

Educational Research in Health Sciences

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Introduction

Research is finding truth. Finding truth is an essential human activity to generate new knowledge, develop theories and apply the same to practice. While theory without practice is useless, practice without theory is dangerous. Research in medical education is a new and developing field with immense scope to revamp the whole gamut of health profession in order to achieve health goals across the globe. The broad canvas of research in medical education starts with undergraduate medical education.⁽¹⁾ As indicated in previous reports, educational research is expected to go a long way.⁽²⁾ In this article I propose to sketch an overview of research traditions, status of educational research in our country, the problems identified and some possible solutions.

Research Paradigms

If we say, 'research is search for truth', the question arises: What is truth? There are basically three research paradigms to explain the nature of truth and how to reveal the same.⁽³⁾ The first paradigm is called 'positivism' which has been dominated by the scientists since 17th century. Positivists believe that there is only one objective reality which can be revealed by didactic approach of proving or disproving the hypothesis. The use of experimental methods and quantitative methods is the main strategy. This paradigm worked well in 'explaining' and/or 'predicting' a phenomenon by establishing 'cause and effect relationship' and resulted in many discoveries. However, this paradigm is inadequate to 'describe' a phenomenon or to 'explore' a new theory.

Post 1970's there was a second thought that scientific experiments were not always relevant or useful in answering certain research questions, especially when it comes to describe the quality of intervention especially related to human behaviour. This gave rise to the birth of a second paradigm called 'Post positivism' which believes that quantitative methods need to be supplemented with qualitative methods to probe in to human behaviour. This approach gave rise to the trend of 'mixed methods' to supplement the strengths of both qualitative and quantitative methods.

The third paradigm called 'constructivism' challenges the very nature of truth. It emerged from the social science and humanities, arguing that truth related to human behaviour and experience, is largely

'constructed' by the participants, hence it changes from time to time. The researcher under the constructivism uses multiple methods, tools and techniques, such as Grounded Theory (to develop a theoretical model based on actual ground realities), Phenomenology (to understand a phenomenon from participants' perception), Ethnography (to gain insights of a culture), Case Study (to develop in-depth understanding of a case) and Narratives (to capture long personal experience). The researcher interacts with the participant in a 'naturalistic setting' as against artificial 'lab setting' and helps in describing and exploring an issue. The focus here is on 'contextualization' rather than 'generalization'. A method of 'triangulation' is used for validating the results. Constructivism has developed as a new wave in social science, humanities and education.

Which paradigm to follow?

An educational researcher can follow any one of these paradigms depending upon the purpose of the research and the feasibility of the methods in answering the research question. While experimental method, especially the Randomized Control Trial (RCT) is a 'gold standard' in establishing in clinical research, it is difficult to implement it in an educational setting, as many of variables, for example, teachers' style of teaching cannot be controlled and the confounding variables such as cross interaction taking place between experimental group and controls can't be measured objectively.⁽⁴⁾

The need to focus on mixed methods also arises from the shift expected in the nature of medicine itself. The current model of 'curative medicine' based on the foundation of 'pathogenesis' is currently being challenged by the concept of health as 'well being' (salutogenesis), giving rise to the birth of 'mind body medicine', integrative medicine and P4 medicine. The effect of interventions such as 'hidden curriculum', practice of Yoga, music therapy, and other complimentary therapies can be explored better by this paradigm rather than conventional experimental tradition.

The need for Educational Research

There is a hue and a cry in medical education system in our country largely due to lack of research evidence to prove or disprove a policy. The policy is often driven by so called 'expert committee', popular

demands from the public or student community, political pressures, or in recent times by judicial intervention, but hardly based on the research evidence. Are we admitting right medical students, based on valid, reliable and transparent tools? Are the students taught in such a way that they enjoy learning? Are they assessed to ensure that they have acquired necessary competencies required for effective practice in a variety of settings? Is our curriculum aligned with the competencies needed for the profession today, such as critical thinking & problem solving skills, life-long learning, interpersonal communication skills, attitudes, values and professionalism including ethical behaviour? Are our faculty adequately trained to play future roles of teachers such as small group facilitators, instructional designers, mentors, feedback providers, researchers, leaders and agents of change? The questions listed here are illustrative and not exhaustive. We are almost walking on the 'problems' and passing the buck to judiciary, which is 'overworked' and 'under-qualified(?)' to give 'quick-fix solutions' for 'chronic' educational ills.

Status of Educational Research

Research has always taken back seat in medical education. While research forms an integral part of undergraduate medical curriculum in several countries, in India it is almost non-existent. The MCI Vision document 2015 has realized this gap and included research methodology as one of the elective subjects. Is this adequate? During Postgraduate training, submission of a dissertation is a mandatory requirement. However, the efforts seem to be directed towards answering stereotyped questions, and one is not sure about either the rigor of research training or the quality of output. A number of postgraduates are likely to become teachers, is it not logical to take up educational projects also for PG Dissertations?

Educational research conducted by medical teachers came as an offshoot of educational projects taken by the participants of National Courses organized by National Teacher Training Centre (NTTC), JIPMER, Pondicherry during early eighties'. Every participant was expected to take up an educational project in the workplace. However, due to paucity of monitoring, mentoring and follow-up, this concept did not pick up with some exceptions. The introduction of FAIMER Fellowships in India at three centres, viz., Mumbai, Ludhiana and Coimbatore since 2004 gave a new stimulus to educational research. The fellowship revolves around planning and implementing an educational project. Many of the FAIMER Fellows have published their projects in national and international journals. The series of National Conferences on Health Professional Education (NCHPE) beginning with National Conference held at AIIMS New Delhi (NCME-2007), provided a platform

for presenting posters and papers in medical education research.

The mandatory requirement of establishing a Medical Education Unit in each college has provided further impetus to educational research. The Advanced Course launched by the MCI at the Nodal Centres (2012) has a research project as a mandatory requirement.

The introduction of longitudinal courses under the flagship of Health Universities is perhaps the most welcome development. While Maharashtra University of Health Sciences (MUHS) has launched Masters in Health Professions Education for the first time in India, Datta Meghe Institute of Medical Sciences (Deemed University), Sawangi, Nagpur, and Sri Balaji Vidyapeeth (Deemed University), Pondicherry have introduced M. Phil, Ph D and Certificate linked PGDHPE, M. Phil and Ph D respectively. We can expect some quantum leap to make up the historical gross deficit in India compared with international output.

Issues and problems identified

A study conducted by Ray, Shah and Nundy related to research output from Indian Medical Colleges and Hospitals between 2005 to 2014 concluded that the overall output is poor.⁽⁵⁾ According to them medical education has now become a business and there is little in interest in research, which is not thought to be profitable activity. Lack of guidance, absence of role models among seniors, little institutional support in terms of infrastructure and funding, lack of incentives to do research, promotion policy based on extraneous factors besides poor language skills are some of the lacunae identified by the authors. An International Conclave held at Nagpur (ERICON 2017) deliberated on the educational research and identified similar list of barriers, under six categories viz., personal barriers (lack of knowledge, skill and motivation), organizational barriers (lack of infrastructure and facilities), strategic and policy barriers (lack of comprehensive planning, and policy), educational barriers (low research morale in educational system), Financial barriers (lack of funds) and Cultural barriers (lack of research culture).⁽⁶⁾

While the volume of research in medical education is quite low, there is also uneven distribution of research areas among researchers. Topics such as effectiveness of various teaching methods, use of different media, test construction and KAP studies have been conducted more frequently than much coveted issues such as student selection, introduction of Competency Based Medical Education (CBME), standard setting in examinations, simulation, role of e-learning, open learning and MOOC. Other areas of future interest are Quality Assurance and accreditation, inter-professional education, developing soft skills like

professionalism, medical humanities, patient safety, guidance & counselling, mentoring and feedback.

The Way forward

There has to be a multi-pronged approach if we have to strengthen research in medical education.

1. The best time to kindle research interest is right from the beginning of undergraduate education. Research Methodology as an Elective is not adequate. There is ample scope to integrate research and critical inquiry throughout the MBBS curriculum and internship training. When the students are posted in community, they can be trained in using simple tools and techniques of observation and measurement to answer simple research questions.
2. The Medical Education Units in collaboration with clinical epidemiology and biostatistics units can play a key role in organizing workshops on research methodology are becoming increasingly popular. The availability of MOOC and online certificate courses is a welcome development.⁽⁷⁾ There is a need to address qualitative methods also. The ethical issues related to the conduct of educational research should be re-examined.
3. Role modelling, mentoring, and handholding play a very important role in research training. Networking of individuals and institutes locally, nationally and globally goes a long way in promoting multi-centric studies to bring better credibility to the research. The Academy of Health Professions Education (AHPE), India which organizes annual conference (NCHPE) can play active role along with other players such as MCI Nodal Centres, FAIMER Regional Institutes and Universities of Health Sciences which have introduced research based higher degree programs like MHPE, M Phil and Ph D.
4. The issue of giving incentives for publication linked with Journal Impact Factor has led to some confusion. The MCI minimum requirement of publications for recruitment and promotion has met with criticism from several quarters stating that e-journals which are becoming popular and affordable are not considered and only first/ second author is considered. The rat race for publication has also given rise to 'predatory journals' and publication scams. Thus many people argue in favour of 'intrinsic motivation' rather than 'extrinsic motivation'. What is needed is good research rather than more publications. Nevertheless, the role played by some of the genuine new journals like JETHS cannot be underestimated. Established journals such as National Medical Journal of India, Indian Paediatrics publish papers in medical education on regular basis. Now there is no dearth of journals for the researchers. What is required is high quality of

research and good writing, especially for international benchmarking.

5. The extended concept of scholarship to embrace four types of scholarship after Boyer's work is a promising development. In addition to the scholarship of research, we need to recognize scholarship of teaching, application and integration across health profession. With the increased complexity of the health systems and resultant interdependence the development of inter-professional education is much needed thrust. We need to explore both discipline based educational research (DBER) as well as common areas, thus making connections among the health profession and beyond.

On a philosophical note, the foundation of our Indian wisdom lies in realizing the absolute truth by combining three elements: knowledge acquired by self (*Jeeva*), the world view (*Jagat*), and the third 'eye', which is unknown and unseen called 'Divine' (call it by whatever name you wish - God, destiny, chance factor). When these three elements combine (Triangulation), we will be able to see and experience the real truth which is not only truthful, but also beautiful and blissful (*Sathyam, Shivam, Sundaram*)

In conclusion, the educational research in our country has made a modest beginning but it has a bright future. What is required is a collective and concerted action by teachers, students, policy makers and managements to support a culture of research. The methodology of educational research is maturing and evolving over the years. It is prudent to utilize a wide range of tools and techniques, using multi-centric studies in a spirit of inter-professional education. After all research knows no boundaries!

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