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Transforming Medical Libraries: Addressing Challenges in Resource Selection and Acquisition

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Abstract

This study investigates the collection development policy of medical libraries, focusing on the challenges faced and strategies adopted for resource acquisition. It explores the issues encountered by medical library professionals in acquiring physical and electronic resources for medical college libraries. Using a quantitative approach, data were collected through a semi-structured questionnaire from libraries in Khyber Pakhtunkhwa (KP), Azad Jammu & Kashmir (AJ&K), and Balochistan, Pakistan. Findings show that medical libraries primarily rely on vendors-catalogs (71.43%) and faculty recommendations (66.67%) for resource selection. Tools like bibliographies (19.05%) and book fairs (14.29%) are underutilized, while electronic resource selection often involves the HEC Digital Library and publishers' websites (57.14%). Major challenges include the high cost of resources (76.19%), limited network access (33.33%), and a shortage of qualified ICT staff (19.05%). The present paper is the first study to examine collection development and acquisition challenges in medical college libraries across KP, Balochistan, and AJ&K.

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Keywords: Collection Development Policy; Medical Libraries--Pakistan; Resource Selection Tools; Electronic Resources; Challenges in Libraries

Introduction

Collection development is a fundamental component of the information cycle, particularly within medical libraries that curate diverse resources to meet user needs (Rhee, 2024). Collection development in a medical library is the process of building and managing resources to provide information to users (Tokarz, 2024). This process involves selecting, acquiring, and evaluating materials in print, electronic, and non-print formats (Gosavi, 2021). This universal process encompasses six primary elements: community analysis, selection policies, selection, acquisition, de-selection, and evaluation of materials (Khan & Bhatti, 2016). Horava and Levine-Clark (2016) observed that in today's knowledge economy, medical libraries face transformative challenges concerning their roles and services. Technological, educational, and economic factors significantly influence collection development practices, especially in medical science (Lee, 2021).

Additionally, a study reported that the majority of users utilize medical college libraries primarily for study purposes (Jan *et al.,* 2018).A medical college library serves as a hub for medical professionals, students, faculty, researchers, and scientists, supporting their academic and experimental endeavors and typically affiliated with medical institutions, teaching hospitals, or health associations (Dyer *et al.,* 2018). To remain relevant, medical libraries continually update their collections by adding new editions of textbooks and reference materials across all major clinical and basic science subjects (Almigbal, 2015).

Many modern medical libraries are born-digital, with collections predominantly available online. Born-digital medical libraries are online databases of medical information that are accessible through the internet. They can include text, images, audio, video, and other digital media formats (Jaillant& Caputo, 2022). The establishment of such libraries is unique, requiring consideration of the specific needs of their institution, medical school curriculum, and community, all while operating within allocated budgets and spaces (Dexter *et al.,* 2019).

Since the turn of the century, there has been a significant increase in the number of medical schools receiving initial accreditation from universities and the Pakistan Medical and Dental Council (PMDC)—the national accreditation body for medical and dental education in Pakistan. Libraries initiate their work with a Collection Development Policy (CDP), an essential part of library planning or purchasing committees (Tokarz, 2024). Medical libraries regularly acquire the latest editions of textbooks and reference books across all clinical and basic medical science disciplines. The CDP serves as a crucial roadmap for developing both physical and electronic library collections (Folb, Wessel, &Czechowski, 2011).

Jabeen et al. (2024) examined the impact of digital transformation on reading behaviors among allied health students in Pakistan's medical libraries. Their study highlighted the evolving role of medical libraries in response to technological advancements and the growing reliance on digital resources. The findings emphasized the necessity for libraries to revise their CDPs, integrating digital materials while maintaining traditional print collections to support diverse user preferences. The study identified challenges faced by librarians in balancing budget constraints, digital resource acquisition, and user demand for updated materials.

The objective and mission of any library revolve around meeting the educational and information needs of its patrons. Khan & Bhatti (2020) have raised a question: how do information professionals know the needs of library users or potential users and satisfy them? The answer to this question is one of the major keys to successful collection development and management policies and procedures in public, academic, and special libraries.

Several studies by Pakistani authors (Khan & Bhatti, 2016; Anwar & Ullah, 2017; Jan et al., 2018; Khan & Bhatti, 2020) have identified a gap in research on collection development policies (CDPs) and challenges libraries encounter during literature reviews. Previous studies have primarily focused on general institutional libraries in Pakistan. Notably, no studies have examined the CDPs of medical libraries in the regions covered by the present research. To address this gap, the current study was designed to evaluate the collection development processes and policies of medical institute libraries and to examine the challenges faced by professional librarians. Due to limitations in finance,

time, and resources, the current study was delimited to Khyber Pakhtunkhwa (KP), the state of Azad Jammu & Kashmir (AJ&K), and the Balochistan regions of Pakistan.

Literature Review

The literature review is a crucial component of the research process. To gather relevant literature, both printed and online resources were consulted using search terms such as "Collection Development," "Collection Building," and "Library Acquisition." These include Library and Information Science (LIS) journals published in Pakistan and abroad, e-Journals, the Pakistan Research Repository (PRR), the Social Sciences Research Network (SSRN), the HEC (Higher Education Commotion) National Digital Library, and search engines such as Google Scholar, LISTA (Library and Information Science & Technology Abstract), and DOAJ (Directory of Open Access Journals). The most relevant studies recorded in this portion are as follows:

The study by Ugwuona et al. (2016) stated that most of the medical libraries in Nigeria have no proper acquisition policies, which is a blunder on the part of medical libraries because without a proper acquisition policy, these libraries cannot fulfill the needs of their patrons and the basic objectives of the parent organizations. Shafiq-ur-Rehman& Ahmad (2007) are of the opinion that collection development is one of the basic challenges for libraries in Pakistan. Mostly in all of the libraries, the acquisition process is according to already available collections, not according to the needs of users. Even users were not involved in the building of the collection. Librarians have no proper training in developing collections in both print and digital formats.

Watson (2005) has a study on the significance of health-related information to the medical librarians in Canada and the methods for getting this information. Ansari (2011) studied the acquisition policies of the public sector medical college Lucknow and elaborate ways through which public sector medical colleges compose collection development policies and information resources for their patrons. The objective behind the formulation of a collection development policy is to provide structure for the keeping and improvement of collections to express preference, enact selection benchmarking beyond an array of subjects, languages, and formats, and design a logical and comprehensive base for the future collection development. The author emphasized the importance of collection development policies for medical colleges.

Sawant (2016) revealed in her study that although many medical colleges' libraries in the United States have collection development policies available online, few libraries talk about tools they are using for selection of materials. For selection of materials for medical libraries, the following factors play an important role, i.e., purpose of the book/non-book, scholarly substance, presentation and authority of author and publisher.

Khan & Bhatti's (2020) study attempted to evaluate the effectiveness of the collection, development, and policy management in the university libraries of Khyber Pakhtunkhwa (KP), Pakistan. The main objective of this research was to know the user's satisfaction. The population was all public & private sector universities that were selected at a rate of 10 teachers per university having at least three years of library usage experience. The response rate was 77%. The result shows that collection development and management of policy in the university libraries of KP are ineffective in fulfilling users' information needs effectively. The authors recommended that the effective adoption of collection development and management policies can satisfy users' needs in terms of accessibility, availability, and use of library materials.

Anwar & Ullah (2017) investigated in their research article that 12 universities in Pakistan are offering master's level courses in library and information science; only two universities have a choice for students to specialize in health sciences librarianship. The study by Ibrahim *et al.* (2020) stated that the user education and information literacy in the medical college libraries make a great influence.

Bentil*et al.* (2022) explored the interconnectedness between the management and usage of electronic resources (ERs) in academic libraries. Employing a mixed-methods approach, the researchers conducted interviews with 24 library staff and three library consortium executives and surveyed faculty members and postgraduate students across four institutions. The study identified a bi-directional relationship between ER management and usage, particularly in areas such as selection, access provision, publicity, training, and evaluation. The findings underscore the importance of adequate resourcing, effective marketing, user training, and ongoing evaluation to enhance ER utilization in academic libraries such as medical and research libraries.

Kim and Nam (2015) analyzed circulation data from a medical library to inform collection management strategies. They examined 90,420 circulation records spanning

2012 to 2014, categorizing data by user status and subject area. The analysis revealed that users predominantly borrowed materials in technology (applied sciences), literature, and social sciences. These findings suggest thatMedical libraries should consider user borrowing patterns when developing collection development policies to ensure alignment with user needs.

Objective of the Study

The primary objective of this study is to investigate the challenges faced by medical libraries in Khyber Pakhtunkhwa (KP), Azad Jammu & Kashmir (AJK), and Balochistan concerning the collection development and acquisition of printed and electronic resources. The specific aims are:

1. To assess the current status of collection development policies in the medical libraries under study.
2. To evaluate the tools utilized by medical librarians for collection development.
3. To identify the major challenges encountered by medical librarians in KP, AJK, and Balochistan in the realm of collection development.

Methodology and Methods

This quantitative study was conducted from July 2, 2024, to November 30, 2024. The target population comprised all public and private sector medical college libraries in Khyber Pakhtunkhwa (KP), Azad Jammu & Kashmir (AJK), and Balochistan, accredited by the Pakistan Medical and Dental Council (PM&DC)—for the Bachelor of Medicine and Bachelor of Surgery (MBBS) and Bachelor of Dental Surgery (BDS) degrees.

A semi-structured questionnaire was developed by the authors, based on the study's objectives and existing literature. The first section of the questionnaire collected demographic information, while the remaining questions focused on Collection Development Policy (CDP), tools used for collection development, and the challenges faced by medical college librarians in developing printed and electronic collections. The list of medical colleges was obtained from the official PM&DC website (www.pmdc.gov.pk).A total of 26 medical colleges operate in KP, Balochistan, and AJK. Given the relatively small population size, a census-based approach was adopted for data collection. To ensure validity, the data collection instrument was reviewed by three

experienced medical librarians. Minor modifications were suggested and incorporated accordingly.

The final validated questionnaire, consisting of nine items, was distributed to medical college librarians in KP, AJK, and Balochistan via an online Google Survey Form, shared through email and social media platforms (Facebook and WhatsApp). One of the authors, being a member of the Pakistani medical library community, facilitated data collection. Follow-ups were conducted using telephone calls and Short Message Service (SMS).

The collected responses were retrieved from Google Survey Form and imported into Microsoft Excel for filtering and analysis. The response rate was 80.77%. After removing errors, the data was analyzed and presented using tables and charts in the analysis section.

Analysis

The analysis section presents the findings from our study on the collection development policies (CDP) and practices of medical college libraries in Khyber Pakhtunkhwa (KP), Azad Jammu & Kashmir (AJK), and Balochistan.Data were gathered through a semi-structured questionnaire, focusing on the current status of collection development policies, tools utilized by librarians, and the challenges faced in acquiring both printed and electronic resources. The subsequent tables and charts provide a detailed breakdown of the responses.

Table 1: *Demographic Characteristics*

S. No	Group	Frequency	Percent	Cumulative Percent
1	Gender of the Respondents			
	Male	17	80.95%	80.95%
	Female	04	19.05%	100.00%
2	Sector of Medical Institute			
	Public	11	52.38%	52.38%
	Private	10	47.62%	100.00%
3	Experience in the Collection Development			
	1 to 5 Years	09	42.86%	42.86%
	6 to 10 Years	09	42.86%	85.71%

	11 to 15 Years	02	9.52%	95.24%
	More than 15 Years	01	4.76%	100.00%
4	MBBS Seats Allocated by Pakistan Medical and Dental Council (PMDC)			
	> = 100	12	57.14%	57.14%
	101 to 150	06	28.57%	85.71%
	151 to 300	03	14.29%	100.00%
Total		**21**	**100%**	

Demographic Characteristics

The analysis of Table 1 shows the demographics of medical institutes in KP, AJK, and Balochistan provinces of Pakistan. The majority of 17 (80.95%) public and private sector college libraries are headed by male library practitioners. About half of the total is spent on imparting medical education in the public sector. Only one (4.76%) of the respondents had professional experience of more than fifteen years, and about nine (42.86%) had less than five years of experience in collection development for medical institutes' libraries. The majority of 12 (57.14%) medical schools were allocated less than or equal to one hundred seats by PM&DC—an authorized commission for medical and dental education in Pakistan for local and foreign medical graduates.

Status of Collection Development Policy in the Medical College libraries

The Figure 1 (below) highlights the status of the Collection Development Policy (CDP) in medical college libraries, showing a nearly balanced distribution between libraries with and without a formal policy. A total of 10 (47.62%) of libraries reported having a CDP, reflecting an acknowledgment of the importance of structured policies to guide resource acquisition and development. However, a slightly higher 11 (52.38%) of libraries indicated the absence of such a policy, suggesting a need for improvement in adopting formalized approaches to manage and enhance their collections. This finding emphasizes the potential for libraries without a CDP to benefit from implementing structured guidelines to ensure systematic growth and better resource acquisition and management.

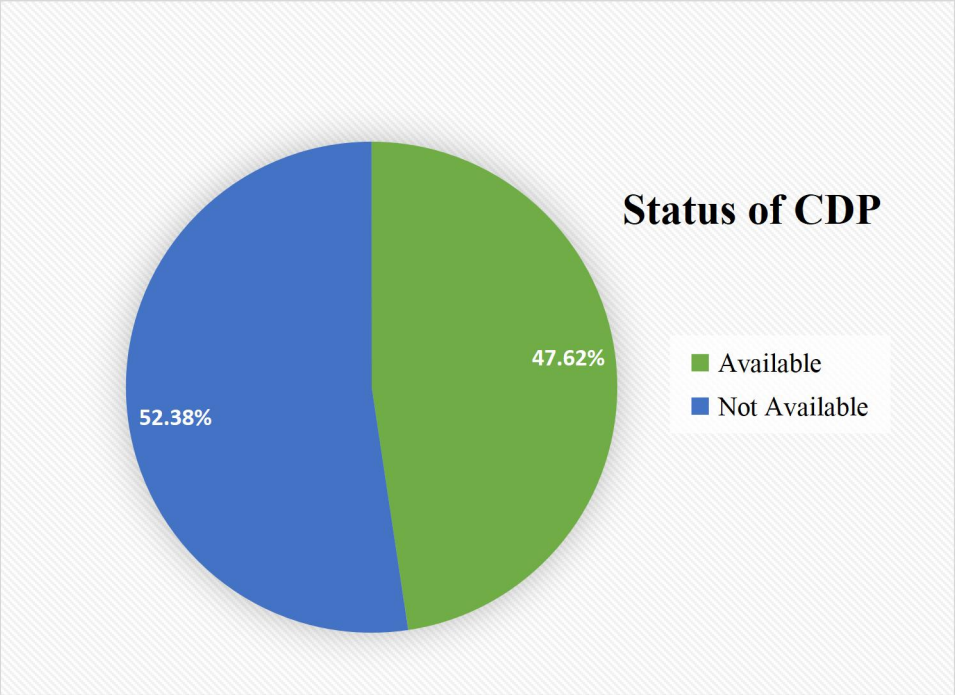

Figure 1: Status of Collection Development Policy in Medical College Libraries

Table 2: *Responsibility for Creation and Approval of Medical Library CDP*

S. No	Responsible for CDP	Frequency	Percent	Cumulative Percent
1	Administration	01	04.76%	04.76%
2	Dean/Principal	02	09.52%	14.29%
3	Chief Librarian	01	04.76%	19.05%
4	Librarian	02	09.52%	28.57%
5	Library Committee	04	19.05%	47.62%
6	No CDP	11	52.38%	100.00%
Total		**21**	**100.00%**	

Responsibility for Creation and Approval of Medical Library Collection Development Policy

The table 2 shows the individuals or groups responsible for the creation and approval of the CDP in medical college libraries. A majority of libraries 11 (52.38%) reported not having a CDP, highlighting a significant gap in formalized policy development. Among libraries with a CDP, the responsibility is most commonly assigned to the Library Committee 4 (19.05%), indicating the role of collective decision-making in policy

formulation. Smaller percentages of responsibility are distributed across other stakeholders, including Deans/Principals 2 (9.52%), Librarians 2 (9.52%), Chief Librarians 1 (4.76%), and Administration 1 (4.76%).

This distribution suggests that while there is some diversity in who handles CDP-related tasks, many institutions lack a centralized or consistent approach. Addressing the absence of CDPs and clarifying roles could strengthen library governance and policy implementation.

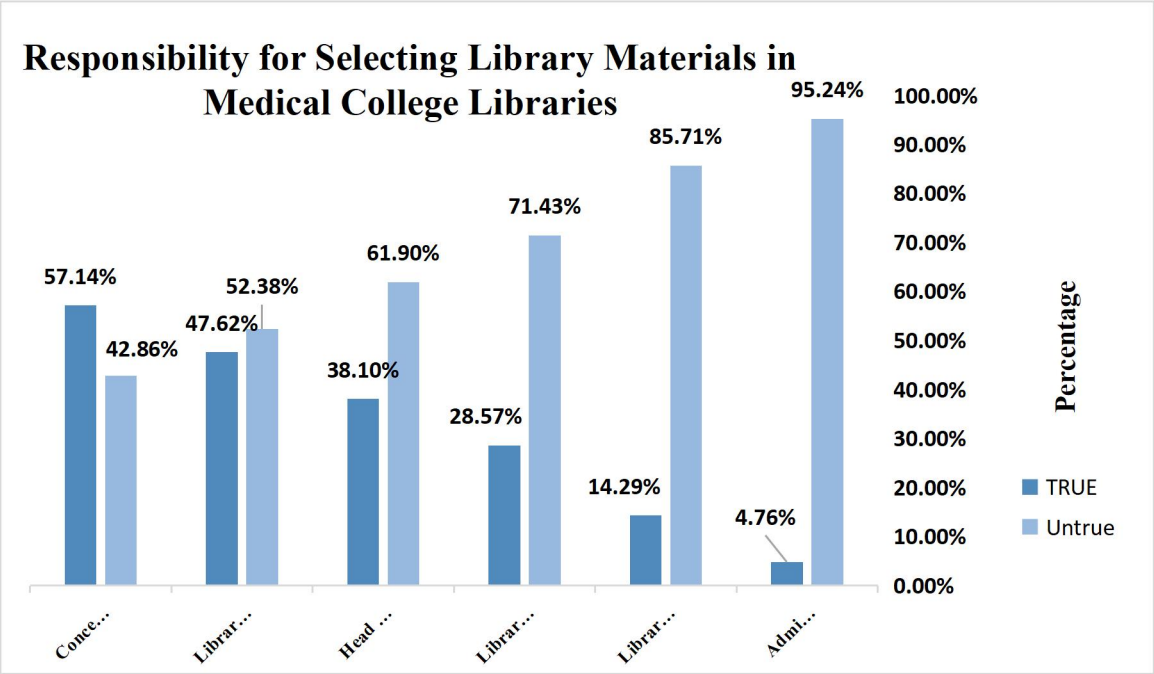

Figure 2: Responsibility for Selecting Library Materials in Medical College Libraries

Responsibility for Selection Resources in Medical College Libraries

The Figure 2 examines the roles responsible for selecting library resources in medical college libraries across KP, AJ&K, and Balochistan, Pakistan. The analysis reveals that the majority of selections 12 (57.14%) are made by the concerned faculty, highlighted their central role in shaping library resources to meet academic and research needs. Additionally, 10 (47.62%) of selections involve the library committee, reflecting collaborative decision-making in material acquisition. The head of the institute plays a role in 8 (38.10%) of cases, while librarians are responsible for 6 (28.57%) of material selections. However, joint efforts by librarians and faculty account for only 3 (14.29%), and administrative involvement is minimal at 4.76%. These findings suggest that while

faculty and library committees are the primary decision-makers, the role of librarians could be further emphasized to enhance the alignment of library resources with user needs.

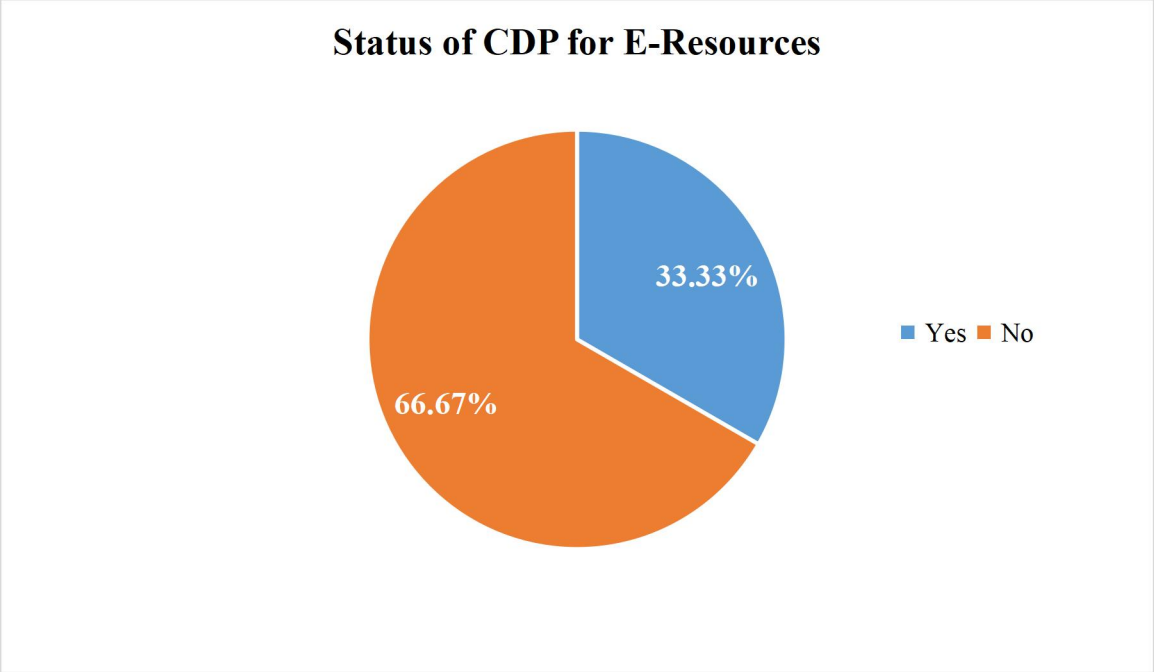

Figure 3: Availability of a Separate Collection Development Policy (CDP) for E-Resources

Status of Separate Collection Development Policy for Electronic Resources

The data in Figure 3 presents the status of a separate Collection Development Policy (CDP) for electronic resources among surveyed libraries. The findings indicate that only 7 (33.33%) medical college libraries have a distinct policy for managing e-resources, while the majority, 14 (66.67%) medical college libraries, do not have a separate CDP for digital materials. This suggests that most libraries still operate under a general CDP without explicitly addressing the growing significance of electronic collections.

The lack of a dedicated CDP for e-resources can pose challenges in budget allocation, selection criteria, and long-term sustainability of digital materials. Given the increasing reliance on digital platforms for academic and research purposes, the absence of a structured policy could limit effective resource management and access in the medical colleges of the country.

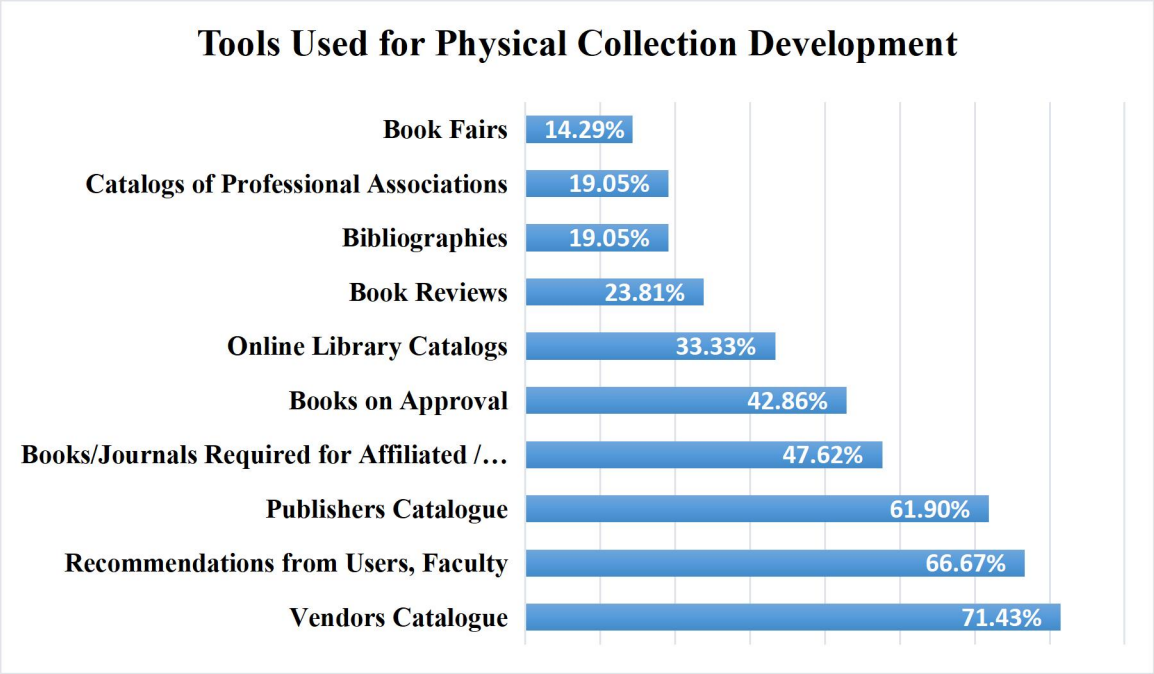

Figure 4: *Tools used for Physical Collection Development by Medical Librarians*

Tools Used for Physical Collection Development by Medical Librarians

Figure 4 illustrates the various tools utilized for physical collection development in libraries, along with the percentage of libraries employing each method. Among the listed tools, vendors' catalogues emerged as the most frequently used tool, with 15 (71.43%) of libraries relying on it for collection development. Following this, recommendations from users and faculty were utilized by 14 (66.67%) of libraries, emphasizing the importance of user-driven collection strategies. Publishers' Catalogues also play a significant role, with 13(61.90%) of libraries using them to acquire materials. Other notable tools include Books/Journals Required for Affiliated Institutions 10 (47.62%) and Books on Approval 9 (42.86%). Meanwhile, online library catalogs were used by 7 (33.33%) of libraries, indicating a moderate level of adoption of digital tools for this purpose. Less commonly used tools include Book Reviews 5 (23.81%), Bibliographies and Catalogues of Professional Associations both at 4 (19.05%), and Book Fairs, which were the least utilized, at 3 (14.29%). The data highlights a strong preference for practical and user-centric tools such as vendor and publisher catalogs, reflecting libraries' focus on sourcing resources directly from reliable suppliers and addressing specific user needs. However, the relatively low use of professional catalogs,

bibliographies, and book fairs indicates potential underutilization of these traditional methods. To optimize collection development strategies, libraries could consider a more balanced approach that combines user-driven tools with traditional and emerging digital resources.

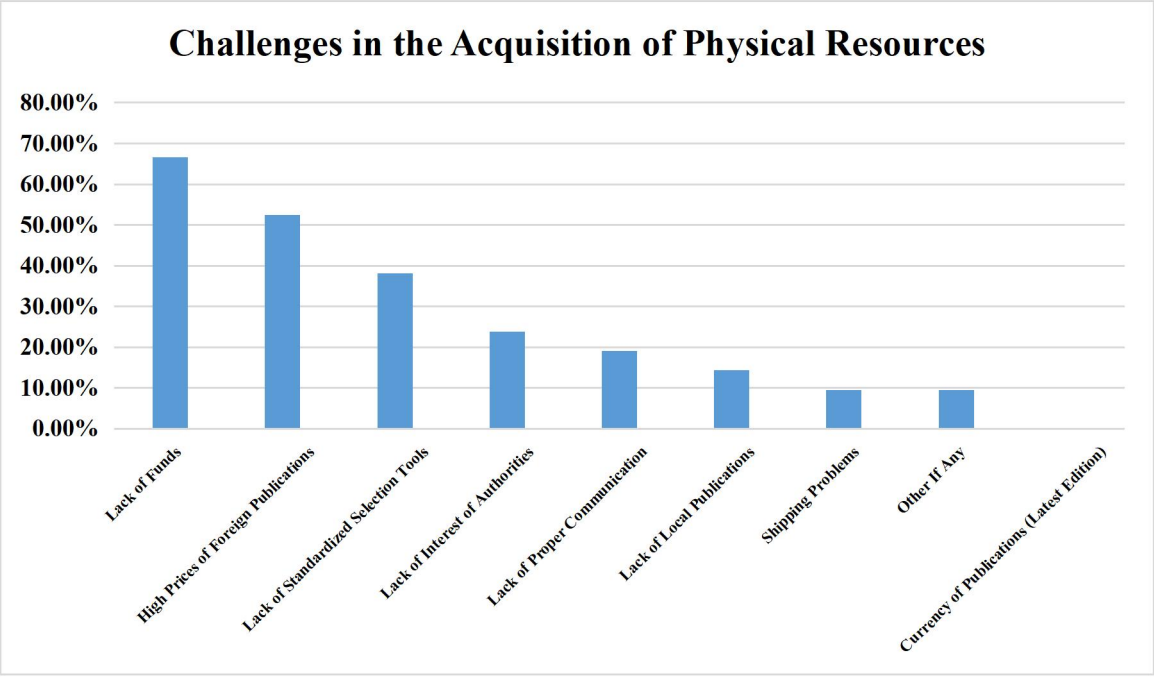

Figure 5: Challenges in the Acquisition of Physical Resources in Medical Libraries

Challenges in the Acquisitions of Physical Resources

Figure 5 highlights the key challenges libraries face in acquiring physical resources. The most significant challenge reported is a lack of funds affecting 14 (66.67%) of medical college libraries, which highlighted the critical impact of budget constraints on resource acquisition. The high cost of foreign publications affected 11 (52.38%) of libraries, reflecting the financial burden of importing materials. Other notable challenges include the lack of standardized selection tools, reported by 8 (38.10%), and the lack of interest of the authorities and lack of proper communication, each cited by around 30% of respondents. These issues indicate inefficiencies in the selection and procurement process, possibly due to unclear policies or insufficient collaboration among stakeholders. The lack of local publications was reported by 3 (14.29%) and shipping problems by 2 (9.52%). Additionally, currency of publications (latest edition) and other challenges were among the least reported issues. The data suggests that financial

constraints and the high cost of foreign resources are the primary barriers to acquiring physical resources, followed by systemic challenges in selection and procurement. Addressing these issues may involve increased funding, exploring cost-effective alternatives, and developing standardized tools for resource selection.

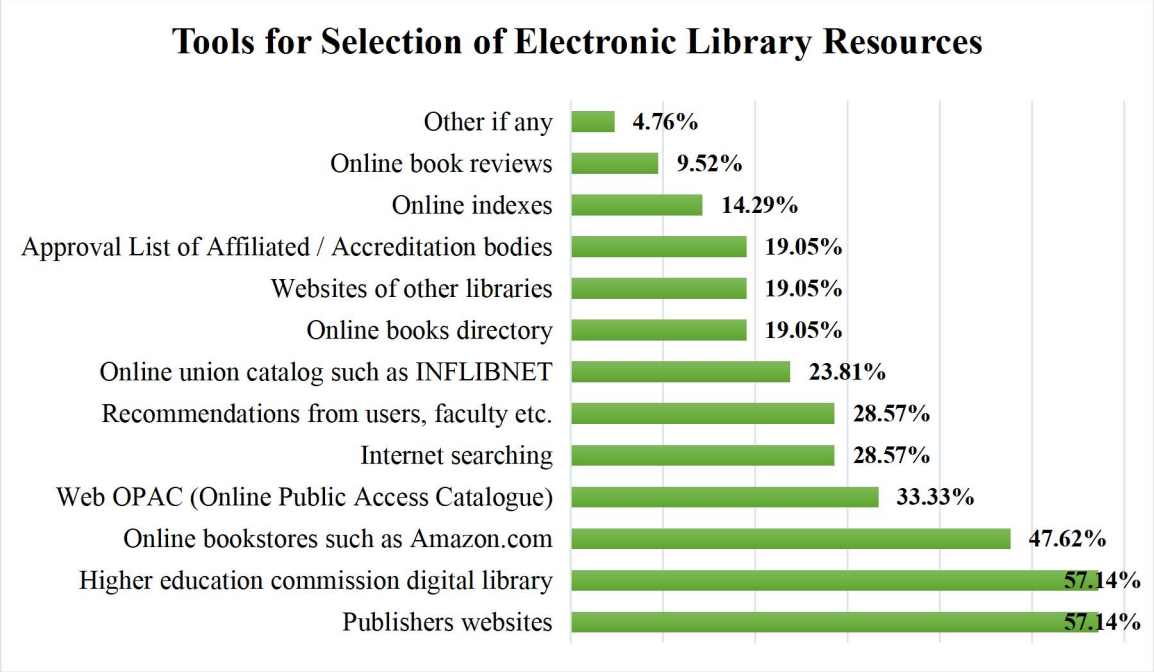

Figure 6: Tools for Selection of Electronic Resources in Medical Libraries

Tools for Selection of Electronic Resources in Medical Libraries

Figure 6 presents the tools commonly used for selecting electronic resources in libraries, along with the percentage of libraries utilizing each tool. The data reveals that Publishers' Websites and the Higher Education Commission (HEC) Digital Library are the most frequently used tools, with both being adopted by 12 (57.14%) of libraries. These tools are pivotal in ensuring access to high-quality, relevant e-resources, reflecting their importance in digital collection development strategies. Online Bookstores such as Amazon.com rank next, being used by 10 (47.62%) of libraries. Web OPAC (Online Public Access Catalogue) is utilized by 7 (33.33%), indicating moderate adoption for accessing and evaluating electronic materials. Other tools such as Internet Searching and Recommendations from Users, Faculty, etc. are used by 6 (28.57%) of libraries each, showcasing the role of user input and general internet searches in e-resource selection. Online Union Catalogs (e.g., INFLIBNET) and Online Books Directories are employed by 5

(23.81%) and 19.05%, respectively, alongside tools like Websites of Other Libraries and Approval Lists from Accreditation Bodies both at 4 (19.05%). The least utilized tools include online book reviews 2 (9.52%) and other methods 1 (4.76%), suggesting that these are supplementary rather than primary tools for e-resource selection. The results demonstrate a strong preference for publisher-provided and institutional tools, highlighting libraries' reliance on trusted and centralized resources for electronic collection development. This also indicates room for increased use of collaborative tools, such as union catalogs and directories, to further diversify resource selection strategies.

Table 3: *Challenges in the Acquisition of E-Resources*

S. No	Challenges in the Acquisition of E-Resources	Frequency	Percentage
1	Cost of e-resources	16	76.19%
2	Poor network access	7	33.33%
3	Payment methods for e-resources (credit card/online payments)	5	23.81%
4	Lack of qualified ICT personnel	4	19.05%
5	Power Shortages	4	19.05%
6	Package deals (requiring purchase of entire packages)	3	14.29%
7	Lack of proper ICT infrastructure	3	14.29%
8	Other if any	3	14.29%
9	Limited-time licenses	2	9.52%
10	Time-consuming periodic review of e-resources	2	9.52%
11	Content duplication/availability from various Sources	1	4.76%
12	Focus on resource economics over content	1	4.76%
13	Lake of response from the international publishers	0	0.00%
14	Absence of local storage of acquired e-resources	0	0.00%

Challenges in the Acquisitions of Electronic Resources

The analysis of Table 3 highlights several challenges faced by medical college libraries in acquiring e-resources, with differences in their frequency and severity. Among the economic challenges, the cost of e-resources emerged as the most significant issue,

reported by 16 (76.19%) respondents, indicating the financial strain libraries face in maintaining access to essential digital content. Payment methods, including issues with credit cards or online payments, affected 5 (23.81%) respondents while, package deals requiring the purchase of entire bundles, even when only specific resources are needed, were noted by 3 (14.29%) respondents. Technical challenges form another major barrier. Poor network access was reported by 7 (33.33%) respondents, making it the second most frequent challenge. Additionally, 4 (19.05%) respondents identified the lack of qualified ICT personnel and proper ICT infrastructure, reflecting gaps in the expertise and resources needed to support e-resource acquisition. Power shortages were also noted by 4 (19.05%) respondents, highlighting systemic resource issues.

Operational inefficiencies were less prominent but still relevant. Limited-time licenses and time-consuming periodic reviews of e-resources were each cited by 2 (9.52%) respondents as barriers to effective resource management. Minor challenges included content duplication or availability from various sources and an emphasis on the economics of resources over content, both reported by 1 (4.76%) respondent. Some issues, such as the lack of response from international publishers and the absence of local storage for acquired e-resources, were not reported at all (0.00%), suggesting these areas are either well-managed or not prioritized in the current context.

Discussion

This study highlighted significant challenges in collection development policies (CDPs) and practices within medical college libraries in underdeveloped regions of Pakistan, particularly in Khyber Pakhtunkhwa (KP), Azad Jammu & Kashmir (AJK), and Balochistan. These libraries face systemic barriers, including inadequate funding, infrastructural deficiencies, and the absence of standardized policies, all of which hinder their ability to support the evolving needs of students, faculty, and healthcare professionals. The findings of this study not only shed light on these critical issues but also align with global trends observed in other developing nations.

Demographic Disparities and Policy Gaps

The study reveals gender and sectoral disparities in library leadership, with male librarians occupying 80.95% of leadership positions, reflecting broader gender imbalances within Pakistan's library and information sciences in medical college sector.

Additionally, both public and private medical college libraries face similar resource acquisition challenges, though public institutions often struggle more due to stringent budgetary constraints. One of the most pressing issues identified is the absence of formal CDPs—collection development policies, with only 47.6% of surveyed libraries reporting the existence of such policies. This deficiency is consistent with findings from Ugwuona*et al.* (2016), who highlighted similar gaps in medical libraries where ad-hoc acquisition practices compromise resource relevance.Furthermore, responsibility for CDPs creation is fragmented, as only 19.05% of libraries attribute it to library committees, while 52.38% lack any structured policy at all. These governance shortcomings mirror trends observed in Nigeria (Ugwuona*et al.,* 2016) and India (Mushtaq&Tausif, 2020), where libraries struggle with unstructured acquisition processes. Ansari (2011) emphasized the importance of CDPs in aligning collections with institutional goals, a gap that remains evident in Pakistani medical libraries.

Resource Selection Strategies

The study found that medical libraries primarily rely on vendors' catalogs (71.43%), and faculty recommendations (66.67%) when selecting resources. However, the underutilization of bibliographies (19.05%) and book fairs (14.29%) highlights the need for more diversified selection strategies. In terms of electronic resource selection, websites (57.14%) and the HEC Digital Library (57.14%) are the most frequently used tools. However, the limited use of union catalogs (23.81%) and approval lists (19.05%) suggests missed opportunities for collaborative resource sharing, which could enhance collection quality and cost.Ankamah*et al.* (2024) reported similar results regarding electronic resource acquisitions, noting that local resource selection and acquisition tools—such as the HEC Digital Library and international websites—play a significant role. Similarly, the findings of Scoulas and De Groote (2023) align with the current study, particularly in terms of resource selection strategies that emphasize faculty recommendations and the use of updated vendor catalogs.

Challenges in Physical and Electronic Resource Acquisition

Financial constraints remain a significant barrier to acquiring physical resources, with lack of funding (66.67%) and high costs of foreign publications (52.38%) being the primary obstacles. Additionally, procedural inefficiencies such as poor communication

(28.57%) and the lack of standardized acquisition tools (38.10%) further exacerbate resource procurement issues. The heavy reliance on faculty recommendations aligns with Kim & Nam's (2015) call for demand-driven acquisition, yet the limited involvement of librarians (28.57%) in the selection process contradicts Watson's (2005) advocacy for stronger librarian-faculty collaboration in Canada. For electronic resources, economic barriers such as high subscription costs (76.19%) and restrictive package deals (14.29%) significantly limit access. Technical challenges, including poor network infrastructure (33.33%), power shortages (19.05%), and insufficient ICT support (14.29%), further hinder the effective adoption of digital resources. These findings are consistent with global trends; Bentil*et al.* (2022) documented similar issues in Tanzania, where inadequate ICT infrastructure and high costs impede digital adoption, while Jabeen*et al.* (2024) emphasized Pakistan's need for hybrid (print-digital) CDPs to cater to diverse user preferences. Similarly, Walters et al. (2020) had confirmed the finding related to high cost (70%) in their study as a challenge in acquisition.

Implications for Medical Education and Research

The absence of standardized policies, insufficient tools for physical and digital resource selection, and a lack of infrastructure and trained ICT—information and communication technologies, personnel significantly impact medical education and research in Pakistan. The lack of updated resources negatively affects curriculum delivery, as gaps in the availability of the latest clinical textbooks (14.29%) leave students unprepared for modern healthcare challenges. Furthermore, research output is severely limited due to restricted access to international e-resources (76.19%), forcing scholars to rely on outdated or pirated materials, ultimately hindering Pakistan's ability to contribute meaningfully to global medical knowledge.

The professional development of library and information professionals is also compromised by the lack of ICT-trained personnel (19.05%), highlighting the urgent need for upskilling librarians in digital resource management. As emphasized by Anwar & Ullah (2017), equipping librarians with digital competencies is essential to modernizing medical libraries and improving access to high-quality learning and research materials.

Future Research Directions

Building on this study's findings, the following future research directions are suggested;

1. Conduct comparative studies on CDPs across Pakistan's provinces to identify regional disparities.
2. Explore AI-driven tools for predictive collection development.
3. Assess the role of hospital libraries in supporting clinical research.

Conclusion

This study underscores the urgent need for systemic reforms to improve medical library collections in KP, AJ&K, and Balochistan. By addressing financial, technical, and policy gaps, stakeholders can transform these libraries into dynamic hubs that support Pakistan's healthcare and educational goals. As Horava& Levine-Clark (2016) noted, the survival of medical libraries in the digital age depends on their ability to adapt—a call to action that Pakistan must heed to foster a robust medical education ecosystem. It is recommended that the authorities, like the Higher Education Commission (HEC), Pakistan Medical and Dental Council (PM&DC), and Higher Education Regularity Authority (HERA), should provide more funds in the financial plan/budget and uniform collection development policies for electronic and physical resources to alleviate these challenges in the days ahead.

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