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Digital Transformation and Service Readiness of Medical Libraries: Evidence from Delhi and Lucknow

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ABSTRACT

This study examines the status, resource adequacy, and technological readiness of medical libraries in Delhi and Lucknow in response to the growing demand for digital medical information. Using a descriptive survey design, data were collected from twelve medical libraries representing medical universities, teaching hospitals, and research institutions. Findings reveal significant disparities in collection strength, staffing patterns, automation levels, and digital resource accessibility. University-based libraries demonstrate stronger digital infrastructure, larger print and electronic collections, and higher adoption of Integrated Library Management Systems compared to hospital libraries, which continue to rely on minimal staff and limited resources. The study further identifies uneven development of institutional repositories and very limited integration of AI-enabled search tools, highlighting gaps in technological preparedness. Despite increasing reliance on electronic information resources, several libraries face barriers related to ICT infrastructure and user digital literacy. The study concludes that while progress toward digital transformation is evident, substantial variation persists across institutions, necessitating targeted investment in technology, professional development, and standards-driven policy planning to strengthen the role of medical libraries in supporting education, research, and evidence-based practice.

KEYWORDS: Medical Libraries, Digital Resources, Library Automation, Information Access, User Patterns

1. INTRODUCTION

Medical libraries play a critical role in supporting medical education, clinical practice, and health research by providing access to high-quality, evidence-based information. With the rapid growth of digital resources, online repositories, and advanced search tools, medical libraries are undergoing a transformation from traditional print-based information hubs to technologically enhanced learning and research environments. In India, the shift toward digital platforms has intensified in recent years due to increasing dependence on online journals, databases, and electronic health literature among medical professionals, students, and researchers. However, disparities in

infrastructure, staffing, automation, and resource availability remain common across institutions, particularly between university-based medical libraries and those attached to hospitals.

Delhi and Lucknow are among India's major centers of medical education and healthcare services, hosting several medical colleges, hospitals, and research institutions. The libraries in these institutions vary widely in terms of collection strength, access to digital resources, availability of information professionals, and adoption of Integrated Library Management Systems (ILMS). While some institutions have implemented advanced systems such as Koha, SLiMS, Libsys, and e-Granthalaya, others continue to rely on manual processes with limited digital services. Similarly, some libraries offer access to databases such as ERMED, PubMed, Medline, ClinicalKey, and Scopus, whereas smaller hospital libraries have minimal digital infrastructure and limited user engagement.

In this context, the present study aims to evaluate the current status of medical libraries in Delhi and Lucknow with specific reference to resource adequacy, user patterns, technological integration, and operational challenges. The study focuses on understanding patterns of library usage among doctors, medical students, nursing students, and researchers, particularly during the shift from print to digital platforms. It further examines the effectiveness of library collections in meeting the information needs of healthcare professionals, the extent of automation and digital readiness, the availability of AI-driven search tools, and the challenges these libraries face in terms of staffing, funding, and technological support.

By analysing data collected from major medical institutions in both cities, this study offers comparative insights into the strengths and limitations of their library systems. The findings contribute to the broader understanding of digital transformation in Indian medical libraries and highlight areas for improvement in policy, investment, and professional training. In light of these contextual developments and disparities, the present study formulates the following objectives to systematically assess the status, resource adequacy, and technological readiness of medical libraries in Delhi and Lucknow.

2. REVIEW OF LITERATURE

The literature on medical librarianship reveals persistent contrasts between global advancements and the uneven development of Indian medical libraries. International scholarship shows that structured health library standards promote systematic resource planning, technological adoption, and quality assurance (De-la-Mano, 2024), while Indian libraries continue to operate without uniform guidelines, resulting in inconsistent infrastructure, staffing, and service delivery (Narang & Vishwakarma, 2021).

Research on digital information use similarly exposes a gap between access and effective utilization; although e-resources are increasingly central to medical education and research, inadequate ICT facilities, limited digital literacy, and unstable connectivity impede meaningful use (Saldanha & Thalanjeri, 2021), a pattern also reported in Ayurvedic and health sciences libraries where users require sustained training to navigate digital platforms (Devi & Keshava, 2020).

Recent scholarship also highlights the emerging role of medical libraries as mediators of health literacy, helping translate complex biomedical information into accessible forms for patients and clinicians (Iftekhar & Gulati, 2025a), and as potential hubs for digital learning, academic support, and community-oriented information services when adequate resources and technologies are available (Iftekhar & Gulati, 2025b). Yet these expanded roles contrast sharply with the limited automation, uneven ILMS adoption, and partial development of digital repositories reported in Indian institutions, indicating a significant gap between aspirational functions and actual technological readiness (Das, 2020).

Taken together, the existing literature reveals clear tensions between global expectations and local realities in medical librarianship. International work points toward standard-driven, technologically advanced, and user-centred library systems, whereas Indian studies consistently document fragmented infrastructure, uneven digital access, and limited automation. At the same time, conceptual discussions position medical libraries as critical intermediaries for health literacy and digital learning, roles that require far stronger technological capacity than many institutions currently possess. These contradictions underscore the need for empirical evidence on how medical libraries in specific regions are positioned in terms of resources, digital infrastructure, and service readiness. Against this background, the present study adopts a descriptive survey approach to examine the status, resource adequacy, and technological preparedness of selected medical libraries in Delhi and Lucknow.

3. OBJECTIVES OF THE STUDY

- To examine the status, resource adequacy, and technological readiness of medical libraries in Delhi and Lucknow in the context of modern medical information needs.
- To evaluate the effectiveness, depth, and accessibility of print and electronic collections in meeting the information needs of healthcare professionals.
- To investigate the level of technological advancement in medical libraries, including the adoption of ILMS platforms, digital repositories, and AI-enabled search tools, and to assess their readiness for future developments

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4. METHODOLOGY

Research Design: The study employs a **descriptive survey research design**, suitable for examining the status, resources, services, and technological capabilities of medical libraries. This design allows for the systematic collection and analysis of quantitative and qualitative data across multiple institutions.

Scope of the Study: The study covers selected medical libraries in **Delhi and Lucknow**, including medical universities, medical colleges, super-speciality hospitals, and general hospitals.

A total of **12 libraries** were included in the study. These institutions represent a mix of:

Sr. No.	Name	Abbreviation	Location
1	Balrampur Hospital	BH	Lucknow
2	Dr. Ram Manohar Lohia Institute of Medical Sciences	DrRMLIMS	Lucknow
3	Shyama Prasad Mukherjee Civil Hospital	SPMCH	Lucknow
4	Sanjay Gandhi Postgraduate Institute of Medical Sciences	SGPGIMS	Lucknow
5	Veerangana Avanti Bai Mahila Chikitsalaya	VABMC	Lucknow
6	King George Medical University	KGMU	Lucknow
7	Vardhaman Mahavir Medical College & Safdarjung Hospital	VMMC & SH	New Delhi
8	Lady Hardinge Medical College	LHMC	New Delhi
9	All India Institute of Medical Sciences	AIIMS	New Delhi
10	University College of Medical Sciences	UCMS	New Delhi
11	Maulana Azad Medical College	MAMC	New Delhi
12	Atal Bihari Vajpayee Institute of Medical Sciences & Dr. RML Hospital	ABVIMS & DrRMLH	New Delhi

This diverse sample provides a comprehensive understanding of medical library services across both metropolitan regions.

Data Collection: Primary data was collected between **March 2025 and November 2025** using a structured questionnaire administered to library professionals or designated library staff. All responses were recorded and tabulated chronologically.

Limitations: The present study is limited to the following factors:

- Data is self-reported by library authorities.
- User perception data (from students, doctors, researchers) is not included.
- The study does not measure the direct impact on patient outcomes.

5. DATA ANALYSIS AND INTERPRETATION

This section presents the analysis of data collected from 12 medical libraries across Delhi and Lucknow. The analysis is structured along key variables central to the study: institutional characteristics, staffing, collection strength, digital resources, automation, ICT infrastructure, and usage patterns. Tables are followed by scholarly interpretation, written in an academic tone suitable for publication.

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Table 1: Institutional Characteristics of Surveyed Medical Libraries

Institution	Type of Institution	Year of Establishment	Operating Hours	No. of Staff	Primary Users
BH	Hospital	2019	12 hours	1	Doctors
DrRMLIMS	Medical University	2011	13 hours	10	Doctors, Students, Researchers
SPMCH	Hospital	2019	12 hours	1	Doctors, Students
SGPGIMS	Medical University	1987	24 hours	12	Doctors, Students, Researchers
VABMC	Hospital	2019	8 hours	1	Doctors, Students
VMMC&SH	Medical University	1952	12 hours	10	Medical Students
LHMC	Medical University	1916	12 hours	14	Doctors, Students
KGMU	Medical University	1905	13 hours	26	Doctors, Students, Researchers
AIIMS	Tertiary Hospital	1957	24 hours	28	Doctors, Students, Researchers
UCMS	Medical University	1971	12 hours	10	Doctors, Students
MAMC	Medical College	1997	9 hours	5	Doctors, Students
ABVIMS & DrRMLH	Hospital & Research Institute	1932	12 hours	2	Doctors, Students, Researchers

The institutional landscape shows a predominance of medical universities (7 out of 12)**,** followed by government hospitals and research institutes. University-based libraries demonstrate significantly longer historical establishment, often dating back to the early and mid-20th century, whereas most hospital libraries were established after 2010.

A critical disparity is visible in staffing patterns**.** University libraries employ between 10 and 28 staff, while hospital libraries operate with only one or two staff members**,** indicating potential limitations in service delivery, administration, and technology management. The **user base** is broader in academic institutions, serving doctors, medical students, nursing students, and researchers, whereas hospital libraries primarily serve doctors and interns. This disparity directly influences resource availability, technology adoption, and usage levels across the two regions.

Table 2: Web Presence, Digital Visibility, and Update Frequency

Institution	Web Page Available	Update Frequency
BH	No	—
Dr RMLIMS	Yes	Occasional
SPMCH	No	—
SGPGIMS	Yes	Regular
VABMC	No	—
VMMC & SH	Yes	Occasional
LHMC	No	—
KGMU	Yes	Regular

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AIIMS	Yes	Regular
UCMS	Yes	Regular
MAMC	Yes	Occasional
ABVIMS & DrRMLH	No	—

Out of the 12 libraries studied, 58.3% (7 libraries) maintain a web presence, while 41.7% lack any dedicated online visibility**.** Regular updates are predominantly associated **with** large and technologically advanced institutions such as SGPGIMS, KGMU, UCMS, and AIIMS. Conversely, smaller hospital libraries exhibit limited or no web visibility. The findings indicate an emerging but uneven trend of digital visibility, with university-based libraries showing stronger integration of web services, digital notices, and online OPAC modules, whereas hospital libraries remain predominantly offline. Limited online presence in hospitals restricts access to user guidance, digital databases, and remote learning tools.

Table 3: Collection Strength and Digital Resources

Institution	**Print Collection (Books/Journals)**	**E-Resources / Databases**
BH	Books 126; Journals 36,000+	ERMED
Dr RMLIMS	Books 13,000+; Journals 1,736; Bound 5,111	PubMed, Scopus
SPMCH	Books 400+; E-journals 10	ERMED
SGPGIMS	Books 23,541; Journals 38,237; E-books 1,022; E-journals 879	ClinicalKey
VABMC	Books 71; Journals 4	ERMED
VMMC & SH	Books 31,853; Journals 12,000	Not Mentioned
LHMC	Not Mentioned	Not Mentioned
KGMU	Books 53,160; Journals 30,172; E-resources 10	ERMED
AIIMS	Books 74,592; Journals 1,223; Digital Resources 12	Medline
UCMS	Books 20,983; Journals 25,585; E-resources 2	PubMed, Medline
MAMC	Books 36,000+; Journals 50,000	ERMED
ABVIMS & DrRMLH	Books 39,600; Journals 126	ERMED

The analysis reveals substantial variation in collection strength across libraries. Hospital libraries such as VAB Mahila Chikitsalya, Balrampur Hospital, and SPM Civil Hospital maintain minimal print collections, often below 500 books, indicating limited resource depth. In contrast, university libraries report extensive holdings, with AIIMS (74,592 books), KGMU (53,160 books), and VMMC (31,853 books) demonstrating the strongest collections. Digital resource subscriptions are similarly uneven. ERMED appears as the most widely accessible digital consortium, especially in government institutions. High-resource libraries such as SGPGIMS, UCMS, and Dr RMLIMS show a more diverse digital ecosystem, including PubMed, Scopus, ClinicalKey, and Medline. The overall pattern indicates that academic institutions are significantly better positioned to support evidence-based medical research, while hospital libraries remain dependent on limited digital platforms.

Table 4: Automation, ILMS Use, and AI-Based Tools

Institution	Automation Status	ILMS Used	AI-Based Tools
BH	No	—	No
Dr RMLIMS	Yes	SLIMS 21	Yes
SPMCH	No	—	No
SGPGIMS	Yes	Koha	No
VABMC	No	—	No
VMMC & SH	Partially	—	No
LHMC	Yes	e-Granthalaya	No
KGMU	Yes	Koha	No
AIIMS	No	—	Yes
UCMS	Yes	e-Granthalaya	No
MAMC	No	—	No
ABVIMS & DrRMLH	Yes	Libsys	No

Automation trends show a clear divide between library types. Out of 12 libraries:

- 6 libraries (50%) are fully automated.
- 1 library (8.3%) is partially automated.
- 5 libraries (41.7%) continue to operate manually.

University libraries overwhelmingly use ILMS platforms such as Koha, SLIMS 21, Libsys, and e-Granthalaya, reflecting institutional investment in digital workflows. Hospital libraries, however, show minimal automation, except ABVIMS. Adoption of AI-based search tools is extremely limited, reported only by Dr RMLIMS and AIIMS, indicating that AI integration remains at an embryonic stage in Indian medical libraries. The data demonstrate a clear pattern: while medical universities in both cities are progressing toward digital transformation, hospital libraries lag behind, particularly in automation, e-resources integration, and AI-enabled search capabilities.

Table 5: Institutional Repositories, ICT Infrastructure, and User Activity

Institution	Institutional Repository	No. of Computers	Daily Visitors	Monthly Borrowing
BH	Yes (Dissertations)	1	<50	<100
Dr RMLIMS	Yes (Dissertations)	40	50–100	<100
SPMCH	No	3	<50	<100
SGPGIMS	No	20	>100	>500
VABMC	Yes (Dissertations)	0	<50	<100
VMMC & SH	Yes (Dissertations)	25+	>100	>500
LHMC	No	10	>100	100–500
KGMU	Yes (Physical Collection)	40	>100	<100
AIIMS	Yes (Dissertations)	3	>100	100–500
UCMS	No	40	>100	100–500
MAMC	No	60	<50	100–500
ABVIMS & DrRMLH	Yes (Dissertations)	25	>100	>500

The availability of institutional repositories shows a moderate adoption rate (58.3%), with most repositories housing student dissertations, reflecting compliance-oriented rather than innovation-oriented digital archiving. ICT infrastructure varies widely. University libraries such as MAMC, UCMS, KGMU, and Dr RMLIMS offer 40–60 computer workstations, ensuring higher digital access. Conversely, several hospital libraries provide three or fewer computers, limiting digital literacy training and access to online medical information.

Patterns of daily footfall and circulation demonstrate strong correlations with institutional type:

- Academic institutions (e.g., SGPGIMS, VMMC, KGMU, UCMS, AIIMS) exhibit consistent footfall exceeding 100 visitors per day and robust circulation activity.
- Small hospital libraries report low visitor turnout (<50) and minimal borrowing, indicating limited student presence and restricted service portfolios.

6. FINDINGS AND DISCUSSION

The findings reveal a clear divide between university-based medical libraries and those attached to general hospitals, reflecting the structural and technological disparities identified in earlier literature. The substantial staffing differences observed where universities maintain larger professional teams while most hospital libraries operate with a single staff member mirror the broader lack of national standards highlighted by Narang and Vishwakarma (2021), who argue that the absence of uniform guidelines directly contributes to uneven library development in India. The stronger staffing and service structures in university libraries also align with international observations that personnel capacity is a core determinant of service quality and technological readiness (De-la-Mano, 2024).

Variations in collection strength and access to digital resources further reinforce patterns discussed in previous research. The robust print and electronic collections in university libraries correspond with findings by Devi and Keshava (2020), who noted that institutions with better infrastructure can more effectively support academic and research needs. Conversely, the limited collections in hospital libraries parallel the challenges reported by Saldanha and Thalanjeri (2021), who found that inadequate ICT facilities and low digital literacy hinder optimal use of electronic resources, even when subscriptions exist. The dependence of hospital libraries on ERMED alone suggests an information environment where availability and usability remain mismatched—an issue consistently highlighted across Indian studies.

Similarly, disparities in automation and digital integration reflect tensions identified in the literature between expected technological roles and practical constraints. The adoption of ILMS platforms in half of the surveyed libraries echoes the gradual technological shift described globally (Frederick & Wolff-Eisenberg, 2020). However, the lack of automation and minimal technological infrastructure in most hospital libraries aligns closely with Das (2020), who noted that many Indian medical libraries remain in early stages of automation and lack the digital maturity required for advanced service delivery. The very limited presence of AI-enabled tools further confirms the technological lag discussed in your own work, where Iftekhar and Gulati (2025b) emphasise that Indian libraries remain far from achieving the capabilities needed for modern evidence-based practice.

Patterns of user engagement also reflect these structural realities. High footfall and circulation in university libraries align with their richer collections and better technology, whereas low usage in hospital libraries points to misalignment between user needs and available services. These observations resonate with your first paper on health

literacy (Iftekhar & Gulati, 2025a), which argues that libraries cannot support informed decision-making or educational needs without adequate resources and technological systems.

Overall, the findings confirm and extend existing research by demonstrating that the disparities reported in isolated studies persist across multiple institutions in Delhi and Lucknow. The results strengthen the argument that meaningful digital transformation in Indian medical libraries requires coordinated investment, standard-setting, and technological modernisation.

CONCLUSION

The study demonstrates that medical libraries in Delhi and Lucknow exhibit uneven levels of infrastructural strength, technological readiness, and service capacity, with university libraries significantly outperforming hospital libraries across all major indicators. While these findings confirm earlier observations of unequal development in Indian medical librarianship, they also highlight an urgent need to address systemic issues that limit equitable access to high-quality medical information. Strengthening digital infrastructure, expanding professional staffing, and implementing standardised national guidelines absent in the Indian context but well established internationally are essential for ensuring that all medical institutions can support evidence-based practice, research productivity, and patient-centred care.

Looking forward, medical libraries must align themselves with global trends that emphasise automation, digital repositories, and intelligent discovery tools. Without embracing ILMS platforms and emerging digital technologies, Indian medical libraries risk widening the gap between rising informational demands and outdated service models. Policymakers, institutional leaders, and library professionals must therefore prioritise capacity building, cross-institutional collaboration, and strategic investment to modernise library systems. These steps are particularly critical in an era where rapid access to authoritative information directly influences clinical decision-making and educational quality. By advancing technological readiness and promoting standardised development, medical libraries in Delhi and Lucknow can transition from resource-constrained units to dynamic knowledge centres that meaningfully contribute to healthcare delivery and medical education.

REFERENCES

[1] Das, R. (2020). Use of E-resources by the Users of the Gauhati Medical College and Hospital (GMCH), Guwahati: A Study. International Journal of Research in Library Science, 6(2), 189. https://doi.org/10.26761/IJRLS.6.2.2020.1356

[2] De-la-Mano, M. (2024). The historical development and current landscape of health library standards: A critical review. Health Information & Libraries Journal, 41(2), 117–135. https://doi.org/10.1111/hir.12530

[3] Devi, S. R., & Keshava, D. (2020). PERCEPTIONS AND USE OF E-RESOURCES BY AYURVEDIC MEDICALCOLLEGE LIBRARY USERS OF NORTH KARNATAKA. 56.

[4] Frederick, J. K., & Wolff-Eisenberg, C. (2020). Ithaka S+R US Library Survey 2019: Roles and Services of the Library (p. 67). ITHAKA S+R. https://www.jstor.org/stable/resrep49459.9

[5] Iftekhar, H., & Gulati, A. (2025a). Medical Libraries as Champions for Health Literacy for Improved Patient Outcomes: A Review. Sustainable Development of Libraries in Al Era, 293–305.

[6] Iftekhar, H., & Gulati, A. (2025b). Reimagining Medical Libraries as Hubs of Health Literacy and Education. International Journal of Research in Library Science, 11(1), 14–23. https://doi.org/10.26761/ijrls.11.1.2025.1822

[7] Narang, S., & Kumar Vishwakarma, M. (2021). Towards Academic Medical Library Standards in India: A Call for Action. SRELS Journal of Information Management, 249–261. https://doi.org/10.17821/srels/2021/v58i4/165015

[8] Saldanha, P., & Thalanjeri, P. (2021). Use of Library and e-Resources by the Indian Medical Researcher. MGM Journal of Medical Sciences, 8(2), 141–145. https://doi.org/10.4103/mgmj.mgmj_18_21Das, R. (2020). Use of E-resources by the Users of the Gauhati Medical College and Hospital (GMCH), Guwahati: A Study. International Journal of Research in Library Science, 6(2), 189. https://doi.org/10.26761/IJRLS.6.2.2020.1356

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