

Medical Research in India: Let Us Plug the Holes!

The health-care system across India has witnessed a phenomenal change during the past few decades. Besides these improvements, it is time to lay more importance on applied research for increasing the technological advancements in our field. Discussion about clinical research in India brings out a picture of octopus with many tentacles, with a plethora of challenges and roadblocks. Unfortunately, our research topics greatly lack innovations in technological advancements when compared to the West. Paradoxically, Indian scientists are doing great work outside the country! To understand the scope of research, let us first ponder on why do we need research, how to do meaningful research, and how to implement them in the practical scenario.

India represents 17.5% of the world's population but conducts only 1.4% of global clinical research (calculated for the period of August 7, 2011, to August 6, 2012).^[1] In contrast to the West, clinical research is a relatively recent enterprise for the Indian society. The picture is more dismal because of the fact that India is a land that witnessed one of the most ancient and flourishing civilizations in the world. It has a rich cultural as well as scientific heritage. A multitude of medical systems developed in India, including Naturopathy, Siddha, and Unani, although Ayurveda dominated the Indian medical system for eras. Ayurveda is a part of the Atharva-Veda and means "Science of Life."^[2,3] After being suppressed by the tyrannical British empire for over two centuries, we lost our system of traditional medicine. The British rule brought in Allopathic system of modern medicine in the country.

Medical research has evolved, from individual expert-described opinions and techniques, to scientifically designed methodology-based studies. Evidence-based medicine was established to re-evaluate medical facts and remove various myths in clinical practice. Research methodology is now protocol based with predefined steps.^[4,5]

We are evidencing increases in life expectancy and that goes hand in hand with revolutionizing research and its impacts on health-care system. Our aim is to reduce morbidity and increase health-adjusted life years (HALYs) and reduce years of life lost to disability. For a healthy health-care system to develop, we need clinical research which can be applied for decision-making by policy planners for implementation of strategies. The health-care structure throughout the world has observed a major revolution with technological progresses. The augmented longevity



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of the humankind today has been the consequence of decades of global medical research, ensuing in developments in diagnosis and management. Globally, life expectancy has increased by more than 6 years between 2000 and 2019 – from 66.8 years in 2000 to 73.4 years in 2019.^[6] Healthy life expectancy (HALE) has also increased from 58.3 years in 2000 to 63.7 years in 2019, and this was due to declining mortality rather than reduced years lived with disability. In other words, the increase in HALE (5.4 years) has not kept pace with the increase in life expectancy (6.6 years) 1.2 years are lived with disability.^[6] This further insists that we need clinical research to convert longevity to HALYs.

LET US LOOK INTO THE HIERARCHY OF RESEARCH AND WHAT ARE THE CHALLENGES TO RESEARCH IN INDIA

A critical analytical thinking is of foremost importance which would always thirst for inquiry and research. This instinct is killed by our educational and hierarchical system where we just believe in didactic learning through expert opinions of our guides and professors. We do not need guides who would feed us the results they had obtained but it is high time to search for mentors who would ignite and support innovative thought processes.^[7,8] The prevailing strong hierarchical and authoritative setup in medical institutions is detrimental to the zeal of young and proficient faculty who desire to go beyond the conventional health care. A healthy academic and productive environment stipulates equal contribution, incentives, and prospects for research.

BUT WHERE WE STAND IN RELATION TO AVAILABLE RESEARCH FUNDS?

There is a need to strengthen research capacity in developing countries to redress the "10/90" gap – that only 10% of all global health research funding is being allocated to 90% of the world's burden of preventable

mortality.^[7] Despite the enormous disease burden in developing countries, research is often viewed as an expenditure rather than an investment.

Our two premier institutions – All India Institute of Medical Sciences (AIIMS) and University College of Medical Sciences (UCMS), New Delhi – are plagued by the same issues, and in an article by Alamdari *et al.*, the authors have expounded on our challenges and obstacles and explored the barriers to research among faculty at AIIMS, New Delhi, and compared them with UCMS, New Delhi.^[4]

Shortage of time, busy clinical, laboratory, and service schedules, shortage of necessary equipment, lack of familiarity with statistical methodology, limited training, and experience in data analysis are a few problems ailing these premier institutions. To top that all are added hurdles of poor internal and external financial support, limited access to workshops on writing grant applications, inequitable release time from teaching responsibilities, and difficulty in maintaining equipment were recognized as important barriers to research at both institutions. They suggested that preparing adequate financial support, utilizing available financial resources, reducing nonessential clinical, laboratory, and service obligations, and providing good and relevant statistical courses and workshops would go a long way to support research. Further, they can be given a supporting milieu by consulting processes, training programs, and appropriate staff at institutions to implement grants which can help to develop productive faculty members and enhance research capability at medical institutions in India.^[7]

A bibliometric analysis by an Elsevier publication found that India's major contribution to the scientific world has been in the field of chemistry (38%) while input from health sciences (3.5%) and medical specialties (4.3%) was relatively low. The poor performance of medical research, however, has more serious repercussions since it directly affects the health of people and therefore of the nation. Obviously, we need to ensure quality medical research on a much larger scale. More than rules and regulations, what we really need to achieve these goals include:

- i. Commitment and passion, rather than compulsion, for research and innovation combined with necessary mentoring,
- ii. Bidirectional interactive and integrative environment that promotes and sustains collaboration between clinical and basic scientists on the one hand and the technologists on the other, who can convert innovative findings into usable technology for affordable health care,
- iii. Good training of medical students in clinical

research, especially for those who are inquisitive and research oriented

- iv. Adequate independence of doing research to take their discovery to masses.^[2]

The American Government established the National Institutes of Health (NIH) to promote research after the Second World War, and today, the budget of NIH is more than the national budget of many countries. The hegemony in research made America a true superpower in a short span. India should have its own priorities of research which are very relevant to our problems, such as anemia, metabolic syndrome, cervical and head-and-neck cancers, and obesity. It is high time for India to gear up and push all our researchers to the maximum of their ability.

The quality and quantity of methodical and pertinent research need to be scaled up. The education in research should start at the undergraduate level. The Government should ensure enough resources for training and conduction of research. Hand-holding by mentoring is a key to shape future researchers. We may try innovative approaches like RRCs and amending the rules by NMC that restrict the optimal use of resources.

Future beckons to us with new hope as Government of India is focused on integrating Ayush system in National Health ecosystem and that got a boost in the Budget 2023-24 presented by Finance Minister Nirmala Sitharaman. The total allocation of budget to Ayush Ministry has increased by 20% to Rs. 3647 crores.

LET US PLUG THE HOLES

Research should start from the undergraduate level and be part of postgraduate and postdoctoral courses, proper training, and upgradation of mentors and time distribution for clinical practice should be allocated according to the commitment required, funding from national and international agencies, and proper remuneration for research and researchers. Good quality research is imperative to produce indigenous and original data to address public health problems within the country.

Digitization has a great role to play. Encouraging electronic medical records with data entry operators, involving data analysts is the way forward to capture data and aid research. Priority topics of research required for health should be decided by central agencies like ICMR and same topics to be given to many institutions for research, teaching as well as private sector. This would result in large number of data collection which would be statistically relevant to implement and formulate new policies and improve on old guidelines for health care

services. All the editors of reputed journals can give their inputs, and all professional organizations can also collaborate and make research a priority.

CONCLUSION

To help in research in this issue of JMH, we have maximum number of original articles and original research in India on various topics. Subjects of manuscripts vary from new drugs to genetics of cancers, metabolic and psychological problems, rehabilitation, prevention, endocrinology, alternative therapies, sexuality, role of alternative therapies, and role of new technology lasers and energy sources in menopause. Welcome to learn and contribute.

We are proud to be PubMed and SCOPUS indexed and have an impact factor of more than 1 now and have citation of many articles more than 100. We need larger national database studies.

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