(REVIEW ARTICLE)

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Why are genius brains of our science community not happy with research?

Raghavendra Rao MV [1, *], Uday Goutham Nookathota [2], Aruna Kumari B [3], Alluri Neeraja [2], Srilatha Bashetti [4], MM Karindas [5], Mahendra. K Verma [6], P. Jaganmohana Rao [7] and Pavani G [8]

[1] Apollo Institute of Medical Sciences and Research, Hyderabad, TS, India.
[2] Goutham neuro care 261MIG, KPHB Colony, Road number 4 Kukatpally, Hyderabad, TS, India.
[3] Shruthi Super Specialties Hospitals, Vijaynagar colony, Hyderabad, TS, India.
[4] Department of Biochemistry, Dr. Patnam Mahender Reddy Institute of Medical Sciences, Chevella, Hyderabad, TS, India.
[5] World Academy of Medical Sciences, Netherlands.
[6] Basic Medical Sciences, American University School of Medicine, Aruba.
[7] Nuclein Biotech Haranathapuram, Nellore, AP, India.
[8] Department of Clinical Microbiology, Apollo Institute of Medical Sciences and Research, Hyderabad, TS, India.

Abstract

Medicine is an ever-changing science and mandates ongoing research. Medical colleges are engines for research all over the world. The increase in longevity across the world is the result of improvements over the years in diagnosis and treatment options of various diseases. This has been possible only due to continuous progress and innovations in medical research globally. Research secures better growth progression. The field of medical research is currently at cross-roads and is being intensively scrutinized for validity and reproducibility. **It** describes an area of knowledge that can be explained in terms of scientific observation. Research is the greatest cumulative venture and gives rise to explanations and answers to everyday life .It gives solutions to the great mysteries of the universe. Research inspires curiosity and an attitude of discovery. It offers perspective, encourages the integration of subjects, and ,ideas ,and promotes truth-seeking. Researchers are the people who tear down myths and solve the mysteries that stand in the way of the development of society. Clinical research aims at taking their expertise to the next level. The high advanced diagnosis and treatment options of various diseases increase in longevity. This has been possible only due to continuous progress and innovations in medical research, improving the quality of health care.

Keywords: Clinical Research; Open-access (OA); Predatory journals; Residency Research Program (RRP); Indian council of Medical Research (ICMR); Department of Sciences and Technology (DST); Department of Biotechnology (DBT)

1. Introduction

Thesis is an important component of PG (MD/MS) and doctorate (DM/MCh) courses to provide experiential learning for research. However, it had been considered more of a "formality" to be completed for appearing in examinations at many colleges. (1)

Some of us might have even heard "thesis is waste of time!"(2)

A review of research publications from 579 Indian medical colleges and hospitals reported that 57.3% of the medical colleges did not have a single publication over 10 years (2005–2014) and only 25 (4.3%) institutions produced more than 100 papers a year (3)

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* Corresponding author: Raghavendra Rao M. V

To address this issue, the Medical Council of India (MCI) has introduced the need to present and publish (or accepted or sent for publication) one research paper during PG training courses as one of the eligibility criteria for appearing in degree examinations (4)

MCI has also taken an initiative by making it mandatory to have a minimum of two research publications in indexed journals for faculty promotions (5)

Unfortunately, following this, there has been mushrooming of predatory journals publishing a large number of poor quality papers without peer review, thus defeating the whole purpose (6)

However, recently, faculty have started undergoing training in research methodology by choice. Many colleges have introduced formal training programs for research methodology to write synopsis and conduct thesis work. To promote quality research among medical/dental students, the Indian Council of Medical Research is providing grants to selected 100 PGs (Rs. 50,000/-) and 1500 undergraduates (Rs. 20,000/-) annually.(7,8)

As per the "Medical Council of India (MCI) guidelines for appointments and promotions of medical teachers," research publication is an essential requirement.(9)

Although the MCI has done so with a noble intention to improve the qualities of evidence-based teaching and also motivate medical teachers in research, the guidelines were taken up by many of us as a check for promotions and appointments .(10)

After these guidelines, there was a mad rush among the academia to publish, leading to a pandemic of publications where the authors are willing to pay for a publication. It ultimately led to the birth of "predatory journals." The word predatory journal, as coined by Beall refers to the journals which do not aim to provide a platform for generating scientific evidence or to promote, preserve, and bring something new to the existing literature/evidence but on the contrary, the mission is to exploit the open-access (OA) model for their own profit.(11)

As per the Beall's List of 2015, potential/possible/probable predatory publishers and journals were 693 and 507, respectively. It was an increase of 97% (of publishers) and 75% (of journals) in the last 5 years and 3 years, respectively.(12)

To understand the phenomenon of predatory journals, it is important to understand what OA is. It refers to online research outputs that are free of all restrictions on access (access tolls) and use (copyright, license, etc.).(13)

Human research studies in this region have not been appropriately identified as such but rather considered quality improvement initiatives.(14)

Furthermore, basic science and behavioral studies contribute to the bulk of human research. However, the government policy is giving the research top priority in the UAE.(15)

Hence, initiatives by the government to encourage medical research, including research conducted by medical trainees, have enabled a transformation from the traditional practice of medicine to evidence based. Commonly cited barriers on conducting research include lack of knowledge about institutional research programs, lack of confidence regarding medical writing skills, failure to understand the value of research, lack of funding support, unavailability of faculty mentors, and most importantly, lack of time.(16,17)

Gulf Cooperation Council (GCC) countries are in crucial need for raising the culture of research among their young physicians. To overcome these challenges, the Dubai Residency Training Program (DRTP) commenced in the year 1993 has implemented research as an integral component for the residents in 2011 in forms of "Residency Research Program (RRP)." (18,19,20)

Objectives of research

- Travel over the latest advancements in clinical research
- Understand the clinical research leadership and how to apply them strategically
- Delve into the complex world of research moral code
- Research drug development
- Investigate analysis of clinical trials

- Practice advanced quantitative methods of epidemiology
- Utilize advanced statistical tools

2. Key Proficiencies for Clinical Researchers

- Formulate hypotheses and design clinical studies to gather important insights.
- Statistical analysis on research findings is required
- Protecting the safety of clinical trial participants,
- Clinical researchers need to be able to build strong multi-disciplinary teams and lead them to success.
- Make ready to steer the funding people
- Critically evaluate medical literature
- Strengthen your knowledge in all areas, branches of medicine.

3. A good research supervisor is no different from being a good team leader

The role of a research supervisor is crucial for quality of research.Experience, expertise and empathy are three crucial characteristics that research supervisors need to cultivate to encourage quality research.Research has become an integral part of teaching; therefore, achieving quality in research is important. Most higher education institutions are striving to establish research centres and expect and even insist that their faculty should not only complete their Ph.D.s but also register as research supervisors. As a result, it is imperative to understand the meaning of quality. It generally involves fulfilling several criteria such as publications in quality journals, work on research projects, patents, and so on. Quality involves the right attitude towards research. This is where the role of research supervisor/guide becomes crucial.

Many research supervisors have adequate aptitude but lack the right attitude. Around 70% of those who register for a Ph.D are part-time external scholars, who face many practical constraints in carrying out effective research and successfully completing it. Thus, most are unable to complete their thesis in the prescribed time. Other factors include improper choice of topics, lack of facilities, financial constraints, and so on. A research supervisor should take into account the problems faced by the scholars, mentor them accordingly and reassure them.(21)

4. Challenges faced by researchers in medical universities and institutions

There are several breakthroughs achieved by scientists and researchers in the medical field, in finding the solutions from diagnosis to treatment, various discoveries and innovations in understanding the disease, its diagnosis, treatment, equipment, etc; rapid advancement in medical sciences merged with technology. It is a continuous and never ending process as there are still many areas with answered and unsolved problems arising in the medical field which demand the contribution of scientists and researchers to bridge the gap between science and research. There is a huge revolution in the health care industry wherein information technology and health care practices are together walking in hand expanding the knowledge from cell biology to genomics and proteinomics, inborn errors and cancers to stem cell therapies. Despite vast knowledge and achievements we still need work to reason many neurological abnormalities like dystrophy, Alzheimer's, immune disorders, cancers, pediatric illness like congenital diseases, inborn errors, sickle cell anemia, infectious diseases like AIDS, Meningitis, Hepatitis and so on. This scenario demands good resources, facilities, informative systems, technology and equipments to the scientists and researchers at the medical institutions and universities along with established ethical and scientific committees put together to extract valuable results.

Unfortunately in India research is given least importance by the medical institutions and substandard research topics are selected only to publish the articles to serve the purpose of faculty promotions. On the other hand there are most committed scientists and researchers but fail to contribute their expertise and intellectual resources to establish good science due to the lack of required resources and funding. Though research is encouraged by many government and private research centers like Indian council of Medical Research (ICMR), Department of Sciences and Technology (DST), department of Biotechnology (DBT), TATA trust, etc to encourage and development research by declaring huge funds for the proposed projects by the scientists and researchers. The researchers fail to make use of these opportunities as many of the medical institutions lack the facilities like will established ethical and scientific committees, resources like animal house, equipments, skilled technical assistants and interested faculty to collaborate. The faculty is burdened with additional administrative responsibilities, active participation in conducting conferences, seminars, workshops and many other activities which force them to compromise their research interest due to imposed academic roles. Very few medical institutions provide administrative support for the faculty. Resistance to change, insecurity, seniority, bossism are various other reasons inhibiting good science and research in the institutions. Despite introducing many programs

like research methodology and writing, basic courses in biomedical research, etc lack active implementation due to poor skills with theoretical knowledge and no practical skills, as the faculty is undergoing the training as it is the requirement to get qualified for promotions. Thus, NMCs aim to improve science and research in the medical field got diluted and failed to contribute to the development of good research in the medical field. Quality research demands dedication, commitment, and consistent and continuous efforts by the faculty which most of them cannot achieve as they fail to balance between professional and personal life.

Medical institutions in India should encourage quality research and this could be possible by establishing research cells and encouraging the interesting faculty and by providing all the required facilities with flexibility and freedom to work.

5. The quality of Medical research

More scholarships should be offered by the government. There should be a timeline for all the procedures of flowchart, assignment of supervisors, and acceptance of synopsis. The schedule of the meeting between supervisor and supervisee and encourage scheduled work. There must be a continuous report on what has been achieved and what is left? These structured time schedules should be checked by the head of the department. The online learning resources should be increased and students should have easy access to these resources. There should be more training programs and workshops to increase the research competencies of the supervisors. More seminars and workshops should be arranged for Ph. D scholars to enhance their research knowledge and competence, English writing skills, communication, and presentation skills.(22)

6. Quality of publications

The shortage of research supervisors, which has led to dwindling opportunities and reduced quality, the undue delay in the evaluation process by the ethical committee members has also been affecting the publication of quality papers.

The objectives of postgraduate (PG) training and residency programs are not only to develop competent specialists, but also competent teachers and competent researchers. Thesis is an important component of PG (MD/MS) and doctorate (DM/MCh) courses to provide experiential learning for research. However, it had been considered more of a "formality" to be completed for appearing in examinations at many colleges.Some of us might have even heard "thesis is impacted feces!" or "thesis is waste of time!"

Although the doctors produced were competent, there were very few publications of original work in international journals from India. A review of research publications from 579 Indian medical colleges and hospitals reported that 57.3% of the medical colleges did not have a single publication over 10 years (2005–2014) and only 25 (4.3%) institutions produced more than 100 papers a year (23)

To address this issue, the Medical Council of India (MCI) has introduced the need to present and publish (or accepted or sent for publication) one research paper during PG training courses as one of the eligibility criteria for appearing in degree examinations (24)

MCI has also taken an initiative by making it mandatory to have a minimum of two research publications in indexed journals for faculty promotions (25)

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7. Quality research in Indian medical colleges and teaching institutions

Aangiographic and pathological detailing of aortoarteritis (the middle aortic syndrome) and revealing its link to tuberculosis, treating neonatal tetanus with a much-reduced cost-effective anti-tetanus serum dosage, successfully treating dehydration in cholera with oral rehydration solution,devising the pulse-polio immunization which ultimately helped in eradicating poliomyelitis, successfully using the prosthetic heart valve for replacement surgeries in rheumatic heart disease, modifying the technique for middle fossa decompression of the trigeminal sensory root for treating the unbearable pain of trigeminal neuralgia,and proving the utility of clinically directed selective screening to diagnose HIV infection in hospitalized children. (27,28,29)

8. Conclusion

Clinical research drives great care and brings cutting edge medicine to the forefront. Good quality medical research, via networks of driven clinicians worldwide, can equip doctors passionate about clinical delivery with the tools for better treatment and improved quality of life for patients with increased prevention of early deaths. Research has become an integral part of teaching; therefore, achieving quality in research is important. This is where the role of research supervisor/guide becomes crucial. Other factors include improper choice of topics, lack of facilities, financial constraints, and so on. A research supervisor should take into account the problems faced by the scholars, mentor them accordingly and reassure them. There are instances of guides having unrealistic expectations from the scholars, which demotivates them. A good research supervisor should have insights on the topic and also understand the calibre and constraints faced by scholars. Research supervisors encourage quality research, keeping in mind their experience, expertise and empathy.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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