

Library Utilization Patterns, Satisfaction, and Digital Resource Use Among Undergraduate Medical Students: A Cross-Sectional Study from North India

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Abstract:

Introduction: Academic libraries remain integral to medical education by supporting self-directed learning, evidence-based practice, and access to scholarly resources. However, increasing digital access may influence patterns of physical library utilization. **Aim and Objectives:** To assess the frequency, purpose, satisfaction, and perceived benefits of library use among undergraduate medical students. **Material and Methods:** A descriptive cross-sectional questionnaire-based study was conducted among 308 MBBS students from January to March 2026. Data were analyzed using SPSS version 25 using descriptive statistics, chi-square tests, and principal component factor analysis with Varimax rotation. **Results:** More than 80% of students reported using the library at least occasionally. Hostel residents used the library significantly more frequently than students residing in private or family accommodation ($\chi^2=4.55$, $p=0.05$). Students with internet access at residence used the computer room less frequently ($p=0.05$). Six factors explained 68.7% of total variance: study-oriented use, IT-enabled learning, resource availability, physical environment, staff/service quality, and social interaction. Highest satisfaction was reported for lighting and library timings, whereas air-conditioning and book condition received lower ratings. **Conclusion:** The library continues to serve as an important academic hub. Infrastructure modernization, digital resource expansion, and improved environmental comfort may enhance student engagement and satisfaction.

Keywords: Library use; Medical education; Undergraduate students; User satisfaction; Academic libraries; India

Introduction

Medical college libraries are central to undergraduate training by providing textbooks, journals, quiet study areas, and access to digital knowledge systems. With the growth of e-learning platforms and home internet connectivity, student engagement with traditional library spaces has changed. Previous studies from India and abroad have demonstrated that while digital resources are increasingly preferred for convenience,

students still value libraries for focused study environments and curated academic collections.¹⁻⁴ Medical libraries constitute an essential component of undergraduate medical education, serving as hubs for academic learning, self-directed study, and evidence-based practice. Traditionally, medical college libraries have provided access to textbooks, reference materials, scientific journals, and study spaces that support the rigorous educational demands of medical

training. Beyond facilitating knowledge acquisition, libraries also contribute to the development of critical appraisal skills, lifelong learning habits, and academic professionalism among future healthcare professionals.^{5,6} In recent years, the educational landscape has undergone substantial transformation due to the rapid advancement of information and communication technologies. The widespread availability of high-speed internet, smartphones, and digital learning platforms has significantly altered how medical students access and utilize academic information. Electronic books (e-books), online journals, medical databases, educational videos, and mobile learning applications have become integral components of contemporary medical education. These digital resources offer several advantages, including immediate accessibility, portability, regular updates, and the ability to retrieve information efficiently from any location.^{7,8} The COVID-19 pandemic further accelerated the adoption of digital learning resources by necessitating remote education and reducing reliance on physical academic spaces. Consequently, many medical students increasingly depend on online sources for studying, examination preparation, and clinical learning. Nevertheless, despite the growing preference for digital resources, physical libraries continue to retain their relevance. Libraries provide a structured and distraction-free environment conducive to focused study, facilitate access to authoritative and curated academic materials, and support collaborative learning activities. Therefore, understanding how students balance the use of traditional library facilities with digital resources has become increasingly important for educational planning and resource allocation.^{8,9} Previous studies conducted in India and internationally have reported varying patterns of

library utilization among medical students. While some investigations have demonstrated declining dependence on printed materials and increased use of electronic resources, others have highlighted the continued importance of library spaces for academic concentration and examination preparation. Student satisfaction with library services has been shown to be influenced by factors such as availability of learning resources, infrastructure, seating capacity, internet connectivity, operating hours, and staff support. However, findings across institutions are not uniform, reflecting differences in educational settings, technological infrastructure, and student preferences.^{5,6,9-12}

Despite the growing body of literature on library use in medical education, evidence from private medical colleges in North India remains limited. Understanding local utilization patterns and students' perceptions is essential for optimizing library services and aligning them with evolving educational needs. Therefore, the present study aimed to assess library utilization patterns, satisfaction levels, and digital resource use among undergraduate medical students at Subharti Medical College, Meerut, Uttar Pradesh, India.

AIMS AND OBJECTIVES

Aim:

To assess library utilization patterns, satisfaction with library services, and use of digital learning resources among undergraduate medical students.

Objectives:

1. To assess the frequency and purpose of library use among MBBS students.
2. To evaluate the use of digital educational resources by students.
3. To determine students' satisfaction with available library facilities and services.

4. To compare utilization and satisfaction patterns across different MBBS professional years.
5. To identify factors influencing students' preference for library-based and digital learning resources.

MATERIALS & METHODS

STUDY DESIGN AND SETTING :

A descriptive cross-sectional study was conducted from October to December 2025 at a Private Medical College, Uttar Pradesh, India.

STUDY PARTICIPANTS :

All MBBS students from first to fourth professional years were invited to participate. A total of 308 students completed the questionnaire.

STUDY INSTRUMENT :

A structured pre-tested questionnaire included: 1. Sociodemographic details. 2. Frequency and purpose of library use. 3. Use of IT/computer facilities. 4. Satisfaction across 20 service indicators on a four-point Likert scale.

STATISTICAL ANALYSIS :

Data were entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics were expressed as frequencies and percentages. Associations were tested using chi-square tests. Principal component analysis with Varimax rotation was performed to identify underlying dimensions of satisfaction. Components with eigenvalues >1 were retained.

ETHICAL CONSIDERATIONS:

Institutional Ethics Committee approval was obtained prior to study initiation. Written informed consent was secured from all participants.

INCLUSION CRITERIA :

1. Undergraduate MBBS students enrolled in 1st, 2nd, 3rd, and final professional years at Subharti Medical College during the study period.
2. Students who were present on the day of data collection or accessible through the survey platform.
3. Students who provided informed consent to participate in the study.
4. Students who had access to and were able to complete the questionnaire independently.

EXCLUSION CRITERIA:

- 1) Interns, postgraduate students, nursing students, paramedical students, and faculty members.
- 2) MBBS students who declined to participate or did not provide informed consent.
- 3) Students who were absent during data collection and could not be contacted subsequently.
- 4) Questionnaires that were incomplete, improperly filled, or contained inconsistent responses.
- 5) Students on long-term leave or not actively attending the institution during the study period.

DATA COLLECTION PROCEDURE :

After obtaining approval from the Institutional Ethics Committee and permission from the concerned authorities, the study was conducted among undergraduate MBBS students from January to March 2026. Eligible students were approached during academic sessions and informed about the objectives and significance of the study. Written informed consent was obtained from all participants prior to enrollment.

Data were collected using a pre-designed, structured, and self-administered questionnaire developed after an extensive review of relevant literature and consultation with subject experts. The questionnaire consisted of sections pertaining to socio-demographic

characteristics, patterns of library utilization, frequency and purpose of library visits, use of digital resources, satisfaction with library facilities and services, and perceived benefits of library use.

The questionnaire was distributed either in printed form or through a secure Google Forms link. Participants were instructed to complete the questionnaire independently and anonymously to ensure confidentiality and minimize response bias. Adequate time was provided for completion, and participants were encouraged to seek clarification if required.

Completed questionnaires were checked for completeness and consistency. Incomplete or invalid responses were excluded from the final analysis. The collected data were coded and entered into Microsoft

Excel and subsequently analyzed using SPSS version 25. Descriptive statistics, chi-square tests, and principal component factor analysis with Varimax rotation were applied to assess library utilization patterns, satisfaction levels, and factors influencing library use among undergraduate medical students.

DATA ANALYSIS PLAN

Data were entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the data. Associations between categorical variables were assessed using the Chi-square test. Principal Component Factor Analysis (PCFA) with Varimax rotation was performed to identify underlying factors influencing library utilization and satisfaction. A p-value of <0.05 was considered statistically significant.

RESULTS:

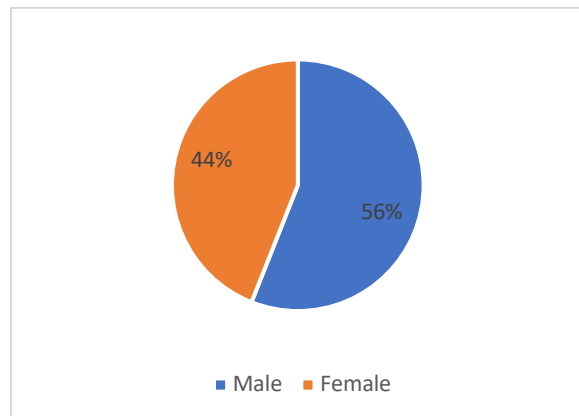


Figure 1. Representation of Gender Distribution

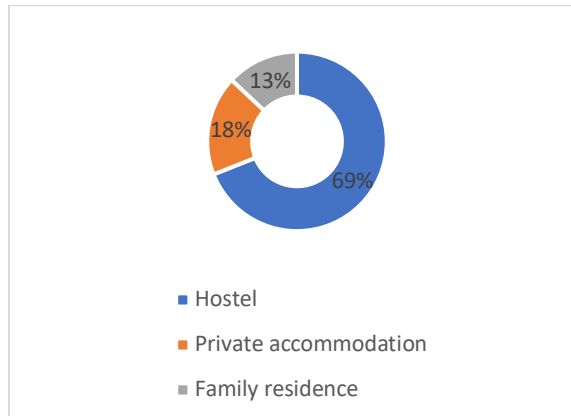


Figure 2. Residential Status

Table 1. Combined Demographic and Access Profile

Variable	Frequency (%)
Gender	
Male	172 (56.0%)
Female	136 (44.0%)
Residence	

Hostel	213 (69.0%)
Private	55 (18.0%)
Family	40 (13.0%)
Internet Access	
Yes	243 (79.0%)
No	65 (21.0%)

Figure 3. Library Utilization Patterns

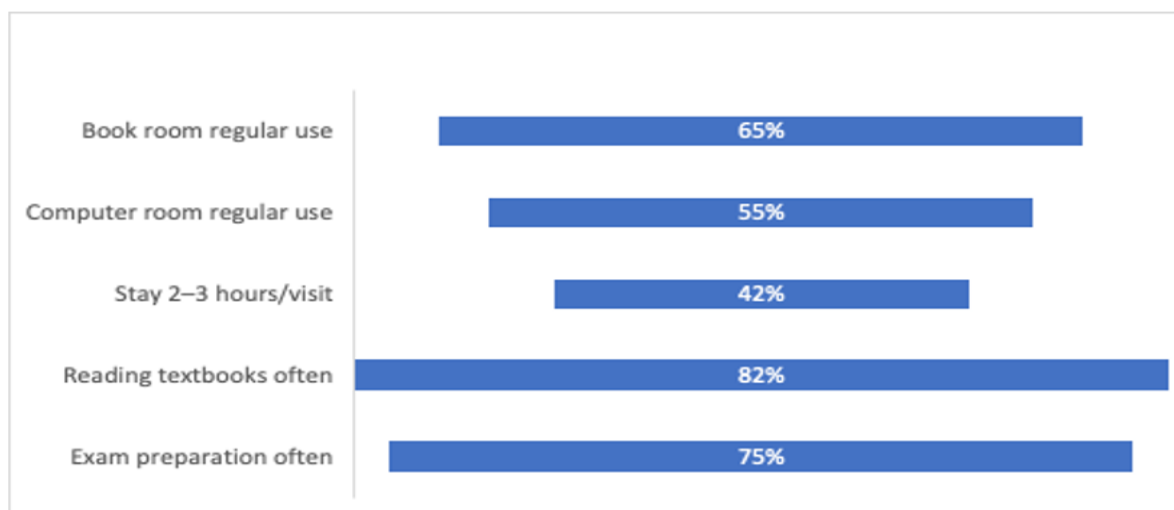


Table 2. IT Facility Use and Perceived Benefits

Indicator	Percentage
Uses IT services	72%
Academic browsing	68%
PPT/Document preparation	61%
Reading e-books	54%
Recreational browsing	28
Fast information retrieval benefit	63%
Easy access to resources benefit	61%

Figure 4. Satisfaction Scores

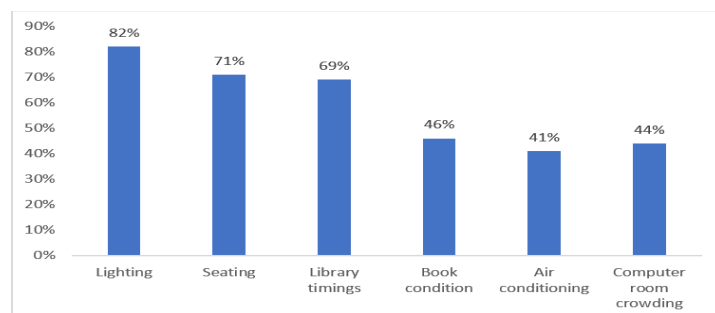


Figure 5. Factors Affecting Library Satisfaction

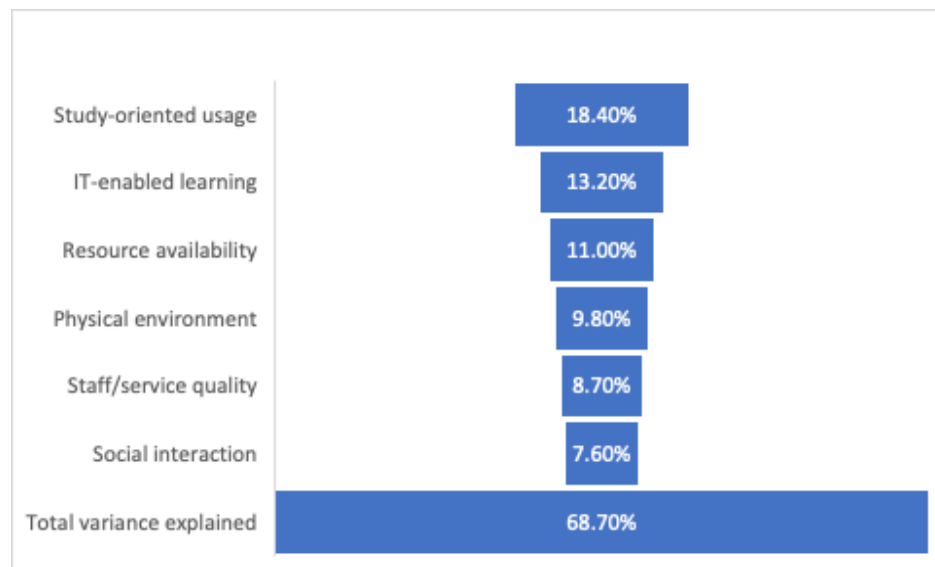


Table 3. Significant Statistical Associations

Variables Compared Test	p-value, χ^2	Interpretation
Residence vs library visit	0.05, 4.55	Significant
Internet access vs computer room use	0.05, 5.12	Significant
Lighting satisfaction	0.008, 7.06	Significant
Book condition satisfaction	0.046, 3.98	Significant

DISCUSSION

This study demonstrates that academic libraries continue to play a significant role in undergraduate medical education despite increasing availability of personal internet access.

Hostel students used library facilities more frequently, likely due to proximity and shared

academic culture. Similar findings have been reported in Indian higher education settings.⁹⁻¹¹

The relatively lower satisfaction regarding thermal comfort and collection maintenance suggests the need for modernization of physical infrastructure. Comparable studies have shown that environmental quality and updated collections are strong predictors

of repeat library visits and satisfaction.¹²⁻¹⁴ The identified multidimensional factor structure supports prior research describing library experiences as a combination of academic utility, environmental support, and interpersonal service quality.¹⁵⁻¹⁷

CONCLUSION

Undergraduate medical students continue to value the library as a focused academic workspace supported by digital facilities. Improvements in infrastructure, resource updating, and technology integration may further strengthen utilization and user satisfaction.

RECOMMENDATIONS

1. Upgrade air-conditioning and ergonomic seating.
2. Expand Wi-Fi bandwidth and e-journal subscriptions.
3. Conduct regular orientation sessions on digital resource use.
4. Implement periodic user feedback and quality audits.

Limitations : This single-center cross-sectional study relied on self-reported responses and may not be generalizable to all institutions.

Strengths of the Study :

- ✧ Inclusion of students across multiple professional years.
- ✧ Assessment of both physical and digital library services.
- ✧ Use of multivariate factor analysis to identify core satisfaction domains.

Conflict of Interest: None.

Funding: Self-funded.

Data Availability: Available from corresponding author upon reasonable request.

Author Contributions

Conceptualization, methodology, data collection, analysis, manuscript drafting and review were performed by the authors.

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