

# Chapter 14

## The Global Trends and Hotspots of Medical Internet of Things Research: A Bibliometric Analysis During 2004 to 2023

**M. S. Rajeevan**

 <https://orcid.org/0009-0009-3320-3078>

*Indian Institute of Technology, Hyderabad, India*

**V. S. Anoop**

*Kerala University of Digital Sciences, Innovation, and Technology, India*

**D. Narayana**

*Central Tribal University of Andhra Pradesh, India*

### **ABSTRACT**

*The exponential growth of medical data, propelled by technological advancements and societal shifts, underscores the critical role of efficient data management in public health, clinical practice, and medical research. The Medical Internet of Things (MIoT) emerges as a key player, facilitating real-time collection and transmission of patient data through connected devices and sensors. While MIoT revolutionizes healthcare delivery and research, its rapid expansion presents new challenges in data handling. Moreover, the integration of MIoT with 5G technology expands its scope beyond traditional medicine, aiding in diagnosis, treatment, and preventive care. Bibliometrics, an underutilized tool in medical research, offers insights into*

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*research trends and collaboration networks, addressing a critical analytical gap in the field. This chapter explores the impact of bibliometric analysis in the medical domain, shedding light on key contributors and research avenues, thus enhancing our understanding of this evolving landscape.*

## **INTRODUCTION**

Technological advancements and social developments are responsible for the exponential expansion of medical data. Identifying public health issues, raising the standards for public health care, and researching innovative medical discoveries and medicines all depend on efficient medical data management. In the modern medical business, the Medical Internet of Things is one of the main sources of technological innovation. (Akhtar et al., 2021). Medical devices and sensors can be connected to the internet, enabling the real-time collection, transmission, and recording of medical data. Throughout their treatment, these devices and sensors can keep an eye on their patients' general well-being and physiological parameters. In addition to providing specific therapy and real-time monitoring services, this data is essential for clinical practice and medical research. (Elayan et al., 2017).

However, the Internet of Things' explosive growth poses new challenges for the handling of medical data. (Elhoseny et al., 2021). The intelligent design of medical equipment in the MIoT allows it to connect to the internet to promptly gather, send, and record patient health data, including physiological indications (Dimitrov, 2016). The growing incidence of chronic illnesses and severe aging lead to major problems to the medical system, and the trend is moving away from “passive medical care” and toward “preventive medical care.” In the growth of medical rehabilitation, IoT medical has set itself beyond traditional medicine with the broad deployment of 5G technology. The proper diagnosis and treatment of serious crises has been greatly aided by MIoT. However it is also proven useful in assisting with a number of diagnostics (Tao et al., 2024).

Bibliometrics is a multidisciplinary field of research that measures all information carriers using statistical and mathematical techniques. and to analyze the limits and core of the research and the subject matter (van Eck & Waltman, 2017). To showcase the impact of the research field, systematic and metrological features of the literature can be investigated and assessed using VOSviewer, CiteSpace, and the R package “bibliometrix.” In the past few years, the medical industry has extensively used bibliometrics. Based on big data analysis, bibliometric analysis assesses important contributors to a field (e.g., authors, nations, institutions, etc.) numerically and visually and ascertains their collaboration networks. These findings aid in analyzing the most popular study avenues in a certain topic. We searched the

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