



Funding Opportunities of Extramural Grants for Oral Health Researchers in India - A Prospective Approach

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 01 Oct 2023	<p>Dental research funding is increasing all throughout the globe, yet India has a very small presence at this conference. These organizations fund studies and organize research programs to further dentistry and medical study in India. Writing a grant application for research in the field of oral health is a challenging task for modern dental health professionals. The administrative load at dentistry schools is only one example of the many obstacles to research in the Indian context. In the Indian context, the significance of oral health and associated research is low. Oral health research funding agency, and other related terms were used in a search of Google Scholar, Scopus, and PubMed Medline. This analysis aims to educate Indian oral health professionals about the availability of financial support from a variety of sources.</p> <p>Keywords: Funding agency, Research, Research grant, oral health research</p>
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1. Introduction

Improper dental hygiene has a person's health or quality of life suffers in some way, either immediately or over time. ¹ The state of one's oral health might be indicative of overall health. Oral infections, such as periodontitis and dental caries, have been linked to systemic disorders. Birth outcomes and newborn oral health may be negatively affected by a mother's own poor dental health. ¹⁻². Oral clefts, tooth loss, crooked teeth, cavities, and dental fluorosis are some of the additional issues. ¹⁻³

The future of disease burden reduction in India hinges on the success of oral health research and the organizations that sponsor it. Dentists and other health care workers are well-versed in research and the

medical sciences, but the public isn't reaping the benefits of their expertise because they don't know where to go for funding.

Dental research funding is increasing all throughout the globe, yet India has a disproportionately small presence at this forum.⁴

India's dental community is missing out on millions in funding opportunities from the likes of the Indian Council for Medical Research (ICMR), the Department of Ayurveda, Yoga & Naturopathy, the Unani, Siddha & Homoeopathy Department, the Science & Engineering Research Board, the Department of Biotechnology, the Government of India (GOI), the Department of Science & Technology, and the Defense Research and Development Organization (DRDO).

The Indian Council of Medical Research (ICMR) is India's primary biomedical research funding body, supporting 21 full-time institutions, 6 regional centers, and 5 research units.⁵ Leprosy, TB, malnutrition, and other health issues are only a few of the many that these organizations tackle. However, little effort has been made as of yet to build the necessary infrastructure in India to support dental research.

In India, just a fraction of the little budget for dental health research goes into investigating ways to improve the public's oral health. Since health research covers such a wide range of topics and there are so many different funding agencies out there, it may be challenging to learn about all of them in one place.⁶⁻⁷ Despite having more dental schools than anywhere else in the world (over 300), dental research in India is still in its infancy.⁸

Few papers discuss the specifics of oral health research financing in India. The purpose of this review to aware the oral health professional regarding various funding agencies in India and aware them about challenges faced by them while drafting a scientifically appropriate research proposal as this will be crucial to strengthen oral health delivery in India.

2. Materials And Methods

This A literature search was conducted for this research, including sources of financing for oral health professionals in India, sources of funding for oral health professionals in underdeveloped nations, and the perspectives of oral health professionals on funding organizations. PubMed, MEDLINE, SCOPUS, Embase, and EBSCOhost were only few of the electronic databases used in the literature search. The papers published in the various publications were retrieved using keywords like " funding, grant, oral health research, health. This analysis was performed utilizing the online resources Google Scholar, the Cochrane Database, PubMed, Science Direct, Springer Link, and Scopus. There was a thorough screening of all papers published between 2000 and April of 2022.

Basic Requirements for Crafting Research Proposal

The common requirement of funding agencies are novelty of the project and research question. The research proposal must be capable to convince the evaluation committee desi. The aim, methodology, design and rational of the o proposal should be clearly stated in simple language⁹

Application Process for Research Proposal

The title of the proposal, the names and affiliations of the researcher (principal investigator) and co-investigators, the researcher's degree, the name of the institution where the study will be conducted, and contact information such as phone numbers, E-mail ids, and spaces for investigator signatures are all standard components of a research proposal's cover page. Title, keywords, introduction, reasoning, review of literature, study proposal aims and objectives, research design and procedures, ethical issues, budget, appendices and citations, planned conclusion, and timetable is all part of the main body of research. Although above stated content is common for all the funding agencies but ICMR contents differs from all the other funding as problem statement should be explained and GRANT and PERT chart should be included in their Time line content. The methodology in ICMR'S methodology is strictly as per PICO criteria.^{9,10}

3. Result and Discussion

Challenges In Grant Writing Among Oral Health Professional in India

The administrative burden in dental colleges, the lack of adequate knowledge among oral health professionals, the lack of funds and the lack of experience in grant writing and approval, including the lack of experience in drafting a budget plan, the lack of training among oral health professionals and faculties in dental colleges, and the lack of documentation of the dental data in the dental institution are all obstacles to research in the Indian context. The major problem in India is priority interest of most of the funding agencies are government institute and only few are interested in private dental colleges. The other problem faced while crafting grant proposal for young researcher most of the content should be limited to half page although the method of drafting budget for research proposal is discussed in this article.^{11,12}

Planning and drafting budget in grant proposal

Most of the applications required by the aforementioned funding organizations include comparable information. Direct expenses and indirect costs make up the bulk of the budget's expenditures section.

Direct costs: Spending on things like labour, supplies, tools, supplies, and transportation are all considered direct expenditures. The following is a basic explanation of the many components that make up direct costs:

Personnel: If human resources are needed for the research and are required by the funding agency, a budget for such costs might be included here. Staff members including the site manager, research assistant, junior research fellow (JRF), senior research fellow (SRF), research associate, technician, data entry operator, and attendant may all have their salaries and allowances planned for in advance. Principal investigator (PI) and co-investigator (Co-I) compensation is often not provided by Indian funding bodies. Regular costs: Variable costs that continue to crop up throughout the course of the project's lifetime are known as recurring costs. Consumables, chemicals, glassware, laboratory test fees, diagnostic kits, stationery, prints, photocopies, communication, postage, telephone fees, survey instruments, questionnaires, publishing fees, reprints, binding, etc. are all examples of details that fall under this heading. Patient/participant allowances, meal costs, and doctor's fees are just a few examples of additional costs.

Non-recurring expenses: In contrast to normal bills, non-recurring costs only occur seldom or never again. Information on the hardware, software, computer, printer, electricity, electronics, and peripherals that make up the present instrument in your lab falls under this heading. Due to wide variation in available resources, sponsoring organizations assign varying percentages of their total budgets to equipment.

Traveling expenses: Meetings, conferences, seminars, and training programs may all be attended using travel funds. The Indian government prohibits its citizens from traveling abroad. Multicentric research travel costs include time spent traveling to gather data, conduct surveys, and visit other centres.

Indirect costs: These are the outlays that can't be pin-pointed to one particular project expenditure but must be made anyway. Overhead costs are another name for it. The institution will offer the necessary resources (laboratory, power, water, library, etc.) to carry out the suggested study. However, depending on the nature of the financing source, the range may be malleable.

Executive Summary of the Budget Most applications ask for a breakdown of the entire budget broken down by line item and by year. The budget summary often comes at the beginning of the application and provides an overview of the requested grant. Always write it last, once everything else in the grant submission is finished. The budget contents of ICMR and SERB are similar as discussed above but format of other agencies only summary of of budget is required.^{13,14}

Agencies/Organizations Providing Research Grants in Dentistry and medicine

Indian Council of Medical Research

The Indian dental research community may thank the Indian Council of Medical Research (ICMR) for its primary source of financing. The Indian Council of Medical Research (ICMR) provides funding for short-term, low-budget applications and Ad hoc initiatives from the fields of dentistry and medicine.

Although their interest area are systemic diseases as per current scenario. Their specific area of interest is disease causation, progression, prevention, and management and novelty in discovery research and developmental research.

The priority disease or condition under ICMR funding areas are communicable and noncommunicable diseases, reproductive maternal and child health. They are fore front of funding Oral diseases like oral cancer, periodontitis, dental trauma, dental caries and dental fluorosis

ICMR provides grant post graduate thesis and postdoctoral fellows. The Short-Term Studentship Program is funded by ICMR and is open to undergraduate MBBS and BDS students who are interested in gaining experience in research.^{15,16,17}

Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy

Their priority area is based disease burden in the community. include therapies for the prevention and cure of various disorders and diseases. Their thrust area of interest is Clinical trials of herbal medicine, study of Pharmacology kinetics. The purpose of the contribution is to aid main investigators from reputable institutions with competence in the specified research fields.

Faculties and scholars of dental colleges can prefer these funding agencies new formulation of oral rinse, toothpaste and ointments and efficacy of different medicines.¹⁸

This funding agencies provides grants upto 30 lakhs.

Council of Scientific and Industrial Research

The Council for Scientific and Industrial Research (CSIR) is responsible for advancing research in these three important sectors. Science and technology, which includes fields like agriculture, engineering, and medicine, are the main points of study. CSIR contribution toward dentistry is still in nascent stage as preference is given to schemes which have relevance to research programmes of CSIR laboratories

In future with collaboration with other funding agencies they can support projects of dental institutions.¹⁹ Further research is required to investigate the contribution of CSIR in dentistry.

Science and Engineering Research Board

Core Research Grant scheme, Startup Research Grant (SRG) scheme to initiate their research career in their institution, SERB Women Excellence, a once-only award given to women scientists under the age of 40, and Scientific and Useful Profound Research Advancement (SUPRA) are all examples of the different schemes administered by these funding agencies.

CRG funding is typically provided over a 3-year period, whereas Start-up research funding is provided over a 2-year period. SUPRA's main focus is on coming up with fresh concepts and new ways of doing things. Under the SRG system, a research grant of 30 lakhs is awarded.

All funding organizations require applicants to have a tenure-track or research faculty post at an accredited school with at least five years of service left as a criterion for candidacy. Nonetheless, we should be diligent about checking their websites for updates.^{20-22,23}

The dental institutes and colleges can utilize these agencies for their innovative ideas in their respective field

Department of Biotechnology

They provide funding to Medical Biotechnology including Vaccines, Diagnostics, Drug Development in dentistry and medicine, Human Genetics and Stem Cell Biotechnology and oral health care.

They have recently been in the front of funding oral cancer and cancer research in India, with the ambitious goal of making India cancer-free by 2047. Applicants must have a track record of publications in addition to a PhD, MDS, MD, or comparable degree to be considered. On occasion, DBT distributes funds in conjunction with other organizations both domestic and outside.^{24,25}

Department of Science and Technology.

DST's focus is on the hard sciences and the medical and dental fields. DST provides funding for research via a variety of programs, one of which is the Innovation of Science Pursuit for Inspire Research (INSPIRE) program, which targets young scientists. Every year, people aged 27 to 32 are eligible for these postdoctoral scholarships. DST's Women Scientists Scheme provides funding and mentoring to female scientists between the ages of 27 and 57.²⁶

Recently DST and government of India and Russian Science foundation invited active Indian and Russian scientists and scholar to submit proposal for joint research project. The key area was new materials, clean energy, smart health care and medicine, safe food telecommunication and Artificial Intelligence.

These opportunities can be utilized by Research scholar and academician in the dental college in future.

Defence Research and Development Organization

They support advanced research to develop essential knowledge. They have more than 50 laboratories and key research area is life sciences, The basic goal is to empower India^{27,28}

Recommendations

The dental colleges and Dental council of India should make research grant writing as part of mandatory curriculum among faculties. The dental colleges should make guideline regarding training programme for research grant writing among faculties as faculty development programme as training in research grant writing is need of the hour to improve quality of research in India and to improve acceptance rate of dental research in various funding agencies

Researchers and faculties should check timely notifications through website of respective funding agency and avoid last day submission. Due to increase in burden of disease like oral cancer, dental caries, periodontal disease, dental trauma, dental fluorosis and oral conditions for children and adults with disabilities and special needs, the Indian funding agencies should also prioritize to oral disease along with other systemic disease and also Government of India should take initiative for transparent and separate funding process for dental research in India.

4. Conclusion

In the Indian context, the significance of oral health and associated research is low. In this article, we will cover the challenges of creating a grant request as well as the many avenues for financing research for oral health care professionals.²⁹ Although there are studies among nursing and medical professional regarding perception of funding agencies in India but there is no research in India available among oral health professionals and dentistry. In order for all dental schools in India to establish criteria for financing and research, we need to make sure that our research scholars and faculty members are aware of the different funding agencies and the deadlines for applying for grants and fellowships³⁰ With the rapid advancements in India, Public health dentists with knowledge of basic human science, fundamentals of epidemiology, research methodology and ability to deal with patients in community settings are an invaluable assets³¹ in conducting the required research and grabbing the opportunities of funding from external agencies. So, Maintaining, expanding and promoting public-private collaboration is really essential to achieve optimal oral health research opportunities in India.³²

Further systematic review, scoping reviews and research is needed in India to scan and utilize the funding opportunities among oral health professionals. Therefore, I humbly ask that the appropriate financial bodies and the government of India to take the lead in establishing a strong foundation for health research in India.

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