scientists and specialists in different disciplines including medicine (Timm DF, Banks DE, McLarty et al., 2012, McAllister D, Wild S et al., 2009, Green BN, Johnson CD, et al., 2007). It is used to evaluate and determine the positive and negative aspects of a published article (Mohsen Rezaeian et al., 2006), in evidence-based healthcare training, to assist in clinical study in decision-making and in evidence-based social care and education provision (wikipedia.org).

Due to the rapid - development, spread and worldwide acceptance of Ayurveda, the expert specialities, students, clinicians, health professionals’, teachers, and research scientists in Ayurvedic field needs to develop efficient skills in critical appraisal of published articles to use or not to use results of that article in support of his/her articles. Ayurveda is an evidence based science, selection of relevant literature, understanding of research findings, elicit patients own preferences etc (Jane M Young, Michael J Solomon, 2009) and use of journal club and letter-to-the-editor writing project (Green BN, Johnson CD, 2007) may create ability in clinician to appraise the research articles. Journal club should be a part of curriculum which will provide exposure to Ayurvedic student to the world of frontline research and safe way to enter in the world of translational research (Tamoghna Biswas, 2011). The quantity of published articles in the databases like Medline, Pubmed, Medknow etc is increasing. According to Medline database more than 12,000 new articles, including papers on nearly 300 randomized controlled trials (RCTs), are added to their database in each week (Glasziou PP et al., 2008) but the question regarding the validity of results and their use in local help is merely doubtful.

Therefore every article should be critically scrutinised to evaluate the robustness of the findings. Many times the articles on quantitative and qualitative research are questioned by scientific scholars that they lack scientific rigour, credibility, reliability, trustworthiness and validity. In such cases it is necessary to audit the process up to the end product. This will help the user/reader to determine whether the claim made by the researcher is justifiable or not (Dorothy Horsburgh, et al., 2003).

Qualitative research studies are particularly helpful when looking at context, experiences or meanings related to principals/laws of diagnostics/therapeutic measures or an issue; (for e. g. theory of Panchmahabhootas (five basic constituent element), Prakriti (body constitution), Samanya Vishesha Sidhdhanta, Lokpurusha Sidhdhanta etc). Quantitative research is useful to address the intervention or therapy questions (Jeanfreau, S. & Jack, L. 2010) or drug discovery or safety and toxicity study of herbo-mineral or mineral drugs. Both kinds of research, evidence may be necessary for a complete understanding of how and why an issue occurs (qualitative research questions) and what can be done to address the issue (quantitative research).

DISCUSSION

Articles on various subjects of Ayurved -viz. standardization of Ayurvedic drugs, clinical trial of mineral, herbal and herbo-mineral drugs mentioned in Ayurvedic texts, conceptual/empirical research on the basic principle like Tridosha Sidhdhanta, (Theory of three humours of body) Prakriti (theory of body constituent) etc are published in various journals. There are no certain or specific criteria in Ayurvedic texts to assess the strength and weakness of articles published in various national and international peer reviewed journal. Hence criterion based on modern science is considered for the appraisal of articles in Ayurvedic subject. Following discussion with some modification according to the research question may help the Ayurvedic
research scholar to appraise their own and others articles before publishing.

**Appraisal scheme (strength and weakness of published qualified articles)**

How do we appraise? Appraisal can be done using common sense without the help of a statistical expert (Sarah Lawson et al., 2010). Validity and relevancy of various articles can be considered using different types of checklist.

Anyone can assess and evaluate the quality of article using questionary of 10 questions in two sets, one is primary question set and other is main question set which will consider – the results of research study, validity of review study and its help to everyone or local one? (Joan Durrance et al., 2009). These question sets are more or less applicable to evaluate the interventional and observational study.

**Screening question/Primary question**

1. Aims of the research is mentioned by author or not? What Type of Research Question Does the Study Pose? (Jane M Young, Michael J Solomon, et al., 2009).

   Consider: the goal of the research, its important and its relevance.

2. Adoption of appropriate methodology.

   Consider: If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants.

**Detailed/Main questions**

3. Research design is appropriate to address the aims of the research and is the study's research question relevant (Jane M Young, Michael J Solomon et al., 2009).

   Consider: If the researcher has justified the research design (e.g. have they discussed how they decided which method to use)?

4. Whether the recruitment strategy (as regards to sample size, sample design, inclusion and exclusion criteria etc.) was appropriate to the aims of the research and did the study methods address and eliminates the key potential sources of bias? (Jane M Young, Michael J Solomon et al., 2009)

   Consider: if the researcher has explained how and why the participants were selected. If there are any discussions around recruitment (e.g. why some people chose not to take part).

5. Were the data collected in a way that addressed the research issue? Was the Study Performed in Line with the Original Protocol? (Jane M Young, Michael J Solomon et al., 2009)

   Consider: If the setting for data collection was justified. If it is clear how data were collected (e.g. focus group, semi-structured interview etc.). If the researcher has justified the methods chosen. If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, or did they use a topic guide)? If methods were modified during the study. If so, has the researcher explained how and why? If the form of data is clear (e.g. tape recordings, video material, notes etc.) If the researcher has discussed saturation of data.

6. Has the relationship between researcher and participants been adequately considered?

   Consider: If the researcher critically examined their own role, potential bias and influence during: 1) Formulation of the research questions 2) Data collection, including sample recruitment and choice of location. How the researcher responded to events during the study and whether they considered the implications of any changes in the research design.

7. Have ethical issues been taken into consideration?

   Consider: If the research was explained in sufficient details to participants. If the researcher has discussed issues raised by the study (e.g. issues about informed consent, confidentiality and how they have handled the effects of the study on the participants during
and after the study). If approval has been sought from the ethics committee.

8 Was the data analysis and statistical analysis is sufficiently rigorous and correct? Does the Study Test a Stated Hypothesis? (Jane M Young, Michael J Solomon et al., 2009)

Consider: if there is an in-depth description of the analysis process. If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data? Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process. If sufficient data are presented to support the findings. To what extent contradictory data are taken into account. Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation.

9. Do the Data Justify the Conclusions? Is there a clear statement of findings?

Consider: If the findings are explicit. If there is adequate discussion of the evidence (in favour and against the researcher’s arguments). If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst). If the findings are discussed in relation to the original research question.

10. How valuable is the research? Does it add anything new? (Jane M Young, Michael J Solomon et al., 2009)

Consider: usefulness of research, if the researcher discusses the contribution the study makes to existing knowledge or understanding e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature? If they identify new areas where research is necessary. If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used (Joan Durrance, 2009).

Software for appraisals

There are software tool which helps to create Critically Appraised Topics, or CATs, (CEBM oxford university) for the key articles you encounter about Therapy, Diagnosis, Prognosis, Aetiology/Harm and Systematic Reviews of Therapy (McAllister D, Wild S et al., 2009) This software may help the Ayurvedic researcher to appraise his or others article before publishing. Though in Ayurvedic fraternity, such software is not available but one can use it by making some modification with the help of software experts based on the concept of Ayurvedic science.

CONCLUSION

The information in this article can provide deeper understanding and appreciation for published qualitative research. The appraisals of published article using guidelines, questions, and explanations provided in this article are not intended to be all inclusive and may require some modification to answer and assess the research question. No study is perfect, nor does any study answer all questions. It is recommended that qualitative study and its value of evidence must read and assessed critically. It is concluded that rigorous criteria is available to evaluate the quantitative and qualitative research (Popay J., Rogers A. & Williams G. et al., 1998). Software is also available to assist the researcher to evaluate the strength and weakness of their own and published article. This software is designed for modern research which requires some modifications to meet the need of research question. The use of quantitative criteria to evaluate qualitative research may create the impression that the latter is not academically rigorous. Hence the evaluation criteria for qualitative and quantitative research should be different.
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Mohsen Rezaeian, Department of Social Medicine, Rafsanjan Medical School, Rafsanjan University of Medical Sciences,Rafsanjan, How to teach medical students to critically appraise a published article in the public health domain Iran, http://www.jehp.net


Sarah Lawson, (2010) Critical appraisal of qualitative research


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