EDITORIAL

Training Students in Research Methodology : Are We Doing Enough?

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I often receive messages from students undergoing their MD or MS courses in colleges outside my own college requesting to suggest a topic for their thesis/ dissertation. What should be a carefully thought out critical decision between a guide and student has frequently become a matter to be discussed with strangers who have no working knowledge of the interest of the student/guide, infrastructure, budgetary constraints or expertise available at the concerned place. I also get requests for a literature search on a topic of interest or more rarely wanting to know which statistical test to apply for a given set of data. The nature of these requests sometimes disturb me since very often the solution is very simple. I wonder what leads these young people to ask me for advice in the first place. Confidence in my knowledge? (I often get an ego message from these e-mails), lack of expertise in the college where the student is studying? unhelpful faculty? easy communicability through e-mail leading to students becoming less discerning? It is my personal opinion that the answer seems to be a mix of all these factors as well as the fact that students are not getting the training they need on research methodology so that they are empowered to handle most of these problems by themselves.

It is no surprise that the research methodology has changed much in the past few decades. Publishing a scientific paper has also become more difficult as editors have become more critical in accepting articles. In the light of these changes I believe that enough is not being done to help students approach, plan and conduct their research in a scientific manner.

Most postgraduate courses in medical colleges do not have a research methodology component. In fact, the only way in which students get to know how to do research, is by doing their dissertation. This was the way it is being done for decades and though there is nothing wrong with the thinking behind this Teaching-Learning method, we must realize that since many basic concepts in research methodology have changed so drastically and has become so complicated, this method may not be the most ideal way to teach research (1). Some medical colleges conduct an orientation programme for a couple of days and some have a more structured training course in this topic but the majority of colleges have none. How is it possible then for a postgraduate to conduct research when the rules have not been explained?

Traditionally, in India, a fairly good amount of research was being done in medical colleges and hence it was possible for students to pick up the basics since there were many within a department who could show him/ her the ropes. However, this scenario has now changed. With Contract Research Organizations and pharmaceutical companies doing most of the clinical trials and basic research, there has been a discernible fall in the quantity and quality of research in medical colleges (2). It is no wonder that many students resort to plagiarizing another thesis or a paper already published in a journal, since no one really cares whether the work has been honestly conceived and carried out. Should we care about this state of affairs? What should be done?

Unless medical doctors take research seriously, we will be going down a deep abyss from which there will be no way out. They should conduct clinical trials to find solutions to our health problems and unless the methods, procedures and concepts are known to them the quality of the study will be compromised. It is not sufficient for doctors to agree to conduct clinical trials sponsored by pharmaceutical firms convincing themselves that they only need to fill up the case records with the necessary clinical observations and that good knowledge of clinical

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trial methodology is not required. If they do so, they will be mere clerks, filling up forms and unable to give the critical input that is so important in clinical trials and sometimes may end up doing unethical acts as well.

Secondly doctors need to know how the latest drugs, devices such as stents etc., were tested and proven safe and efficacious before they use them on their own patients. Ten years down the line, every undergraduate medical student will prescribe at least 4-5 drugs about which he was not taught at medical school. Drug promotion is so full of statistics, (usually misleading), that unless a doctor is familiar with study design and basic biomedical statistics they will surely be misinformed. Hence, it is essential that we teach our undergraduates and postgraduates research methodology.

Having said that, you may ask what should be done? All colleges with postgraduate courses should conduct classes on research methodology as a part of their training. Formal lectures, seminars, symposia on various aspects should be conducted. Workshops targeting specific aspects such as protocol writing, statistics, scientific writing should be held during their course. Formal evaluation should also be done during university exams to ensure students learn these aspects. Editors should take the initiative and conduct courses in biostatistics, research methodology, scientific writing and so on. Unless editors invest in this kind of initiative they will not be able to attract good quality articles. It is heart warming that many journal editors in India are doing so. But much more needs to be done. It is rather unfortunate that students are not receiving the training they should in basic concepts of study design, biostatistics etc., usually due to the fact that the senior faculty is not comfortable with these topics themselves. Having not formally learnt these subjects when they were students, they are wary of introducing it into the training programme and so, rather than finding a way to introducing these subjects many teachers prefer to ignore that they need to be taught.

The issue is more serious when it comes to PhD programmes in medical colleges. While many members of the faculty are happy to become guides (so that this fact can be included in their biodata) they do not acknowledge the responsibility which it entails. The criteria for becoming a guide for PhD are very minimal in many universities. Hence, I know of many guides who have become guides because they qualify due to the "n" years of teaching experience and due to the "n" number of papers published usually which they have received as gift authorship. When students begin to work under them, they find they get no guidance whatsoever and also fall prey to their sense of inadequacy which is usually manifested in petty ego clashes.

I have been witness to serious scientific misconduct five times in the past five years, excluding those instances I have come across as an associate editor of the Indian Journal of Pharmacology. They were four cases of frank plagiarism and one case of falsification of data, all by students who were either doing their M.D. or Ph.D. In each of these cases formal written complaints, with evidence, were given to the administrators. No formal enquiry was held on all these cases, the person giving the complaint was never asked to explain or state his/her case and the student was awarded the degree. This urge to protect students, by some guides, administrators and university officials in the guise of protecting the interest of students' ("they may go to court") and the name of the college/university is probably the single most detrimental factor which is eroding the quality of research in medical colleges. I dread to think what sort of mentors these students (who were involved in the misconduct) would make in a few years from now. Would they encourage their students to cook up data? Would they turn a blind eye when logbooks, slides or the evidence of their experiments disappear? Would they perhaps teach their students to plagiarize? What of the science they perhaps would perform? Would any of those administrators or vice-chancellors of universities care?

I have been witness to a PhD public viva voce some days ago. The guide had no background of the work done, had never worked in that field before, the protocol was plagiarized with no acknowledgement being given to the person who planned it, and the objectives of the thesis did not match the methodology nor the conclusions drawn. Yet the candidate was awarded the degree! To prevent any "unpleasantness" at the public viva voce, the announcement regarding it was not circulated in time, probably with a view to prevent people from coming and asking the candidate questions. When guides use underhand methods to conceal the poor quality of

research done, it is indeed a sad testimony of the deep trouble we are in.This incidence only reflect the tip of the ice-berg and I am sure each of the readers will have more stories to share.

Hence, it is not enough that we teach research methodology, it is not enough that we conduct workshops on research methodology and scientific writing, hoping that the learning curve would improve and that those exposed to scientific methods would shy away from doing scientific misconduct, it is not enough to write letters of protest when there is evidence of scientific misconduct. We must, at each institution prepare Standard Operating Procedures (SOPs) to deal with scientific misconduct. Perhaps a public statement issued to the media that such a person was found guilty and action was taken would not be inappropriate since the damage done by unethical research is far more dangerous. It would be perhaps this fear of embarrassment at the hands of the media which may put a stop to this. Those in academic councils must ensure that guides are made accountable for the training of their students. Students should feel confident and proud of the work that they have done and at the end of the course, feel confident of guiding another student. Unless we can train them so, we would not be doing enough.

Reference

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