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Involving Indian Medical Students in Research: The Newer Paradigm

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Editorial

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INTRODUCTION

Research is to see what everybody else has seen, and to think what nobody else has thought- Albert-Szent Gyorgi

A young boy once set out in search of a hidden treasure. He met a few wise men, who provided him with clues on how to find it. Those clues took him all around the world, exposing him to life-endangering experiences. Through sheer grit, determination and imagination, he overtook all obstacles, finally reaching the treasure. He was shocked however to discover that the treasure was hidden right in his backyard. Why, then, had he been made to endure all these hardships?

The above is a summary of the fable called The Alchemist written by Paulo Coelho. The real treasure was not the gold hidden in the backyard, but the amazing journey to discovery, and the invaluable experiences it brought along. For years, medical education in India has been guilty of denying the young medical students such life-altering experiences. But all that is now set for a change. Or is it? Let's find out.

Like a true researcher, let's begin by defining the problem. Medical students are one of the largest forces available that can be mobilized for research purposes. However, there are certain barriers that prevent it from happening:

"Research is not going to be of any use to medical students, who are anyways over-burdened with their syllabi". Medical students are indeed over-burdened with rote learning tasks. This leaves them with little opportunity to apply their own brains. The process of becoming a researcher after completion of medical learning, therefore, often involves a process of 'unlearning' as an initial step. Inspiring medical students to think beyond what is written in textbooks is the only way to prevent this from happening.

Involvement of students in research projects would help them take better clinical decisions as they would be better equipped to apply the principles of evidence-based medicine. It would improve their critical thinking and reasoning skills, and they would be able to solve health problems in a much better way ^[1]. They would be able to collect and interpret data in a much better and refined way, and would be able to make better use of available and emerging technology in medicine and health care.

Students would also be able to identify their areas of interest, and thus make better informed decisions in choosing their future careers. Even if they do not continue with research as a career, they would have some obvious advantage, including^[2,3].

- better communication skills
- improvement in the skills of critical appraisal of medical literature
- understanding of where to search the required information
- understanding of what are the sources of information
- understanding of which are the genuine sources of information, and
- Knowledge of how to write papers and get published.

Involvement in research projects would give them an opportunity to work with a faculty on the research projects, and thus have better bonding with the faculty. They would also get a chance to work with intellectuals, thinkers, and researchers, and this would help them develop different ways of tackling problems.

"Research requires great knowledge of the subject, which medical students cannot be expected to have. Moreover, research requires extensive infrastructure, which is a rarity in India".

Nothing could be further from the truth. Research is all about keeping an open mind. History proves that great discoveries have been made by naive but curious minds, even with minimal resources at disposal. Take the case of discovery of penicillin for example; it was just a matter of Sir Alexander Fleming's sharp observation in a very basic laboratory! More than anything else, research requires a desire to explore. It's our firm belief that young minds just need a nudge in the right direction. Most medical institutes have enough infrastructures to be able to support a variety of basic research projects, if not very complex research.

"It would put extra burden on the faculty, and would be of no use to them".

It is now well recognized by faculty members themselves that their involvement in undergraduate research projects invigorates the faculty and keeps their brains fertile. As an added incentive, it also provides them with an opportunity to add to their list of publications, which comes in handy at time of appraisals. One may add to this the immense satisfaction one obtains when one's student comes up a publication-worthy idea or work.

"Research by medical students is unlikely to be of any use to health care".

Involvement of medical students in research needs to be seen as an investment. While it may produce some short term benefits, and even an occasional jackpot, the true benefits are to be reaped in the long term. It is not that difficult to fathom how a researcher, who has been 'into it' from an early age, will be much better equipped to come up with strategies to handle complex and emerging healthcare problems.

In the recent times, there has been increased awareness among all stakeholders of these potential benefits of involving students in medical research. Accordingly, there are a few small but significant steps that have been taken in this regard.

The Indian Council of Medical Research (ICMR) initiated the process of promoting interest for research among medical undergraduates way back in 1979 through the Short Term Studentship (STS) Program. The main objective of STS Program is to familiarize the undergraduate medical students with the research methodology and techniques, by giving them an opportunity to be associated with research projects for short duration, under the supervision of a guide^[4]. It is the most favored such program till date.

Another Programme called the Jawaharlal Nehru Centre for Advanced Scientific Research - Summer Research Fellowship Programme (JNCASR-SRFP) provides research fellowships & summer internship programs for medical students and graduates^[5]. Other less popular programs include Indian Academy of Sciences Summer Research Fellowship Programme (SRFP), Tata Institute of Fundamental Research Visiting Students' Research Programme (TIFR's VSRP). MEDICON, a National level research conference, is exclusively for undergraduate medical students^[6,7]. Organized by Indian Forum of Medical Research (INFORMER), it encourages young medicos to showcase their work^[8].

In spite of the above efforts, the fact remains that not many medical students are truly involved in research. Although the number of students going in for research projects is increasing every year, the graph is not rising as it should. The number of publications by undergraduate medical students from India is much below the International norms^[9]. This clearly implies that more needs to be done. Young minds are an opportunity we cannot afford to write-off any more, and there is a lot that can be done. The following are just a few recommendations from minds that have been into research for a few years now; naïve medical students could probably come up with a few more!

- Medical Education Units (MEU) can be converted into Medical Education and Research (MEUR) units, or a research department can be incorporated in all the medical colleges, where having a statistician as a part of the research department can be made mandatory.

- Extra marks may be given in internal assessment for those going in for research projects.
- Mentoring the students: Faculty identified by the research committee can be mentors to motivate and guide the students

to do research.

- Mandatory basic research methodology lectures and evaluation can ensure involvement of all the students in at least the minimal required basics of research.
- Formation of research teams involving medical students in each college can help develop a healthy research environment.
- More competitions can be conducted at college, university, and state, national and international levels, where students with the best methodology, best research project, and innovative research projects, etc. are awarded. This would stimulate the students' thinking and involvement in research projects.
- Workshops should be conducted for medical students to learn the basics of research.
- Research can be incentivized by providing additional marks for admission to post-graduate courses.
- More funding and investments for UG research by the Centre and state governments is definitely a need of the hour.
- Scholarships and other incentives for good student researchers would motivate them to continue further their research at national as well as international level.

It is indeed our heartfelt belief that involving medical students in research is going to benefit all the stakeholders, be it the students, faculty, or the medical system in general. Great researchers of the future can certainly be expected to sprout from little seeds that have been sown in the soil of research. It is only by letting the boy find his own hidden treasures that we can truly help him realize his full potential. So let's set him free; he may end up with a few bruises, but a few gems he will find as well.

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