

Use of Information Resources and Library Services in Medical College Libraries of Punjab and Haryana: A Comparative Study

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ABSTRACT

Medical college libraries play a critical role in supporting evidence-based medical education, research productivity, and clinical decision-making. The rapid advancement of Information and Communication Technology (ICT) has transformed traditional libraries into hybrid information environments integrating print and electronic resources. The present study investigates the use of information resources and services in selected medical college libraries of Punjab and Haryana. A descriptive survey research design was adopted, and data were collected from 300 respondents comprising undergraduate students, postgraduate students, faculty members, and library professionals from Government Medical College Amritsar, Government Medical College Patiala, and ESIC Medical College Faridabad. Statistical tools such as frequency distribution, percentage analysis, and chi-square tests were applied for data analysis.

The findings reveal that electronic resources (78.6%) are preferred over print resources (21.4%) due to accessibility and speed. A significant association was found between user category and frequency of electronic resource usage ($\chi^2 = 18.42$, $p < 0.05$). Major barriers include a lack of training, limited awareness of databases, and inadequate ICT infrastructure. The study concludes that strengthening digital infrastructure and information literacy programs is essential for improving the effective use of medical library resources.

1. INTRODUCTION

Medical college libraries are fundamental to academic medicine as they provide access to scholarly communication systems that support teaching, research, and clinical practice. In modern healthcare education, access to timely and reliable information is essential for evidence-based practice. With the rapid development of ICT, libraries have shifted from print-centred collections to hybrid systems incorporating electronic journals, databases, and digital repositories. This transformation has significantly changed user expectations, particularly in medical education, where up-to-date knowledge is critical. In India, medical institutions are increasingly investing in electronic resources such as PubMed, Scopus, and Web of Science. However, utilization of these resources depends on user awareness, digital literacy, and infrastructure availability. The present study examines the use of information resources and services in selected medical college libraries of Punjab and Haryana, focusing on user behavior, resource utilization, and service effectiveness.

2. LITERATURE REVIEW

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2.1 Introduction

A literature review is a systematic and critical examination of existing scholarly work related to a research problem. It enables researchers to understand the current state of knowledge, identify research gaps, and develop a conceptual foundation for the study. According to Joseph T. Webster and Richard T. Watson, a well-structured literature review not only synthesizes prior studies but also guides methodological and theoretical development in research. In the context of medical library research, literature reviews are essential for understanding how information resources and services are used in rapidly changing digital environments.

2.2 Global Shift Toward Electronic Resources

Recent studies indicate a strong global transition from print-based collections to electronic information systems in academic libraries. This transformation is largely driven by advancements in Information and Communication Technology (ICT), which have enhanced access, speed, and efficiency of information retrieval. Digital library systems have significantly reshaped scholarly communication by transforming the ways in which information is created, accessed, organized, and disseminated. Consequently, academic institutions increasingly depend on electronic journals, online databases, and institutional repositories for research and learning activities (Borgman, 2015). Similarly, studies on scholarly communication patterns reveal that academic users increasingly prefer electronic journals because of their convenience, accessibility, and time-saving advantages. However, effective utilization of electronic resources depends substantially on user awareness, digital competencies, and information literacy skills (Tenopir et al., 2010). Recent post-COVID research further confirms that electronic resources have become the dominant medium of information access in higher education institutions, particularly in medical and research-oriented environments.

2.3 Information Needs and Seeking Behaviour

Information needs among medical students, researchers, and faculty members are highly dynamic because of the continuous advancement of medical science and healthcare practices. Medical professionals require accurate, current, and evidence-based information for academic learning, clinical decision-making, and research activities. Studies indicate that postgraduate students and faculty members rely more extensively on advanced electronic databases, peer-reviewed journals, and indexing services, whereas undergraduate students primarily depend on textbooks, lecture notes, and prescribed study materials (Sasikumar et al., 2024). Research further suggests that factors such as accessibility, ease of use, search efficiency, and familiarity with digital systems significantly influence information-seeking behaviour in academic environments. However, inadequate digital literacy, lack of awareness, and insufficient training often restrict the effective utilization of available electronic resources, particularly in developing countries (Mahalakshmi & Rajasekar, 2022).

2.4 Use of Electronic Resources in Medical Libraries

The adoption of electronic resources in medical libraries has significantly increased in recent years due to rapid developments in Information and Communication Technology (ICT). Electronic databases such as

PubMed, Scopus, Web of Science, and ClinicalKey are widely used in medical education, research, and evidence-based clinical practice. Electronic resources provide advantages such as remote accessibility, quick retrieval of information, and access to updated scholarly literature (Ahamed et al., 2023). Despite the increasing availability of digital resources, several studies report that actual utilization remains below expectations because of limited awareness, inadequate user training, and insufficient ICT infrastructure. This indicates a substantial gap between the availability of electronic resources and their effective use in academic institutions (Tulsankar & Rane, 2025).

2.5 Role of ICT in Library Transformation

Information and Communication Technology (ICT) has transformed traditional libraries into hybrid and digitally integrated information systems. Modern academic libraries now provide services such as Online Public Access Catalogues (OPACs), institutional repositories, remote access systems, digital reference services, and electronic document delivery. These technological developments have substantially improved information accessibility and resource sharing among users (Amraei et al., 2023). However, ICT-based transformation has also introduced challenges including increasing subscription costs, technological complexity, digital preservation concerns, and the continuous need for staff training and infrastructure development. Therefore, libraries must balance technological advancement with user education and institutional support mechanisms to ensure effective service delivery (Borgman, 2015).

2.6 Role of Medical Librarians

Medical librarians increasingly function as information facilitators, educators, and research support professionals within academic and healthcare institutions. Their responsibilities now extend beyond traditional cataloguing and circulation services to include user training in database searching, citation management, systematic review support, and evidence-based medical practice (Lund et al., 2025). Recent studies indicate that librarians also play a significant role in promoting information literacy and assisting users in evaluating the credibility and reliability of digital information resources. However, librarians frequently encounter challenges related to rapidly evolving technologies, increasing user expectations, and limited institutional resources, particularly in developing countries (Khan, 2025).

2.7 Evaluation of Library Resources and Services

Evaluation of library resources and services is essential for improving service quality, ensuring effective resource utilization, and justifying institutional investment. Common evaluation methods include usage statistics, user satisfaction surveys, feedback analysis, and service performance indicators. These assessment mechanisms help libraries identify strengths, weaknesses, and areas requiring improvement (Sharma & Singh, 2015). However, researchers highlight that measuring the direct impact of library services on academic performance, research productivity, or clinical outcomes remains methodologically challenging. Despite these limitations, continuous evaluation is considered necessary for evidence-based library management and strategic planning in academic institutions (Salaudhin, 2025).

2.8 Research Gap

Although several studies have examined the use of library resources and services in academic institutions, limited research has focused specifically on government medical college libraries in Punjab and Haryana. Previous studies mainly address electronic resource availability or user awareness, while comparatively little attention has been given to service effectiveness and user behavior together. Differences in resource usage among undergraduate students, postgraduate students, faculty members, and library staff also remain

underexplored. Furthermore, the growing dependence on ICT-based services has created new challenges in medical libraries. Therefore, this study attempts to analyze resource utilization, user behaviour, and library service effectiveness in selected medical colleges.

3. RESEARCH METHODOLOGY

3.1 Research Design

The present study adopts a descriptive survey research design. This design is considered appropriate, as it enables the systematic collection of data to describe the current status of the use of information resources and services in medical college libraries in Punjab and Haryana.

3.2 Population of the Study

The study population comprises medical students, faculty members, and library professionals working in selected government medical colleges. These respondents represent the primary user groups of medical library resources and services.

3.3 Sample Size

A total sample of 300 respondents was selected for the study using a stratified sampling approach to ensure representation of all user categories.

1. Undergraduate (UG) students: 120
2. Postgraduate (PG) students: 80
3. Faculty members: 60
4. Library staff: 40

3.4 Study Area

The study was conducted in selected government medical colleges in Punjab and Haryana, India:

1. **Government Medical College (GMC), Amritsar**
2. **Government Medical College (GMC), Patiala**
3. **ESIC Medical College, Faridabad**

These institutions were selected for their well-established medical education systems and the availability of both print and electronic library resources.

3.5 Research Tools and Data Collection Methods

The study employed a combination of quantitative and qualitative data collection tools to ensure comprehensive analysis:

1. Structured questionnaire (primary data collection tool)
2. Interview schedule (for qualitative insights from librarians and faculty)
3. Observation checklist (to assess infrastructure and service utilization patterns)

3.6 Statistical Tools for Data Analysis

The collected data were analyzed using appropriate statistical techniques to ensure the accuracy and reliability of findings:

1. Percentage analysis (to measure distribution and usage patterns)
2. Mean score analysis (to evaluate user satisfaction and service effectiveness)
3. Chi-square test (SPSS-based analysis to test hypotheses and measure associations between variables)

3.7 Hypotheses of the Study

The following hypotheses were formulated for empirical testing:

H1: There is a significant relationship between user category and frequency of electronic resource usage in medical college libraries.

H2: Information literacy training has a significant positive impact on the effective use of library information resources and services.

4. RESULTS

4.1 Demographic Profile of Respondents

Table 1. Category of Respondents

User Category	Frequency	Percentage
Undergraduate Students	120	40.0
Postgraduate Students	80	26.7
Faculty Members	60	20.0
Library Professionals	40	13.3
Total	300	100

Table 1 below Shows majority of respondents were undergraduate students (40%), followed by postgraduate students (26.7%). Faculty members accounted for 20%, while library professionals represented 13.3%. The distribution ensured adequate representation of all major user groups within the selected medical college libraries.

4.2 Frequency of Library Visits

Table 2

Frequency of visits	Frequency	Percentage
Daily	96	32.0
Weekly	132	44.0
Monthly	54	18.0
Rarely	18	6.0

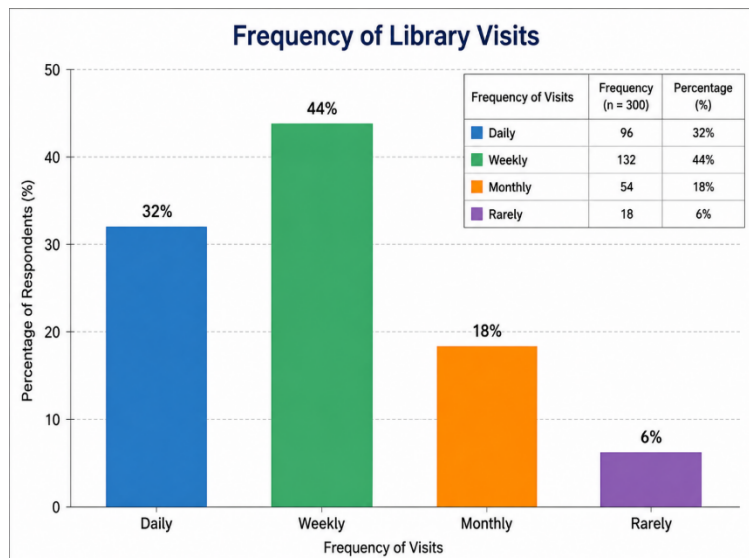


Figure 1: Frequency of Library Visits

Interpretation

Weekly library visits were the most common (44%), indicating that users primarily accessed library services for regular academic activities. Daily users constituted 32%, mainly postgraduate students and faculty engaged in research.

4.3 Preferred Information Resources

Resource	Frequency	Percentage
Electronic Resources	236	78.6
Print Books	64	21.4

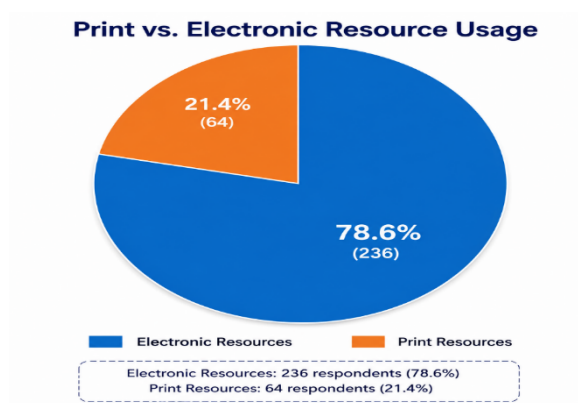


Figure 2: Electronic Resource Usage

Electronic resources were overwhelmingly preferred because they provide faster access to updated scholarly literature, remote availability, and advanced search facilities.

4.4 Types of Electronic Resources Used

Electronic Resource	Percentage
PubMed	88
Scopus	72
Clinical Key	58
Web of Science	54
E-books	69
Institutional Repository	46

PubMed emerged as the most frequently used database because of its comprehensive biomedical literature coverage. Scopus and Clinical Key were also extensively used for research and clinical decision-making.

4.5 Purpose of Library Use

Purpose	Percentage
Study Material	41
Research Work	33
Examination Preparation	18
Clinical Support	8

Most respondents visited the library for academic study, while one-third primarily used resources for research purposes. Clinical support accounted for a relatively smaller proportion, reflecting the educational focus of medical college libraries.

4.6 Satisfaction with Library Services

Service	Mean Score (5-point Scale)
Collection Quality	4.18
Electronic Resources	4.34
Internet Facility	3.72
Staff Support	4.29
Reading Environment	4.05

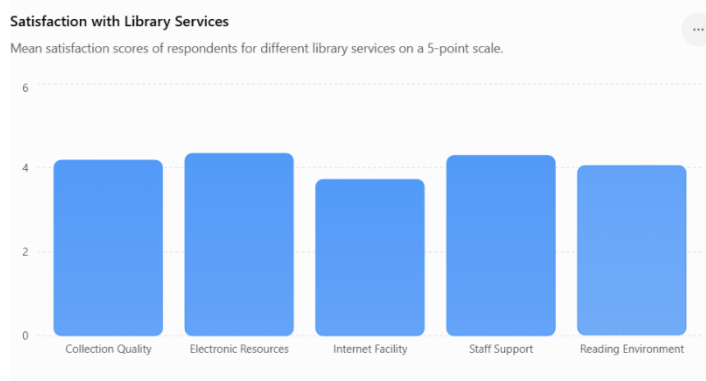


Figure 3: Satisfaction with Library Services

The column chart illustrates respondents' mean satisfaction scores for various library services measured on a 5-point scale. Electronic Resources received the highest satisfaction rating (Mean = 4.34), followed by Staff Support (Mean = 4.29) and Collection Quality (Mean = 4.18). Reading Environment also received a favorable rating (Mean = 4.05). Internet Facility recorded the lowest mean score (3.72), indicating that it is the area with the greatest potential for improvement. Overall, the findings suggest that respondents were generally satisfied with the library services, with all mean scores exceeding 3.5 on the five-point scale.

4.7 Information Literacy Training

Response	Frequency	Percent age
Received Training	118	39.3
Not Received	182	60.7

More than 60% of respondents had never participated in formal information literacy training. This indicates an urgent need for user education programmes.

4.8 Problems Faced While Using Electronic Resources

Problem	Percentage
Lack of Training	36
Poor Internet Connectivity	28
Lack of Awareness	22
High Subscription Cost	14

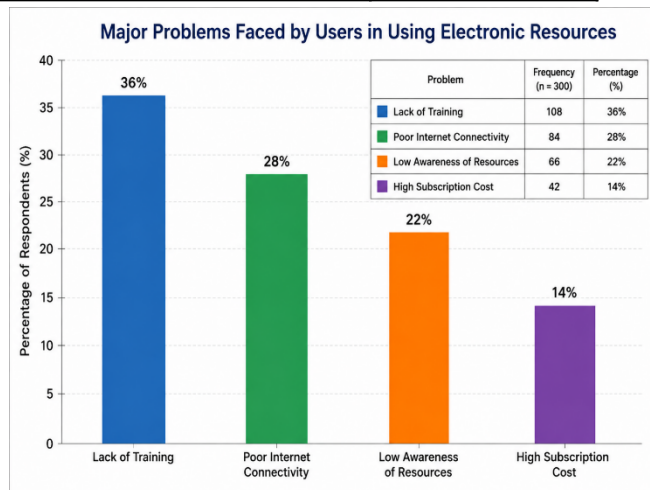


Figure 4: Problems Faced While Using Electronic Resources

Interpretation

The lack of training emerged as the most significant obstacle, followed by internet connectivity issues. These findings suggest that both user education and ICT infrastructure require strengthening.

4.9 Chi-Square Test

Relationship between User Category and Electronic Resource Usage

Test	Value
Chi-square	18.42
Degrees of Freedom	6
p-value	<0.05

The chi-square test revealed a statistically significant association between user category and electronic resource usage. Therefore, Hypothesis H1 was accepted. Postgraduate students and faculty members demonstrated higher levels of electronic resource usage than undergraduate students.

4.10 Mean Satisfaction Scores

User Group	Mean
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Undergraduate Students	3.82
Postgraduate Students	4.36
Faculty Members	4.42
Library Professionals	4.51

Library professionals reported the highest satisfaction with available services, whereas undergraduate students recorded the lowest satisfaction, mainly because of limited awareness of specialized electronic resources.

4.11 Suggestions from Respondents

Suggestion	Percentage
Conduct User Training	38
Improve Internet Speed	27
Subscribe to More Databases	18
Extend Library Hours	10
Increase Computer Facilities	7

Interpretation

Training programmes received the highest priority, followed by improvements in internet connectivity and increased access to electronic databases.

5. DISCUSSION

The findings indicate a clear transition from print-based collections to electronic information resources in medical college libraries. This trend aligns with international research showing that ICT has fundamentally transformed scholarly communication and information access in higher education. The high preference for electronic resources reflects the growing importance of evidence-based medicine, where current and reliable information is essential for teaching, research, and clinical decision-making.

The significant relationship between user category and electronic resource usage demonstrates that postgraduate students and faculty members depend more heavily on specialized databases than undergraduate students. Similar findings have been reported in recent studies of medical libraries, which emphasize that advanced academic users require access to current research literature and bibliographic databases.

Despite the widespread availability of electronic resources, several barriers continue to limit effective utilization. Lack of information literacy training, inadequate awareness of available databases, and insufficient ICT infrastructure were identified as the primary challenges. These findings support earlier studies that stress the importance of digital literacy programmes and continuous user education in maximizing the value of library investments.

The study also highlights the changing role of medical librarians. Rather than serving only as custodians of print collections, librarians increasingly act as trainers, research consultants, and facilitators of digital information services. Their contribution to database searching, citation management, and evidence-based practice has become central to the modern academic library.

6. RECOMMENDATIONS

1. Conduct regular information literacy and database-search training programmes for all user groups.
2. Improve internet bandwidth and Wi-Fi coverage throughout library premises.
3. Expand subscriptions to major medical databases and electronic journals.
4. Increase awareness of available electronic resources through orientation sessions and online guides.
5. Strengthen remote access facilities for off-campus users.
6. Organize periodic user satisfaction surveys to support continuous service improvement.
7. Enhance the professional development of library staff through ICT and digital library training.
8. Develop institutional repositories to improve access to locally produced research.
9. Extend library operating hours during examination periods.
10. Allocate additional funding for digital infrastructure and resource acquisition.

7. CONCLUSION

Medical college libraries in Punjab and Haryana are undergoing a significant transformation toward digital-first information environments, with electronic resources emerging as the primary source of academic and research information. The study highlights that while users demonstrate increasing dependence on online databases, e-journals, and digital services, their effective utilization is restricted by limited awareness, inadequate user training, and technological infrastructure challenges. To enhance library effectiveness, institutions should focus on strengthening ICT facilities, expanding digital collections, and implementing regular information literacy and user education programmes. These initiatives will improve access, maximize resource utilization, and support quality medical education and research.

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