Funding opportunities for higher learning, medical and nursing research in India: An overview

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ABSTRACT

Medical research is an important aspect of medical education and is required to maintain quality. Funding can assist a researcher in doing extensive research in a certain area by boosting study variables, sample size and use of sophisticated state-of-the-art equipments. India’s funding for health research is limited, and only a small percentage of that is used for public health research. Many health professionals have a lot of great ideas for health-related research but do not know where to start looking for financing. A review was created to help medical and nursing professionals to find the correct funding source for their research. There are many governments’ organisations in India, which provide funds for research, grants and higher learning research fellowships. We tried to give an overview of some organisations with their benefits. This review includes the Indian Council of Medical Research (ICMR), Defence Research and Development Organisation (DRDO), Science and Engineering Research Board (SERB), India Alliance, Department of Science and Technology (DST), Department of Biotechnology (DBT), Council of Scientific and Industrial Research (CSIR), Department of Health Research (DHR), Trained Nurses Association of India (TNAl), and the Nursing Research Society of India (NRSI). This review makes aware health professionals to the funding agency as well as the time of funding and fellowship application.

Keywords: Fellowships, financing, funding, health, higher learning, medical, research

Introduction

Researches in the health care system are an invisible driving force to uplift the standard and quality of health care. Primary health care workers are the frontier of medical health issues as they are the ones who first encounter many of the researchable problems and if these professionals are capable of conducting a fruitful research, then a good pool of evidence-based solutions to these problems could be generated but due to lack of interest, knowledge and foremost resources, they are not able to do the good research.[¹,²]

Primary care is the soul of the health care system in India as more than 50% of the population are living in rural areas; hence, it is the urgent need of primary health professionals to do evidence-based practices to uplift the standard of health delivery. In the primary health sector, it is necessary for health care personnel to constantly question their practice and reduce complacency in which good research findings allow them to progress and improve in patient care and provide a better translator of evidence.[³]

Family medicine has a well-developed clinical infrastructure with high productivity, with the second-highest number of practitioners and the highest number of health care contacts. Yet, family medicine has failed to establish a research foundation since its founding. After four decades, the speciality has yet to attain a high degree of research infrastructure, participation, financing, output or legitimacy. According to the family of family
medicine organisations, research is essential to the speciality of family medicine; all family physicians play a role in developing new information and increasing research capability.⁴

Many factors influence the research results, including the study design, variables measured and financing opportunities.⁵ Funding can assist a researcher in doing extensive research in a certain area by boosting study variables, sample size and the use of sophisticated state-of-the-art equipment, all of which improve the reliability and validity of the data and outcomes acquired.⁶ According to estimates, India's funding for health research is limited, and only a small percentage of that is used for public health research.⁷ Because the effective use of available money has a substantial impact on project outcomes, it is critical that today's researchers are well-informed about current funding opportunities.⁸

Many professionals in the medical and nursing fields have an extensive understanding of research and health science, but this knowledge is not benefitting society owing to a lack of awareness regarding financing sources. Whereas, they have a lot of great ideas for health-related research but do not know where to start looking for financing; therefore, this review was created to help them find the correct funding source for their research. Another issue is learning about all the funding agencies from a single source is difficult. Furthermore, there are only a few publications in India that provide information about funding agencies and institutions of higher learning for health research. As a result, we combed through the numerous funding options for health-care research in India and compiled a list of research programmes offered by major funding agencies.

Objective

The purpose of this overview is to provide accurate information regarding funding agencies for higher education and health-related research on a single paper.

Research Funding Agencies

[1] Indian Council of Medical Research (ICMR) (http://www.icmr.nic.in/):⁹³

The ICMR, New Delhi, is India's apex body for biomedical research formulation, coordination and promotion. The Indian government funds the ICMR through the Ministry of Health and Family Welfare's Department of Health Research. MD/MS/DM/ MCh and MDS thesis and postdoctoral fellows are supported by the ICMR.⁹⁴ Every year, the ICMR awards 50 postdoctoral fellowships to researchers working in ICMR institutes and centres with cutting-edge research and development facilities.⁹⁵ The ICMR funds the Short-Term Studentship Programme for undergraduate MBBS/BDS students to give them the opportunity to master research methods and methodologies.¹⁰¹

[1.1] Junior Research Fellowships (JRFs): The ICMR conducts a national level examination for candidates with a postgraduate degree (MSc/MA) in basic science or a postgraduate degree (MSc/MA) in a professional course with a maximum age limit of 28 years.

[1.2] Senior Research Fellowships (SRFs): SRFs enable bright young men and women to pursue research and training that will invariably lead to a PhD or MD, etc. Master's degree candidates with 2 years of research experience are eligible with a 35-year age limit.

[1.3] Extramural Research Programme: Under its extramural research programme, the ICMR provides financial assistance to promote research work in the fields of medicine, public health and allied areas.¹²¹³

Types of extramural research programmes

1. Short-duration, low-cost proposals
2. Ad-hoc project - Investor defined
3. Project Goal: Solve a pre-defined problem (centrally identified)
4. Cohort research
5. National Registry
6. Centres of Advanced Research (CAR)
7. Capacity building/support for sustained, high-quality research.

[1.4] Research Associateship (RA): RAs are awarded to encourage young researchers who already have high-quality published work to pursue post-doctoral fellowships (PDFs) in biomedicine on specific research programmes. Candidates who have a doctorate degree in medicine with a 40-year age limit are eligible.

[1.5] Emeritus Scientist Scheme: The Council offers the position of Emeritus Scientist to retired medical scientists and teachers for them to continue or begin research on specific biomedical topics. The application is open at any time, and the ICMR Emeritus Scientist (IES) Selection Committee will meet twice a year, in January and July.

[2] Defence Research and Development Organisation (DRDO): (www.drdo.gov.in/):¹⁴¹³

DRDO is the research and development (R&D) arm of the Ministry of Defence, Government of India, with the goal of empowering India. The DRDO is now a network of more than 50 laboratories dedicated to the development of defence technology in a number of sectors including aeronautics, weaponry, combat engineering, electronics, life sciences, materials and naval systems.

[2.1] JRF: The candidate should have a graduate degree in engineering and technology, postgraduate research degree in science or postgraduate degree in Fellow Psychology; first division or (JRF) equivalent grading is awarded.

• The age limit is 28 years.
• The emolument (per month) is Rs. 16000/¬+HRA
Promoting Opportunities for Women:

- The candidate should have a degree in medical science (MBBS), dental science/research surgery (BDS) or postgraduate in engineering and technology; first division, both at the graduate and SRF postgraduate levels, wherever division or equivalent grading is awarded.
  - The age limit is 32 years.
  - The emolument (per month) is Rs. 18000/+-HRA

[2.3] RA: PhD in science subjects, or MD/MS in medical science, research or MTech/ME with 2 years experience in research, associate teaching, design and development. Wherever division or equivalent grading is awarded, the degree should be in (RA) first division.
  - The age limit is 30 years.
  - The emolument (per month) is Rs. 24000/+-HRA

[3] Science and Engineering Research Board (SERB)\(^{[3]}\) (http://www.serb.gov.in):

The SERB was established in 2008 with the mission of promoting basic research in science and engineering and matching the best global practises in the areas of basic research promotion and funding.

[3.1] Core Research Grant (CRG) (Individual Centric)\(^{[7]}\):
The scheme offers active researchers with core research funding to conduct research and development in science and engineering frontier areas. The CRG scheme can benefit a single researcher or a group of researchers working at a recognised academic institution, national laboratory or other recognised R&D institution in India. The financing is usually offered over a 3-year term. The announcement of the call for applications will be made on the websites ‘www.serbonline.in’ and ‘www.serb.gov.in’.

[3.2] Start-up Research Grant (SRG)\(^{[8]}\): The SRG is a one-time research grant designed to help researchers get started in a new institution. It is a 2-year grant designed to help scientists and engineers working on the cutting edge of science and engineering establish themselves before moving on to a mainstream CRG. The applicant’s track record and the proposed research plan would be used as selection criteria. For a period of 2 years, a research grant of Rs. 30 lakhs plus overheads would be provided.

[3.3] Scientific and Useful Profound Research Advancement (SUPRA)\(^{[9]}\): SUPRA is a programme that rewards high-quality ideas that include a novel premise, innovative solutions, new domains and concepts. The applicant must have completed at least 5 years of regular academic or research experience in an Indian academic institution, national laboratory or other recognised R&D institution.

[3.4] J C Bose National Fellowship: The fellowship will cover all areas of science (in the broadest sense). Nominations can be sent by the heads of the institutions, and nominations are accepted online only throughout the year (www.serbonline.in).

[3.5] Ramanujan Fellowship: The scheme assists active researchers/scientists/engineers who want to return to India from abroad and contribute to the country’s efforts. The Ramanujan Fellowship accepts nominations at any time during the year.

[3.6] National Post-Doctoral Fellowship: This fellowship was created with the aim of identifying and supporting motivated young researchers to conduct research in frontier areas of science and engineering. The fellows will be supervised by a mentor, and it is hoped that this training will provide them with a foundation for future independent research. The fellowship is purely temporary and is initially available for a period of 2 years.

[3.7] Early Career Research Award: The Early Career Research Award programme aims to provide immediate research support to young researchers in their early careers in frontier areas of science and engineering. It is a one-time award that includes a research grant of up to Rs. 50 lakhs (excluding overheads) for a 3-year period.

[3.8] SERB Women Excellence Award: The SERB Women Excellence Award is a one-time award given to female scientists under the age of 40 who have received recognition such as the Young Scientist Medal, Young Associate and so on. These female researchers will receive a research grant of Rs. 5.00 lakhs per year for the next 3 years.

[3.9] SERB-POWER: (Promoting Opportunities for Women in Exploratory Research): This programme is designed to reduce gender disparities and in order to ensure equal access and weighted opportunities for Indian women scientists engaged in research and development activities.

SERB empowers females in two areas:
1. SERB – POWER fellowship
2. SERB – POWER research grants.

Women scientists are not permitted to hold both a POWER fellowship and a POWER grant at the same time.

[4] Department of Science and Technology (DST) (https://dstd.gov.in)\(^{[22]}\)

The DST was established in May 1971 with the goal of promoting new areas of science and technology (S&T) and serving as a nodal department for organising, coordinating and promoting S&T activities throughout the country.

[4.1] Women Scientist Programme: The scheme is intended to encourage women in the S&T domain, preferably those who have taken a career break and are not currently employed, to consider re-entering the profession.

For Indian citizens, the following three categories of fellowships with research grants are available:
a. **Women Scientist Scheme-A (WOS-A):** Research in basic/applied science  
b. **Women Scientist Scheme-B (WOS-B):** S&T interventions for societal benefit  
c. **Women Scientist Scheme-C (WOS-C):** Internship in Intellectual Property Rights (IPRs) for the self-employment

[4.2] **Innovation of Science Pursuit for Inspire Research (INSPIRE):** The DST has developed an innovative strategy to encourage young people to pursue careers in science. Every year, INSPIRE Fellowship awards fellowships to researchers between the ages of 22 and 27 to pursue doctoral degrees in both basic and applied sciences, while INSPIRE Faculty Scheme awards postdoctoral fellowships to scholars between the ages of 27 and 32.

[4.3] **Science and Technology of Yoga and Meditation (SATYAM):** It supports ideas that take an integrative approach to neuroscience, medicine and psychology in order to conduct a thorough study of yoga and meditation.

[5] **Department of Biotechnology (DBT):** DBT’s mandate is to promote and support biotechnology development in India. Basic research, medical biotechnology, agriculture technology, food and nutrition, bioresources, environment and bioenergy, animal biotechnology, aquaculture and marine biotechnology, bioinformatics, international collaborations and human resource development are some of the topics covered by the DBT.

[5.1] **JRF:** The department offers fellowships to biotechnology students who want to pursue doctoral studies at universities/research institutions across the country. The students are chosen through the Biotechnology Eligibility Test (BET), which is now overseen by the National Centre for Cell Sciences.

[5.2] **RA:** The department offers PDFs in frontier areas of biotechnology and life sciences at premier Indian institutions. The Indian Institute of Science, Bangalore, is in charge of implementing the research associateship programme. The fellowship is initially granted for 2 years, but it can be extended for another 1–2 years based on a review of progress.

[5.3] **Khorana Programme for Scholars:** This scholarship programme is a joint Indo-US effort to foster effective scientific contact between biotechnology students in India and biotechnology students in the United States of America. The scholarship enables Indian BTech, MTech and MSc students to complete a research internship at Wisconsin-Madison University in the United States. The programme has now been expanded to include universities in the United States such as Minnesota, Michigan, Iowa, Indiana and Georgetown.

[6] **Council of Scientific and Industrial Research (CSIR):** The CSIR has several verticals that support science technology and innovation. The Human Resource Development Group (HRDG), a division of the CSIR, achieves this goal through various grants, fellowship schemes and so on.

[6.1] **JRF:** BS 4 years programme/BPharm/MBBS/Integrated BS/MS/MSc/BE/BTech is the minimum qualification.

[6.2] **SRF:** MSc, BE, BTech, BVSc, BPharm, ME, MTech or equivalent degree in engineering/technology are required (Under research scheme only).

[6.3] **RA:** The minimum qualification is a doctorate (PhD/MD/MS/MD).

[7] **Department of Health Research (DHR):** The mission of the DHR is to bring modern health technologies to people through research and innovations in diagnosis, treatment methods and vaccines for prevention; to translate these innovations into products and processes; and to introduce these innovations into public health in collaboration with concerned organisations.

[7.1] **Grant-in-aid scheme:** The DHR has a Grant-In-Aid (GIA) scheme for Inter-Sectoral Convergence and Coordination for Health Research Promotion and Guidance. The goal of GIA is to support research that identifies knowledge gaps and converts health leads into deliverables.

[7.2] **Human Resource Development (HRD) Fellowship Programme:** Full-length proposals may only be submitted online at www.dhrschemes.in. Details of the scheme’s eligibility, application format, terms and conditions and guidelines are available on the DHR website at https://dhr.gov.in/schemes/humanresource-development-health-research-hrd.

[8] **Trained Nurses Association of India (TNAI):** The TNAI is a national organisation of various levels of nurse professionals. It was founded in 1908 under the name Association of Nursing Superintendents. In 1950, the Government of India designated TNAI as a service organisation. Dr. S. Radhakrishnan laid the foundation stone for the TNAI headquarters, which was inaugurated by Smt. Indira Gandhi.
[8.1] National Nurses Research Grant (TNNRG):

Eligibility Criteria:

a) Life membership(s) in TNAI is/are required.
b) BSc, MSc or PhD in nursing.
c) Prior experience conducting independent research is preferred.
d) Prior experience directing research is preferred.
e) If a research team of professionals includes non-nursing members, the primary researcher must be a TNAI member; however, all nurse researchers in the team must be TNAI members.

The investigator(s) must submit a Research Grant Application in the prescribed Performa format, along with a detailed proposal and budget.

TNAI has the authority to decide whether a research grant should be fully or partially funded.

[9] The Nursing Research Society of India (NRSI): (http://www.nrsindia.org)

The establishment of the NRSI in 1987 was a watershed moment in the history of the nursing profession in India in general, and nursing research in particular. The NRSI, India’s first of its kind, is a premier organisation. The society was founded with the primary goal of providing a forum for nurse scientists through the organisation of conferences and workshops across the country to promote nursing research activities.

[9.1] Post-Doctoral Fellowship Programme: NRSI established the PDF programme to encourage outstanding nursing research. Following NRSI’s advertisement, candidates should submit their application on the prescribed form, along with an updated resume, a list of publications, full-length articles from two important papers, copies of certificates (BSc (N)/PBSN, MSc (N)) and two letters of recommendation (academic), among other things.

Eligibility: A doctorate (PhD) or an equivalent degree is required. The fellow’s maximum age shall be 45 years as of the day the application is made.

Stipend and benefits: A fellow’s consolidated emoluments will be Rs. 50000/- per year while working with the NRSI.

Discussion and Conclusion

Health and medical research have the potential to improve people’s health, health-care delivery and patient outcomes. As our society evolves and our families adjust to the rapid changes around them, legislators must constantly examine policies, identify and address needs, capitalise on opportunities and plan for the future. The Research Fund will help to fund research that identifies emerging trends and issues, strengthens the evidence base for social and family development policies and improves the Ministry’s forward planning capabilities so that it can respond quickly and effectively to new challenges and opportunities. The Ministry of S&T intends to foster ground-up research ideas by providing financing support to researchers. Higher education places a premium on research. The Government of India encourages the advancement of research in higher education institutions. Now, research funding is widely available from the Government of India and other sources, but our research scholars and faculty members, must be informed of the funding agency, as well as the grant and fellowship application deadlines. As a result, all higher education institutions can set up a research information system to learn more about funding and research.

By this article, the researcher had deliberately explored about the various opportunities for funding the research and higher education for the medical health care professional. Although the information about funding agencies is available but in a scattered manner. The researcher had tried to bring all the valuable information on a single piece of paper to convert the available information into a permanent knowledge.

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Conflicts of interest

There are no conflicts of interest.

References

1. Brown LJ, McIntyre EL. The contribution of primary health care research, evaluation and development-supported research to primary health care policy and practice. Aust J Prim Health 2014;20:47-55.
2. Polit DF, Beck CT. Nursing Research. 10th ed. New Delhi: Wolters Kluwers Publishers; 2017.
3. Liew SM. Why research in primary care is important. Malays Fam Physician 2017;12:1.
4. Lucas SC, Phillips RL Jr, Bazemore AW. Off the roadmap? Family medicine’s grant funding and committee representation at NIH. Ann Fam Med 2008;6:534-42.
5. Dandona L, Dandona R, Kumar GA, Cowling K, Titus P, Katoch VM, et al. Mapping of health research funding in India. Natl Med J India 2017;30:309-16.
6. Swaminathan S, Qureshi H, Jahan MU, Baskota DK, De Alwis S, Dandona L. Health research priorities and gaps in South Asia. BMJ 2017;357:j1510.
7. Young AJ, Terry RF, Rottingen JA, Viergever RF. Global biomedical R&D expenditures. N Engl J Med 2014;370:2451-2.
8. Indian Council of Medical Research. Available from: http://icmr.nic.in. [Last accessed on 2021 Sep 10].
9. Financial Support for MD/MS/DM/MCh/MDS Thesis. Indian Council of Medical Research. Available from: http://14.139.60.56/mdms_web/Homepage.aspx. [Last accessed on 2021 Sep 10].
10. ICMR Scheme for MD/MScPhD Programme, Indian Council of Medical Research, Government of India. Available from: https://main.icmr.nic.in/content/
11. Short Term Studentship (STS), Indian Council of Medical Research. Available from: http://sts.icmr.org.in/. [Last accessed on 2021 Sep 10].

12. Guidelines for Extramural Research Program, Indian Council of Medical Research, Government of India. Available from: http://icmrextramural.in/ICMR/. [Last accessed on 2021 Sep 10].

13. Centre for Advanced Research, Indian Council of Medical Research, Government of India. https://main.icmr.nic.in/content/centreadvancedresearch0. [Last accessed on 2021 Sep 10].

14. Defence Research and Development Organisation (DRDO), Government of India. Available from: https://www.drdo.gov.in/node/2453. [Last accessed on 2021 Sep 12].

15. Srinivasan K, Fredrick J, Gupta R, Singh N. Funding opportunities for health research in India – A technical scan. Indian J Public Health 2020;64:421-7.

16. The Science and Engineering Research Board (SERB). Available from: http://www.serb.gov.in. [Last accessed on 2021 Sep 12].

17. Core Research Grant. Available from: https://serbonline.in/SERB/emr/HomePage=New. [Last accessed on 2021 Sep 12].

18. Start-up Research Grant. Available from: https://serbonline.in/SERB/srg_Instructions/HomePage=New. [Last accessed on 2021 Sep 12].

19. Scientific and Useful Profound Research Advancement. Available from: https://serbonline.in/SERB/Supra/HomePage=New. [Last accessed on 2021 Sep 12].

20. SERB Woman Excellence Award. Available from: https://serbonline.in/SERB/Women_excellence/HomePage=New. [Last accessed on 2021 Sep 12].

21. Empowerment and Equity Opportunities for Excellence in Science. Available from: https://serbonline.in/SERB/Weaker_section/HomePage=New. [Last accessed on 2021 Sep 12].

22. Department of Science and Technology (DST). Available from: https://dstr.gov.in. [Last accessed on 2021 Sep 12].

23. Women Scientists Programs, Department Of Science & Technology. Available from: https://dstr.gov.in/scientificprogrammes/scientificengineeringresearch/womenscientistsprograms. [Last accessed on 2021 Sep 15].

24. Innovation in Science Pursuit for Inspired Research Programme, Department of Science & Technology. Available from: https://dstr.gov.in/innovation science pursuitinspiredresearchprogramme. [Last accessed on 2021 Sep 15].

25. INSPIRE Programme Inspire. Available from: https://onlineinspire.gov.in/Account/INSPIRE Programme. [Last accessed on 2021 Sep 15].

26. Science and Technology of Yoga and Meditation, Department of Science & Technology. Available from: https://dstr.gov.in/. [Last accessed on 2021 Sep 15].

27. Introduction, Department of Biotechnology. Available from: http://dbtindia.gov.in/aboutus/introduction. [Last accessed on 2021 Sep 15].

28. Call For Proposals, Department of Biotechnology. Available from: http://dbtindia.gov.in/whatsnew/callforproposals. [Last accessed on 2021 Sep 15].

29. Human Resource Development Group Council of Scientific and Industrial Research. Available from: https://csirhrdg.res.in/Home/Index/1/Home/307/1. [Last accessed on 2021 Sep 15].

30. Department of Health Research. Available from: https://dhr.gov.in/schemes. [Last accessed on 2021 Sep 15].

31. Trained Nurses’ Association of India (TNAI). Available from https://www.tnaionline.org. [Last accessed on 2021 Sep 15].

32. Nursing Research Society of India. Available from http://www.nrsindia.org. [Last accessed on 2021 Sep 17].