International Journal of Community Medicine and Public Health
Tejesh S et al. Int J Community Med Public Health. 2025 Nov;12(11):5191-5195
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20253705

Protocol

Understanding the researcher roadblocks: a systematic review protocol on challenges to medical research in India

Tejesh S.*, Nirupama A. Y., Varun Agiwal, Rovena Yazhini, Hotha Saisrinivas, Arijita Manna

Indian Institute of Public Health, Hyderabad (PHFI-IPHS), India

Received: 11 July 2025
Revised: 16 October 2025
Accepted: 17 October 2025

***Correspondence:**
Dr. Tejesh S.,
E-mail: tejeshreddy79898@gmail.com

ABSTRACT

Background: Conducting medical research is important for enhancing healthcare outcomes and informing policy decisions. In India, medical researchers face multiple barriers that may impact their ability to conduct research in an efficient manner. This systematic review intends to identify and synthesis the barriers faced by medical researchers in India.

Methods: This review will be conducted according to the PICo framework, considering population, phenomenon of interest, and context. The population will be medical researchers in India working across various institutions. The phenomenon of interest will be the challenges faced while conducting medical research. The context will include all individual, public and private research organisations in India. A comprehensive search strategy will be designed and carried out across various databases, including PubMed, Embase, Scopus, and grey literature sources. Two independent reviewers will screen titles and abstracts and full text using Rayyan, and quality assessment using appropriate tools such as COREQ, JBI, RoB 2, or ROBINS-I, based on the study design. Data extraction will be carried out using a standardised form. Qualitative data will be meta-aggregated, and quantitative data will be meta-analysed where homogeneity is feasible; otherwise, it will be narratively synthesised.

Conclusions: This review will be conducted according to the PICo framework, considering population, phenomenon of interest, and context. The population will be medical researchers in India working across various institutions. The phenomenon of interest will be the challenges faced while conducting medical research. The context will include all individual, public and private research organisations in India. A comprehensive search strategy will be designed and carried out across various databases, including PubMed, Embase, Scopus, and grey literature sources. Two independent reviewers will screen titles and abstracts and full text using Rayyan, and quality assessment using appropriate tools such as COREQ, JBI, RoB 2, or ROBINS-I, based on the study design. Data extraction will be carried out using a standardised form. Qualitative data will be meta-aggregated, and quantitative data will be meta-analysed where homogeneity is feasible; otherwise, it will be narratively synthesised.

Trial registration: This systematic review has been registered prospectively with PROSPERO under CRD420251038583.

Keywords: Research personnel, Views, Opinions, Challenges, Medical research

INTRODUCTION

Medical research has significant role to play in the healthcare development by, informing clinical decision-making and health policy development through the necessary evidence base.[1] In India, a nation of over 1.4 billion people spread over diverse geographical areas, socioeconomic strata, and cultural environments, medical

research can make a real difference in health outcomes.[2,3] But India also has a dual burden of disease: there are still persistent communicable diseases like tuberculosis, diarrheal disease, and lower respiratory infections to deal with, while non-communicable diseases such as cardiovascular disease, chronic respiratory diseases, cancer and diabetes are increasing rapidly.[4,5] The prevalence of non-communicable disease increased from 37.9% in 1990 to 61.8% in 2016, highlighting the growing complexity of healthcare needs.[6]

Despite this pressing need, India suffers from several systemic and structural challenges that significantly hinder the quality, quantity, and impact of scientific production. The most significant problem is the limited funding for health research. In the Union Budget 2024-25, 3.4% of the total budget for the Ministry of Health and Family Welfare was allocated for health research.[7] This reflects a broader trend where there is priority given to service delivery over research, leaving researchers with very few resources to conduct research work. Moreover, formal training and mentorship in research methodology, grant writing, and data analysis are not provided, especially to early-career researchers.[8] Inadequate research infrastructure such as poorly equipped laboratories, lack of library access, and poor digital connectivity also slow the progress.[8] Added to these challenges is limited access to research grants, where almost 79% of the funding for health research is coming from the pharmaceutical industry and just 3.2% available for public health research, thus distorting priorities.[9] Red tape bureaucracy and irregular ethical and regulatory approval procedures delay the start of projects.[10] High-quality academic journals and databases are normally inaccessible because of the high subscription fees, especially in non-metropolitan settings. Furthermore, weak collaborative networks of institutions limit the potential of large-scale multi-centric research.[11] Cultural and language diversity within India, although an asset, provides logistical and communications challenges while conducting studies in remote or tribal areas.[12]

In addition, there is a huge gap between national health priorities and research priorities. studies such as those by Dandona et al. and Kumar et al., noted that, although cardiovascular and respiratory diseases contribute approximately 23% of India's total disease burden, they receive only 6% of publications. On the other hand, cancer research receives 25% of publications when cancer contributes only approximately 5% of disease burden. highlight the gap between research output and the actual health priorities of the country.[13,14] In addition, Although India's contribution to global health research, particularly in clinical trials, is increasing, it is still disproportionately low relative to its size of population and disease burden. Indian involvement in multinational clinical trials is often characterized by a disproportionately high rate of recruitment of over 60% in some cases and raises ethical concerns about fair benefits and protection to participants of research.[15]

Although several individual studies have explored the challenges of conducting medical research in India, no systematic review has been conducted to date that systematically synthesizes the enormous range of challenges researchers have been facing across the health research field. This review aims to find, collect, collate, and synthesize the existing literature concerning these challenges. It will give an integrated picture of the research landscape, point out the main gaps, and provide practical suggestions for academic institutions, funders, and policymakers to create a more facilitative and supportive research environment. The review assumes special importance since India is making attempts to increase its contribution in the field of global health research and enhance national health outcomes. The findings and conclusions drawn will inform evidence-based policy reforms, capacity development, strengthened regulatory systems, and funding mechanisms in the perspective of equity. In breaking research barriers, India will be better positioned to generate locally relevant evidence, enhance health equity, align research activity with national health priorities, and make significant contributions towards global scientific development.

Research question

What are the challenges faced by researchers in India while conducting medical research.

METHODS

This systematic review protocol has been registered with the International Prospective Register of Systematic Reviews (PROSPERO) under the registration number CRD420251038583.

Inclusion criteria

The inclusion criteria for this review have been developed in the form of the Population–Phenomenon of Interest–Context (PICo) approach that is suitable for qualitative and mixed-methods research.

Population (P)

Medical researchers in India engaged in the conduct of medical research in different settings, including academic institutions, government agencies, private sector, and non-profit organizations.

Phenomenon of interest (I)

Challenges faced by medical researchers in conducting medical research.

Context (Co)

Medical research conducted in the Indian context, which includes different institutional and organizational settings.

Exclusion criteria

Studies will be excluded if not carried out within the Indian context, if conducted as secondary research like systematic reviews and meta-analyses or published in languages other than English.

Search strategy

A systematic and thorough search strategy will be developed to find relevant studies. The databases to be searched are PubMed, Embase, Scopus, Web of Science, CINAHL, and the WHO Global Health Library. The search strategy will use a mix of Medical Subject Headings (MeSH)) and free-text terms for medical research, challenges, barriers, research personnel, views, and opinions. Boolean operators "AND" and "OR" will be used to link terms and broaden or limit the search as needed. Truncation and wildcards will be used where needed to cover different word variations. Manual searching of included study references, besides database searching, will be used to find more relevant articles. Adequate national and international reports, along with the grey literature accessed via Google Scholar and the websites of key organizations, will also be sifted to make the search as thorough as can be.

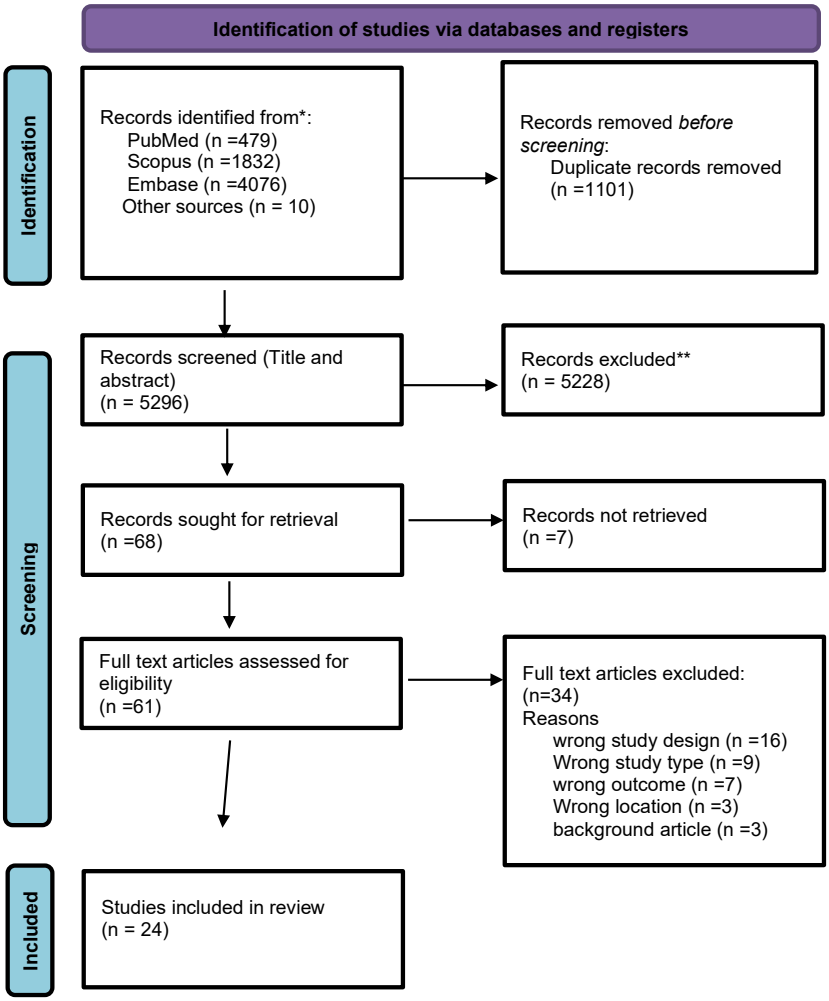

Figure 1: PRISMA flow diagram of study selection process.

Study selection

All the search results will be imported into Rayyan. Duplicates will be removed before screening. Two-stage study selection will be used. In the first stage, two independent reviewers will screen titles and abstracts of all the retrieved citations for initial eligibility. In the second stage, full-text copies of potentially relevant studies will be retrieved and screened independently by the same reviewers for inclusion. Any discord between reviewers at either step will be settled through dialogue, and when required, a third reviewer will be referred to

establish a consensus. The process of selecting studies will be entirely recorded and represented by means of a PRISMA flow diagram in order to guarantee transparency.

Evaluation of methodological quality/

Risk of bias of the included studies will be evaluated according to study design. Qualitative studies will be evaluated with COREQ (Consolidated Criteria for Reporting Qualitative Research) checklist. Quantitative studies like observational studies will be evaluated with Joanna Briggs Institute (JBI) critical appraisal tool while experimental studies with randomization will be evaluated with Cochrane risk of bias 2 tool. Non-randomized studies will be evaluated with ROBINS-I. The quality assessment will be done by two separate reviewers, and any differences between reviewers will be settled by discussion or by referring to a third reviewer.

Data extraction

Data extraction will be done with the help of a standardized data extraction form specifically prepared for this review. Two reviewers will extract data independently from the included studies to avoid errors and minimize bias. The information to be extracted will include study characteristics (e.g., authors, year of publication, setting), population information (e.g., type of researchers, area of research), study design and methodology, and information on the challenges and barriers reported by the researchers. If present, suggested recommendations or recommended strategies to alleviate the challenges presented will also be pulled out. Discrepancies in the extracted data, if any, will be agreed upon by discussion or by a third reviewer. This meticulous and systematic process in data extraction will increase the validity and completeness of the review.

Data synthesis

Findings of qualitative studies will be meta-aggregated. We will extract individual findings from a study and place them into categories on the basis of meaning similarities. These categories will then be aggregated into synthesized statements representing findings across studies. For quantitative studies, where there are homogenous data enough to be available, we will carry out metanalysis. Heterogeneity will be measured by i2 statistics. If i2 is below 50%, a fixed effect model will be utilized; otherwise, random effect model will be utilized. If meta-analysis is not possible, the quantitative data will be synthesized narratively.

CONCLUSION

This review will synthesize existing evidence on barriers to medical research in India by providing an integrated understanding of challenges at the systemic, institutional, and individual level. The findings will expand knowledge through identification of priority areas for capacity building, policy changes, and resource allocation; thereby, strengthening and enabling the research ecosystem landscape in India.

Funding: This study is funded by the Global Medical Grants Division of Pfizer
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee of the Indian Institute of Public Health-Hyderabad (Approval Reference: IIPHH/TRCIEC/441/2025)

REFERENCES

1. Titler MG. The Evidence for Evidence-Based Practice Implementation. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008. (Advances in Patient Safety). Available at: http://www.ncbi.nlm.nih.gov/books/NBK2659/. Accessed on 25 April 2025.
2. India Population 2025. Available at: https://worldpopulationreview.com/countries/india. Accessed on 30 April 2025.
3. Singh M, Bharti B. Evidence based healthcare in India: Challenges and opportunities. Clinical Epidemiology and Global Health. Available at: https://www.ceghonline.com/article/S2213-3984(24)00045-9/fulltext. Accessed on 30 April 2025.
4. Narain JP. Why Investing in Public Health is So Critical. Indian J Community Med. 2019;44(3):185–7.
5. Yadav S, Arokiasamy P. Understanding epidemiological transition in India. Glob Health Action. 2014;7:10.3402/gha.v7.23248.
6. Press Release: Press Information Bureau. Available at: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1796435. Accessed on 30 April 2025.
7. 2024 - Demand for Grants 2024-25 Analysis Health and Fa.pdf. Available from: https://prsindia.org/files/budget/budget_parliament/2024/DFG_Analysis_2024-25_Health.pdf. Accessed on 30 April 2025.
8. Kabirpanthi V, Gupta V, Chavan PV. Barriers perceived by researchers in pursuing medical research in an evolving medical college of tribal Madhya Pradesh, India. J Family Med Prim Care. 2022;11(2):701–7.
9. 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.
10. Greener M. The good, the bad and the ugly red tape of biomedical research. How could regulators lower bureaucratic hurdles in clinical research without

compromising the safety of patients? EMBO Rep. 2009;10(1):17–20.
11. Deshmukh V, Agarwala T, Mohapatra A, Kumar S, Acquilla S, Das MK, et al. Challenges of biomedical research collaboration in India: Perceptions of Indian and international researchers. PLoS One. 2024;19(6):e0305159.
12. Language as Multi-Level Barrier in Health Research and the Way Forward - Ramdas Ransing, Ramyadarshni Vadivel, Sarah El Halabi, Chonnakarn Jatchavala, Mohammadreza Shalbafan, Camille Noël, Isa Multazam Noor, Anne Yee, Ahmet Gürcan, Rodrigo Ramalho, 2023. Available at: https://journals.sagepub.com/doi/10.1177/02537176211052071. Accessed on 29 April 2025.
13. Dandona L, Raban MZ, Guggilla RK, Bhatnagar A, Dandona R. Trends of public health research output from India during 2001-2008. BMC Med. 2009;7:59.
14. Kumar A, Koley M, Yegros-Yegros A, Rafols I. Priorities of health research in India: evidence of misalignment between research outputs and disease burden. OSF; 2023. Available at: https://osf.io/q9ec6_v1. Accessed on 29 April 2025.
15. Mendiratta J, Vaswani RN, Saberwal G. Representation from India in multinational, interventional, phase 2 or 3 trials registered in Clinical Trials Registry-India: A cross-sectional study. PLoS One. 2023;18(9):e0284434.

Cite this article as: Tejesh S, Nirupama AY, Agiwal V, Yazhini R, Saisrinivas H, Manna A. Understanding the researcher roadblocks: a systematic review protocol on challenges to medical research in India. Int J Community Med Public Health 2025;12:5191-5.