

The Growth of Research Publications in Health Sciences in Pakistan over the Last Few Years

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The health sciences sector in Pakistan has experienced substantial growth in terms of research output. This increase, driven by a combination of institutional reforms, international collaborations, and a growing academic culture, reflects the nation's commitment to improving healthcare outcomes through research. Various factors, including governmental initiatives, increased funding, and academic partnerships, have contributed to this expansion. According to Scopus and Web of Science databases, the number of research articles published by Pakistani health science scholars has significantly increased since 2013. Universities, teaching hospitals, and research institutions have ramped up their focus on scientific inquiry, leading to a surge in publications on various topics, ranging from public health and epidemiology to clinical medicine and biomedical sciences.

Web of Science™ indicated three main factors for this fabulous growth of Pakistani publications:

- The number of publications by Pakistani authors increased by 300% in 2019 compared to 2010, as shown by the Web of Science Core Collection.
- From 2010 to 2019, more than half of Pakistan's research was published in Impact Factor journals. As more Pakistanis publish in top-quality journals, Pakistan's publications are increasing its global influence.
- The Category Normalized Citation Impact of Pakistan's publications (which measures publications' impact against their peers worldwide) has risen from 0.67 to 1.03.¹
- Elsevier-Scopus reported in 2021 that Pakistan contributed 201,807 documents in all the fields of knowledge from 2001 to 2020. The proportion of medical sciences covers more than one-fourth (n=54,717; 27%), with an average of 2735.85 documents per year.²

One of the driving forces behind this growth is the Higher Education Commission (HEC) of Pakistan, which has made concerted efforts to enhance research capacity. The HEC's research funding programs and initiatives, such as the National Research Program for Universities (NRPU) and the establishment of the Pakistan Research Repository, have been critical in supporting scholars and fostering a research culture.

In addition to national efforts, international collaborations have been pivotal. Pakistani researchers have increasingly partnered with scholars from developed countries, particularly the United States, the United Kingdom, and China, leading to joint research ventures and co-authored publications. Hasan and Zafar³ showed that the international collaborative percentage for publications was 64.9% during the COVID

period and ranked 5th in the list. These collaborations have not only improved the quality of research but also boosted visibility in high-impact journals.

Key Areas of Growth in Pakistan's Health Sciences Research

Several areas within health sciences have seen remarkably rapid growth in Pakistan. Public health research, for instance, has flourished in response to pressing national challenges such as infectious diseases (e.g., tuberculosis, dengue, and, more recently, COVID-19), malnutrition, and maternal and child health. During the COVID-19 period, Pakistan's rate of publication growth was 34.9%, just behind Saudi Arabia and Egypt.³

In addition to clinical research, biomedical sciences have a marked increase in publication, contributing to advancements in molecular biology, genetics, and pharmacology. Furthermore, mental health research has also seen a marked upturn in publications, reflecting a growing recognition of the mental health crisis in Pakistan.

Health Sciences Research: Pakistan vs. Other Countries

While Pakistan's growth in research publications is notable, comparing this progress with other nations provides valuable insights into its trajectory. Countries such as India and Iran-nations with similar socioeconomic conditions-offer relevant points of comparison.

It was pretty clear that India has outpaced Pakistan in the research output of the two countries. Scopus data shows more than 20,000 papers published in health sciences by Indian researchers in the year 2022 compared to over 3,000 in Pakistan. Nevertheless, comparatively, Pakistan's growth rate in health sciences research is higher. A decade ago, India produced more research than Pakistan-by a long way: strong growth is therefore to be expected from there; in relative terms, Pakistani gains are much larger.

Iran's publication in health sciences on Scopus exceeded 10,000 papers when compared with Pakistan in 2022. Iran has the tools to be a science superclass, including the very real idea of linking research to clinical practice and a mature pharmaceutical industry as well as substantial investments in biotechnology. Pakistan is well below Iran in the total research output; however, the Pakistani research environment was harsher to work due to political instability conditions and economic constraints as well as weaker healthcare infrastructure.

Although on the bright side, Pakistan has seen healthy growth in research publications -but it also poses significant challenges that can be a hindrance to its advance ahead. There is simply not enough funding to support an ever-growing need for health sciences research. The NRPU (National Research Program for Universities) by HEC, has not been funded, which used to be the main source of research funding in Pakistan and used to support R&D at Higher Education Institutions. The average spending in research and development (R&D) as a percentage of GDP is still negligibly small compared to neighbouring countries like India and Iran.

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Some smaller universities and healthcare institutions lack sufficient research infrastructure to conduct translational studies. The bigger organizations in urban areas are funded for better laboratories/research equipment, whereas those with small scale facilities and researchers working in rural/ small cities are short of funding which ultimately constraints them from getting into the high-quality research work.

CONCLUSION

The progress that Pakistan has made in the field of health sciences research isn't just a mark of dedication and resilience but also speaks volumes about the quality of medical knowledge it is capable of achieving. Although there are still obstacles, especially in term of funding and infrastructure, the future looks good if things go on like this. Investing in research infrastructure, international collaborations and translation of research into practice will be key if Pakistan hopes to become a

regional leader in health sciences research. Pakistan may not yet stack up to output similar to those seen in India and Iran, but the increasing trend will hopefully continue and be a good sign for the future of global health research from this country.

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