

Mapping the Research Landscape of Human Physiology at Vidyasagar University: A Scientometric and Bibliometric Study

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Abstract: *Background: Scientometric and bibliometric analyses have emerged as powerful tools for evaluating the research output, impact, and collaborative patterns of academic departments. The Department of Human Physiology at Vidyasagar University (VU), West Bengal, India, has been an active research unit since its inception in 1993. Despite its growing scholarly contributions to biomedical science, no systematic quantitative assessment of its research productivity has been undertaken to date.*

Objective: This study aims to map the research landscape of the Human Physiology department at Vidyasagar University by applying scientometric and bibliometric methods to analyse publication trends, authorship patterns, collaboration networks, citation impact, subject growth, and journal distribution over a defined period (2000–2023).

Methods: Publication data were retrieved from Web of Science (WoS) and Scopus databases. A total of 387 documents were identified and subjected to analysis using VOSviewer, Biblioshiny (R-based bibliometrix package), and Microsoft Excel. Key scientometric indicators including Hirsch index (h-index), m-quotient, collaboration index, degree of collaboration, author productivity, Bradford's Law, and Lotka's Law were applied. Co-authorship, co-citation, keyword co-occurrence, and country collaboration networks were visualised.

Results: The department published 387 research documents between 2000 and 2023, showing an Annual Growth Rate (AGR) of 8.74%. Research articles constituted 91.73% of total output. The department's cumulative h-index stood at 22, with a total citation count of 4,812. Multi-authorship dominated the publication pattern (Collaboration Index = 3.47). International collaboration was recorded in 18.35% of papers, with India–USA and India–UK linkages being most frequent. Oxidative stress, cardiovascular physiology, metabolic disorders, and environmental health emerged as core thematic clusters. Bradford's Law verification revealed three zones of journal concentration, and Lotka's Law confirmed that a small proportion of authors contributed the majority of publications.

Conclusion: The Human Physiology department at Vidyasagar University has demonstrated consistent and expanding research activity over two decades. The findings provide actionable insights for research administrators, library professionals, and policy makers to optimise resource allocation, foster interdisciplinary collaboration, and enhance institutional research impact.

Keywords: Scientometrics; Bibliometrics; Human Physiology; Vidyasagar University; VOSviewer; Biblioshiny; Research Output; Citation Analysis; Bradford's Law; Lotka's Law