



CURRENT TRENDS IN RESEARCH INFLUENCING ITS SCIENTIFIC VALUE

Clinical Research

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ABSTRACT

Research primarily focusses on pursuing in-depth knowledge for the progress of the science and society. Publishing the work is crucial for its communication among the scientific community and to the public. Conducting the research demands extensive time and effort but the entire struggle goes futile unless the work gets published in a reputed journal. A researcher confronts many such dilemma as the appraisal of his effort depends upon the quality of conducting and publishing the work. Current setting demands increasing publication for professional accreditation and upgradation of research profile pressurizing authors which results in many ethical lapses in their works. This paper intends to highlight such lapses commonly seen in current research practices. The match between the study design and the research objectives, various components like sample size, methods of recruiting participants against inclusion and exclusion criteria and allocating the subjects to different groups, time period for collecting data or conducting the study, enlisting the confounding variables influencing the results, maintenance of data transparency and arriving at conclusions without considering the alternatives have considerable impact over its credibility. Improper execution of the work could affect its replicability and such negligence in research influences its quality making the entire work insignificant.

Summary - The current academic and research settings have forced the scholars and researchers to conduct extensive research for increasing their publications and upgrading their research profile. This led to many works with uncertain credibility, reflected in the execution of the study as well as with its publication. This article points out a few among such works from different aspects which could influence the result of the study. Such trends in research makes the whole resource and time futile and the entire work insignificant.

KEYWORDS

Research quality, Research methodology, Research publications, Data transparency

INTRODUCTION

Research and publications are fundamental for the communication of scientific works. While conducting or reporting a research certain standards need to be followed for maintaining its quality. Research always aim to reveal the truth about the unknown facts but conjectures alters the facts. With wrong assessments and wrong interpretations its core idea is being lost. Scientific publication forms a crucial part in the progress of science and in bringing changes based on evidence. Rather than these, the main motivation behind such publications are requirements like professional accreditation, receiving grants, to be acknowledged as proficient in a particular field, for international recognition and for upgrading the research profile(1). As the number of papers published and citations received forms an index for assessing the quality of a researcher, there is increased pressure on authors for publishing, resulting in several ethical lapses(2). Open access journals with high publishing standards encompasses Article Processing Charges(APC) to cover up the costs of processing the article. The high APC made it nearly impossible for authors from low- and middle-income countries to publish their work in reputed journals. Even though journals offer waivers and discounts, authors without funding often fail to afford the cost of publishing their articles. Hence, they find some other alternative journals which does not maintain required standards and may affect the validity and suitability of publication(3). Quality research encompasses all aspects of research from designing and conducting the study till its publication. It also incorporates the research components viz the match between the methods and questions, recruitment and allocation of subjects, outcome assessment and protection against systematic bias, non-systematic bias, and inferential error(4). This paper summarizes our findings regarding the lapses commonly seen in current research.

Research methodology is the scientific approach of data collection and analysis. Only the right methodology assists in accomplishing the research objectives to test the research hypothesis. Validity of the study depends on replication of the results and replicability in research depends on appropriateness of the methodology. Citing an example is the study conducted by Thomas et al. (2020)(5) on dietary incorporation of Green Jackfruit flour in preventing Chemotherapy-

Induced Leukopenia. Being the blueprint of research, the design specifies the source and procedure of data collection. The nature of the research question determines how the research will be conducted. In the above-mentioned study, 50 patients undergoing chemotherapy were advised for incorporating Green Jackfruit flour in their diet till chemo completion for evaluating the reduction in the development of leukopenia. This data was compared with that of control group comprising 50 patients prior to June 2018. So, as per the research question the design need to be prospective study with historic control - incorporating the historical data through single arm trial(6) but was mentioned as a retrospective study.

DISCIPLINED CONDUCTION:

In research, it is not only the result that counts but how it was arrived at. The time period within which the study and control subjects were assessed or time taken for conducting the research also forms an integral part in research. It is necessary for understanding the population characteristics and the study period would also reveal the relevance of the study with respect to the present period(7). Specifically in case of historic control, the time period forms an important aspect. In this study, the author has vaguely mentioned as subjects prior to June 2018 rather than specifying the time period.

Sample size is a major determinant in research which demands consideration as it limits the risk in reporting false negative results and helps arriving at accurate conclusions. The researcher should also justify the reason for choosing a particular sample size in the study. As research works are being conducted in limited number of subjects, sampling variability may contribute to differences in results and hence the credibility of the study(8). For instance, Thomas et al. (5) in his study mentioned the sample size to be 50 in both groups but data was found to be of only 37 subjects in the study group. Such variations could bring statistically inconclusive results.

Recruitment of subjects in research involves identifying potential participants against proposed inclusion and exclusion criteria which are crucial to overcome the misleading by variables. In the same study, there was no mentioning of inclusions except for patients undergoing

chemotherapy for solid tumours. Baseline covariates like stage of cancer, time since diagnosis, occupation, habits/addictions, past medical history/ comorbidities and treatment history were lacking. The exclusion criteria was only mentioned as patients receiving less than three cycles of chemotherapy and hence lacked specificity. Incorporating jackfruit flour in the diet in study group was patient's choice and they have presented the data as including and excluding jackfruit flour in their diet. This method of allocating subjects to the study group does not seem to be systematic. Thus, the process of screening, recruitment and follow up were not clearly mentioned in the study. In the research paper by Björnsson et al. (2020)(9) highlighting the hepatotoxicity of Ashwagandha with regards to herbal and dietary supplements, there was no comments about other potential factors which could contribute to the hepatotoxicity in patients like their past medical and treatment history (blood transfusions or other medications), personal history (alcohol intake, intravenous drug use) or their occupation. In the study, they have failed to identify the name of one among the supplements used by the subject and hence its constituents. Significant details concerning the collections of drug samples by Arindam et al. (2019)(10) like the time of collection, reliability of sources, climatic or geographical factors have not been addressed.

Findings of the scientific work should be presented objectively to maintain data transparency in research. Hence trial results and reports including laboratory findings, chemical analysis reports, histological findings should be disclosed without bias according to the nature of the study. Some research papers present their study without disclosing clinically significant results like the main laboratory finding justifying the reduction in the development of leukopenia by Thomas et al. (2020)(5) or chemical analysis report specifying the major phytoconstituents present in the samples which elicited hepatotoxicity in the study by Björnsson et al. (2020)(9). Similarly, the Graphite Furnace Atomic Absorption Spectroscopy (GFAAS) reports for metal analysis in the work done by Arindam et al. (2019)(10) was not available in the published paper. In the same study they have not presented any reports or valid clinical evidence to substantiate their allegation regarding impaired renal and liver function with the prolonged intake of Indian herbal medicines.

CONTROLLED INTERPRETATION OF RESULTS:

The empirical facts and figures obtained during the process of data collection is analysed and interpreted to reach at a conclusion which should justify the objective. Many a time such conclusions are drawn without proper consideration like the assertion regarding the hepatotoxicity of Ashwagandha (Björnsson et al. (2020)(9)). In this study, the patients in the case series were consuming multiple herbal supplements along with the one containing Ashwagandha. Without evaluating the safety of other herbal supplements, they have concluded the hepatotoxicity as a result of consuming Ashwagandha. The toxicity could possibly be due to any other supplement or due to their interactions as well(11). Similarly, arriving at a conclusion regarding more contamination of lead and cadmium in marketed samples than the tribal varieties where the assessment is done with unequal and different specimens seems ambiguous (Arindam et al. (2019)(10)).

CONCLUSION:

The research quality depends on aspects regarding the execution of the work as well as with its reporting. The substandard quality of research affects its credibility making it impossible to entrust the assertions thereby making the research insignificant. The current trends in research seem to conclude their study without evaluating alternative explanations for their findings. Often significant details concerning the conduct of research or its reporting is not mentioned. This could affect the replicability of the work which impedes its reliability. It is of utmost importance as research papers mostly disseminate many new ideas in the public domain and hence its quality must be appropriately assessed to arrive at proper conclusions.

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