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Towards Academic Medical Library Standards in India: A Call for Action

Sangeeta Narang[1]* and Mahendra Kumar Vishwakarma[2]

[1]Librarian Selection Grade, Comprehensive Rural Health Services Project, Centre for Community Medicine, All India Institute of Medical Sciences, Ansari Nagar, New Delhi – 110029, India; sangeeta.bbdl@gmail.com
[2]Library and Information Officer, Ministry of Consumer Affairs, Food and Public Distribution, Krishi Bhawan, New Delhi – 110001, India; aiimsmkv@gmail.com

Abstract

With the rapidly growing healthcare information, medical librarians' roles and responsibilities in health care institutions are expanding, more so in the present context of Corona virus pandemic. Librarians in western countries are engaged in organizing, managing information resources, and offering seamless access to library materials to their users, supporting them with online consultation and research services. Medical libraries in India are slow to pick up the necessary momentum. They are underrepresented in medical education, their roles and responsibilities meagerly defined in institutions' employment regulations and there is little in terms of medical library standards for India. Even the newly constituted National Medical Commission has not taken note of the role medical libraries can play going by its recently released 'Minimum Requirement for Annual MBBS Admissions Regulations 2020'. What should be minimum medical library standards, role of libraries in medical education in India? In order to answer these questions, the author reviewed: (i) higher education policy documents, inspection documents, UGC guidelines, and their coverage on libraries, (ii) standards developed by professional library associations, and (iii) publications on library standards in international journals. Medical education is a highly specialized area where serving librarians require a unique set of skills to meet the information needs of the diverse users of medical libraries. On reviewing these native documents, it was found that there is little content available for medical libraries to adopt in India. Therefore, to get a wider picture, library standards for higher education developed by professional library associations of the advanced countries were examined. Based on these, a model minimum standard for medical libraries in India is proposed. The right mix of resources, staff, funds, and infrastructure is important for the proper functioning of academic medical libraries in medical institutions. This will in turn enhance the quality of medical education, health care services, and research in the country.

Keywords: Accreditation, Library Standards, Medical Libraries, National Medical Commission, University Grants Commission

1. Introduction

India's higher education system is complex. In recent years, universities and colleges have introduced many multidisciplinary and interdisciplinary courses of study and have increased students' enrollment. The number of medical colleges and students' admissions for MBBS courses has grown multifold in the past several years. University Grants Commission (UGC), under the Ministry of Education, Government of India is the statutory body responsible for maintenance of standards in teaching, examination, and research in colleges and universities. In addition there is National Assessment and Accreditation Council (NAAC) for assessing education standards in the Universities and Colleges (NAAC, 2018). While in the health sector, the National Medical Commission (NMC)

*Author for correspondence

(formerly, the Medical Council of India (MCI)) is the regulatory body responsible for monitoring standards in medical education in the country.

The Quality Council of India has also set up bodies like the National Accreditation Board for Hospitals (NABH) and Health Care Providers in the healthcare field. Medical libraries are bereft of all these quality check or inspection mechanisms.

1.1 Context

The NMC came into existence on September 25, 2020, by revoking the nearly 64-year-old Indian Medical Act, 1956. With its inception, all its previous bodies such as the Medical Council of India and its Board of Governors stood dissolved. The purpose of the new body is to bring a higher level of transparency and enhanced quality of education in the medical profession. NMC aims to make the services of medical professionals available to all in the country. The National Medical Commission supports the national health goals and promotes collaboration among medical professionals across the institutions. NMC is accountable for framing policies for the regulation of medical institutions and ensuring its compliance by the State Medical Councils. The NMC formed four autonomous boards namely Under-Graduate Medical Education Board (UGMEB), Post-Graduate Medical Education Board (PGMEB), Medical Assessment and Rating Board (MARB), and the Ethics and Medical Registration Board (EMRB) to regulate medical education.

NMC (2020) published a draft 'Minimum Requirements for Annual MBBS Admissions Regulation' followed by a gazette notification released on October 28, 2020. This bilingual document was reviewed by the authors to find the emphasis given to libraries in UG medical education. It was found that the subject of libraries has been inadequately addressed in the draft. The word 'library' appeared at eleven places only in the 104 pages English version of the document for little information about infrastructure, number of posts, collections only. All these were referred to in a shallow cast ignoring roles, responsibilities that librarians are performing in the constantly changing health environment. Ironically, there is no mention of the phrases 'library automation' or 'digital library' in the entire document. Libraries contribute to the academic excellence of the institutions. Libraries enhance the research output of their institutions. However, these aspects did not find any mention in the UG regulation. In current times, medical libraries perform advanced-level services, executing multiple roles, incorporating numerous training programs to educate medical students which remained deficient in the regulations.

1.2 Rankings

Apart from complexities in our education systems, globalization and competition across countries is also influencing academic curriculums and the accreditation processes in higher education institutions. At the global level, there are many ranking systems established such as International University rankings conducted by the Times Higher Education Ranking, QS World University Ranking, and Webometrics Ranking Systems. Our higher education institutions are positioned at much lower levels. Therefore, offering quality education to students has become the government's top priority. India has its own National Institute Ranking Framework (NIRF, 2020), which is an initiative of the Ministry of Education to rank educational institutes across the country. Ranking of colleges and universities is conducted on several parameters like research output of institutions, student's placement, and outreach program, etc. In the NIRF ranking score for health sciences, All India Institute of Medical Sciences (AIIMS), New Delhi holds the top position; some academic medical colleges of Delhi and medical colleges from other states also hold distinctions. Though libraries contribute immensely to the research output of the institutions, their relevance and development in medical education have not been considered important in ranking systems.

1.3 National Education Policies

In 2020, the Ministry of Education released the National Education Policy (NEP, 2020). It has referred to the importance of library services in the promotion of learning in higher education and has also recommended that all types of libraries in educational institutions such as schools, colleges, universities, and public libraries will be strengthened and modernized. It also emphasized the importance of adequate supply of books that cater to the needs and interests of all students, including persons with disabilities and other differently abled persons. Medical education and legal education are excluded from this

directive. Even the National Health Policy report (NHP) does not provide any reference to medical libraries even though our health, social, cultural, and economic sectors require growth, and libraries can bring tremendous change in these sectors.

1.4 University Grants Commission

The UGC developed minimum qualifications for appointment of teachers and other academic staff in universities and colleges and measures for the maintenance of standards in higher education (University Grant Commission Regulations, 2018). In its document, they highlighted librarians' qualifications, appointment, pay scales, age of superannuation, promotion avenues, etc. These regulations are followed by major central universities and institutions of national importance in the country such as Jawaharlal Nehru University (JNU), University of Delhi (DU, 2008), Indian Institute of Technology (IITs), and Indian Institute of Management (IIMs). Medical libraries are excluded from these regulations. As a result, medical libraries are struggling for growth.

Authors' experience and interactions with fellow professionals in medical institutions reflect general dissatisfaction over low pay scales, designations compared with their counterparts in higher education. Although NMC UG regulation changed the earlier MCI listed substandard designations for library staff like documentalists there is still no great difference found in the library staff engagement in medical institutions.

The Manual of Health Sciences for Universities published by NAAC (2020) has mentioned the key indicators for medical libraries but provides no guidelines about staff strength and services. In the country, most medical libraries are developing in silos and have little to show in terms of staff, resources, services, or infrastructure in the institutions. Also our institutional research output is scattered across numerous platforms and so is the condition of physical medical libraries and their visibility in the campus is negligible.

1.5 Effects of Coronavirus

Another factor influencing medical education and libraries is the spread of coronavirus, which has resulted in online classes. So was the case with libraries, librarians were unable to offer physical access to libraries and print resources to the users. Those libraries having access to electronic resources could provide access to their digital content only. In India, only a few medical libraries subscribe to digital content so a small number of users were at an advantage in colleges. Considering such situations occurring in future, it is essential for libraries to prepare themselves for such adversities and have at least minimum standards referring to provision of digital resources to mitigate such problems and promote use of electronic resources.

Now that new AIIMS are being set up in various states and also the number of medical colleges is increasing, what would be the status of libraries in these establishments when the status and condition of existing medical libraries is substandard?

2. Objectives of the study

1. To review library standards developed by professional library associations of advanced nations;
2. To examine research papers on standards in medical libraries published in International journals; and
3. To devise a set of model standards for medical libraries to adopt in medical colleges and institutions.

3. Literature Review

Academic medical libraries offer students, scientists, teaching faculty the educational resources to support teaching, research, and advance scholarly communications in the institutions. To understand the contribution of libraries in higher education, library standards prepared by the professional associations of advanced countries and also papers published in this field were examined. Some of the reviewed library standards developed by professional library associations are:

The Australian Library and Information Association (ALIA, 2008), their Health Libraries Australia group in their guidelines highlights the importance of information technology and evidence-based practices in medical librarianship. Their guidelines represent library standards in four broad categories: (i) Planning and Strategy, (ii) Organization and Philosophy, (iii) Resource Management, and (iv) Information Service Provision.

The Canadian Health Libraries Association released revised standards for library and information services in Canadian health and social services institutions in 2020. Their latest standards are categorized into: (i) Administration and Organization, (ii) Management, (iii) Services, (iv) Resources, (v) Staffing, (vi) Professional Development, (vii) Virtual and Physical Space and Equipment, (viii) Technology, (ix) Value and Advocacy, (x) Promotion and Outreach, (xi) Legislation and Compliance, and (xii) Accessibility: Diversity, Equity, and Inclusion.

Association for College and Research Libraries (ACRL) standards for libraries in higher education 2018 (American Library Association, 2006) mentions the importance of principles, performance indicators, and outcomes for the development of libraries. ACRL defined nine performance indicators for academic libraries. Their standards comprise: (i) institutional effectiveness, (ii) professional values, (iii) educational role, (iv) discovery, (v) collections, (vi) space, (vii) management/ administration/ leadership, (viii) personnel, and (ix) external relations for all types of libraries.

Standards for Irish Health Care Library and Information Service (2005) developed standards covering four areas: (i) Planning and Development, (ii) Organization and Administration, (iii) Research management, and (iv) Services management. They referred to increased utilization of electronic resources and to enrich evidence-based practice skills for enhancing clinical decisions. They focused on developing demand for high-value content, management of current information and timely access and delivery of health information to users.

Association of Academic Health Sciences (2012) libraries developed a resource guide that demonstrates the importance of search committees, criteria for examination of vacancy, defining library positions, qualifications, application screening, interview, and selection process for appointment of library directors in the academic institutions.

Health Education England (HEE) published knowledge for health care a development framework for NHS (2015) library and knowledge services in England. It refers to organizational culture for knowledge to be valued and knowledge sharing to be practiced in organizations. Health Education England also released the Quality and Improvement Outcomes Framework for NHS Funded Library and Knowledge Services (2019). HEE's vision for NHS funded library and knowledge services in England is - 'All NHS organizations, their staff, learners, patients, and the public use the right knowledge and evidence at the right time in the right place to enable high quality decision making, must to achieve excellent health care and health improvement.

In the following paragraphs some of the international journal articles on the standards are briefly reviewed:

Bandy *et al.* (2008) presented a synopsis of the standards developed by the Medical Library Association, United States for hospital libraries in 2007. These standards highlight that hospitals should have enough resources, staff, and services to effectively meet the knowledge-based needs of their users. These standards also exhibit the nature of services and staffing requirements for hospital libraries to function efficiently in a system. Hallam and Ritchie (2010) collected data on educational qualifications, length of employment, employment status, gross salary, responsibility, and courses undertaken by Australian Health Librarians to advance professional knowledge and responsibility in the health sector. Motte *et al.* (2014) suggested the standards for vision science libraries 2014. Day and Goswami (2020) advocated the use of knowledge mobilization framework for building a knowledge base to connect people with the evidence base. They further suggested that tapping organizational learning, success measurement, impact satisfaction and confidence survey, evaluation framework, and future planning are essential factors to transform existing services in libraries.

Boelen *et al.* (2019) demonstrated that there is a connection between medical schools and accreditation systems that affects the health of the population. Better coordination among the two would bring improvement to the healthcare system. Leinster (2014) indicated that the accreditation process is essential to maintain the quality of medical education but out-of-date policy may inhibit developments in medical schools. They emphasized that there should be transparency in the system and inspection reports should be made publicly accessible. The Health Libraries and Information Confederation (HELICON) (Accreditation of Library and Information Services in the Health Sector, 2002) accreditation working group produced a checklist for accreditation of health libraries in the UK.

Blouin *et al.* (2018) reported nine processes of accreditations that support quality in undergraduate medical education. They are: (i) governance, (ii)

data collection, (iii) analysis, (iii) monitoring, (iv) documentation, (v) creation and revision of policies and procedures, (vi) continuous quality improvement, (vii) faculty members engagement, (viii) academic accountability, and (ix) curriculum reforms. Schwatz *et al.* (2009) reviewed standards for medical education accreditation programs and presented the diverse role of the health sciences librarians in medical education. Murphy (2009) interviewed librarians, tutors in medical schools of London and Scotland to know what medical schools are doing for preparing future doctors. Some of the responses were: (i) medical students are not driven by curiosity but by examination, (ii) librarians have the competence to offer unique services to the readers, but faculty and students do not recognize their expertise, and (iii) Librarians informed that they are being marginalized in the campus and are not involved in academic committees even though they know that their participation is beneficial for the institution. Murphy further proposed introduction of structured, assessment-based user training programmes on access and use of information resources as important and that librarians' skills may help users identify appropriate materials for their study. Tait *et al.* (2016) assessed the IT tools utilities for the transformation of academic library services. They recommended promotion of open access publishing, and representation of ORCID profiles, faculty research work, and institutional repositories with correct metadata crucial to enable citation tracking and facilitate analysis of academic research work. They further proposed that librarians can assist scientists to utilize research-focused social media platforms such as Research Gate, Google Scholar, and Academia.edu to enhance research and collaboration. Handerson (2014) emphasized that health science librarians should learn to observe trends, anticipate the needs of patrons and proactively find new roles for furthering the mission of the organization. They indicated that health sciences librarians have lots of ideas but the real challenge is to find the right managers and administrators who are willing to see a larger picture for librarians' engagement in the research, clinical and educational enterprise of their institution.

Bryant *et al.* (2015) observed that health information consumers are not receiving the right information. They are ignorant about the role librarians perform, and their importance in health care knowledge delivery in the system is obscure. They highlighted that there is a need for the creation of greater awareness about libraries. Bryant *et al.* (2018) suggested that generating enhanced service models, workforce planning and development, quality and impact, resource discovery, and optimizing investment are needed for the transformation of health librarianship. Giles (2000) suggested that frequent meetings, extra training, and guidance would facilitate the librarians to be proactive in their roles especially during library inspection in the institutions. Dexter *et al.* (2019) explain challenges and their unique experiences in the establishment of a new academic medical library in the post-print era. They mentioned distinctive start-up culture where library collection is almost exclusively digital, operates within the budget and space provided, and emphasized that medical schools should consider the needs of a new generation of library users who have grown up in the digital age when making decisions related to key areas such as space planning, staffing, collections, and budget allocation for libraries.

With this current prevailing coronavirus disease, the roles and responsibilities of medical librarians in health science institutions have become far more intense. Apart from their existing roles such as enhancing the overall quality of collection, services, and experience of users in the organizations, there are many other unique roles that librarians are performing in academic institutions to assist health professionals which require a specific skill set. Crum and Cooper (2013) identified librarians' engagement in: (i) systematic reviews, (ii) social media platforms, (iii) analysis/enhancement of user experience, (iv) assisting faculty/staff with authorship issues, (v) educating institutional authors to comply with National Institutes of Health (NIH) public-access policy, (vii) implementation/support for researcher profiling/ collaboration tools, (viii) role as an embedded librarian, and (ix) advocating authors/ department/administrators to comply with funder mandates.

To further understand types of library vacancies abroad in employment websites like ALA library job search, it provided a glimpse to unique job titles library professionals possess corresponding to the exceptional work librarians perform. Some library titles represented in the site include: Acquisitions Librarian, Serials Librarian, Metadata Librarian, Collections Librarian, User-services Librarian, Electronic Resources Librarian, Scholarly Communication Librarian, Scholarly Resources Librarian, Research Data Services Librarian, Graduate

Engagement Librarian, Associate Dean/Director of Learning and Research, Open Education Librarian, Scholarly Repository Librarian, and Community Engagement Librarian. Open Access and Data Librarians/ Managers, Research Support Librarians, Grant and Projects Librarian, Liaison Librarian, Outreach Librarian, and so forth. In India, neither the job titles nor job descriptions have been defined or revised.

And if we compare global standards for libraries, our library infrastructure has not evolved enough to compete with the academic medical libraries of the western world. Neither our skills have advanced to develop high end services. Further, there is no reference to libraries in medical institutions employments policies nor the role and involvement of libraries in academic activities mentioned. In the absence of medical librarians' job descriptions and unclear recruitment rules in the institutions, libraries are poorly managed and are performing poorly.

Therefore, developing minimum standards for medical libraries in India becomes essential. The nature of libraries and distinct types of services required by individuals in a diverse health care setting makes it difficult as has been demonstrated by Stinson (1982). But at the same time, it is essential to have at least a generalized set of standards that could serve as the guidelines for libraries in medical education. In the subsequent section, an effort has been made to define medical library standards for health care institutions to consider in India.

4. Minimum Standards Proposed for Medical Libraries

The minimum standards proposed for medical libraries are based on the review of literature, particularly NMC-UG regulations from librarians' perspective, observations on the current state of medical libraries, and authors' experience in medical librarianship. They are:

4.1 Library Infrastructure

Library buildings have an impact on the academic, social, economic, and cultural life of the institutions and society. Therefore, libraries should be well housed, conveniently located, air-conditioned, with an attractive entrance, and inviting reading rooms available to readers at reasonable hours with facilities for safe drinking water and hygienic toilets available to the readers all the time during their stay in libraries. For the older library structures, there is a need to remodel the library with the latest furniture, energy-efficient electrical fittings, and fixtures, durable floorings, and attractive wall tapestries. Libraries should have comfortable reading chairs and tables to ensure maximum comfort. Lifts and escalators in multi-storied library building and aesthetic walkways, acoustics recommended design is a must. Interiors in the library should have artistic display stands for new books and journals. Libraries should be equipped with latest information technology devices like computers, high definition screens, printers, and CCTV with provision for uninterrupted power supply and disaster proof structures.

In many medical libraries in the western world, library space is shrinking due to decline in purchase of print resources, and funds are being diverted for subscription to electronic journals and databases. New library buildings need to accommodate lecture rooms, and laboratories for students and staff. Maker space is the new concept that has evolved to make use of the place for innovations and incubation of ideas. In most medical libraries older and less used collections are being kept off-site and space is being repurposed for further development and activities. So, the surface area of a library may differ depending upon the institution, the number of students enrolled, faculty and staff to accommodate seating, and allocating sufficient space for reader's movement and staff room, circulation counter, etc. It is suggested that a separate reading room attached to the library but detached from physical resources may be created where readers can study late in the evenings when the physical library is closed as electronic resources can be made available to users online 24×7. This will help to minimize wastage of resources in the libraries and maximize reading and learning time of students.

Modern, well equipped libraries may consider developing public access computer stations, facilities for providing laptops and tablets on loan, and charging stations facilities in their premises. A combination of Wi-Fi and hardwired infrastructure in libraries offer users greater flexibility to sit at any place in the library. A small group study space may be designed in libraries to offer active learning space. A combination of tables, carrels, and comfortable lounge seating with whiteboards and network connections is recommended in libraries.

Most readers desire natural light for quiet reflection and study. So, arranging study along the outer edges of the building with service areas arranged in the center may be considered. Landscape development, outside the library gets user attention to the place. Therefore, it is equally important to enhance entrance of library to increase readership in medical libraries of academic institutions.

4.2 Library Resources

Libraries should maintain adequate collection of academic medical textbooks, journals on each subject. Apart from these materials university medical libraries need to have reports, pamphlets, and grey literature; thesis and dissertations submitted by students and research papers published by the academic fraternity which are becoming increasingly important collections in medical libraries. Libraries also need to maintain materials of archival importance and instructional and research materials. Conference papers, monographs, book chapters are useful library collections. Blogs, wiki, OER, academic videos, images in the medical field are myriad forms of resources of importance in the library reference. Medical libraries have difficult purchase procedures for books, journals, databases- their selection acquisition, maintenance, and de-selection are distinct. For electronic resources, licensing issues, negotiations with vendors and publishers for pricing are strenuous tasks, involving tough decisions on the part of librarians and library committee members. The usage of subscribed resources and return value on these investments are of great concern for the librarians, administrators, and medical educators. So is the case with medical books. Medical Science books are expensive and a very careful selection has to be done in the purchase of these materials for the library. The library collection should reflect the institution's mission. There should be a strong focus on resource development based on institutions' curriculum. At least medical libraries must have a core book collection apart from a reference collection. Moreover, with open access resources and their easy availability online to consumers there is a need to carefully select and purchase peer-reviewed, national and international journals with high-impact factor. Apart from library collections, there are many other useful tools required by users to navigate through these vast resources of the library. Some of these search and retrieval tools are:

4.2.1 Library Automation, OPAC, and Resource Discovery Services

All medical libraries should have library management software installed. The library operations like acquisition, cataloging, serials, circulation, and membership procedures should be fully automated and functional. It would facilitate readers to get information about resources available in libraries easily and quickly. Advantages for librarians are, it would make library routine jobs easier to handle. Medical libraries may consider the implementation of Koha, open-source library management software. Integration of library collection, open-access resources, and electronic databases with resource discovery tools for example Ebsco resource discovery service or open-source tools like VuFind will further enhance search results across a range of scholarly materials. Offering search and browse facilities available in the library homepage in the institutional websites would make the library visible, and resources conveniently searchable by the students, researchers, and academic community. Moreover, these scholarly resources should be made accessible off-campus i.e., via remote access services. This will encourage extensive use of resources by users outside the campus. It is suggested for librarians and administrators to review and evaluate electronic resource use from time to time. In addition to the above, the establishment of an e-print archive consisting of faculty publications, government reports, students' theses and dissertations, in-house magazines in every medical college should be developed preferably with open source software like DSpace. There is also a need to develop corresponding policies such as access and submission policies available with institutions for managing content in these repositories. These policies should be readily available on the institutional website for academic communities and students to consult at ease. It would not be wrong to state that if every medical institution develops its own publishing press to manage educational materials and contents in a more organized fashion it will add to support serious research. Having data repositories of research projects is an advancement that libraries are moving towards in western countries.

4.2.2 Institution Websites and Library Webpages

Current generations of medical students are all netizens and for a netizen, the first place to locate, check services,

or know details about an academic institution or library are its website. Unfortunately, many medical colleges do not have an institutional website in the country and as a result, libraries do not have a web presence. In the current situation, to know the presence of a particular library one must scroll through numerous web pages to get some information or has to conduct numerous keyword searches on Google to get precise information. For example, a search on the country's oldest medical college provides a peep into the window with little information about resources and services and similar is the situation of almost seven medical college libraries of the national capital state, Delhi. When random searches by name of institutions were conducted, a similar condition is seen for most medical college libraries situated in the north Indian region viz. Uttar Pradesh, Haryana, Uttarakhand, Punjab, Chandigarh, Himachal Pradesh, and Rajasthan. So, it will not be incorrect to say that medical library situation in the country is pathetic except for a few PG medical colleges, some medical universities, and Karnataka state academic medical libraries. These institutions are performing better and have a dedicated library webpage housed on the institutional website. Basic information library homepage must have: library opening days, working hours; location, contact address, library staff, resources, and services. Librarians should possibly make videos on library tours, educational tutorials embedded in their webpage. Telephonic Conversations with a few fellow medical librarians indicated that their libraries are poorly funded and staffed. There is no regular budget for libraries in medical colleges. NMC recommended that latest editions of a certain number of books and journals must be available in the libraries. Without a regular budget, libraries cannot purchase the latest textbooks or electronic journals.

4.2.3 Consortium

Medical Librarians should build a library network for sharing resources and services with other libraries with participation of all medical libraries of the country. The Government of India has taken a bold step 'One Nation, One Subscription' (ONOS), a journal-access plans for institutions of higher education. It is a difficult venture. It requires rigorous plans for developing such a platform that serves academic communities with different disciplines, universities, regions to cover the entire nation. To what extent the health science discipline will be covered, which eBooks, e-journals, and databases will be considered when resources in this discipline are expensive is a difficult task for authorities to decide. It requires lots of effort and time including negotiations and licensing agreements with various publishers, organizations, and societies. For enabling e-library services it is important to consider the total number of teaching faculty, students, and programs offered by various medical institutions. With the oligopoly of five or more major publishers in health sciences- Elsevier, Springer-Nature, Wolter Kluwer, John Wiley, Taylor and Francis, and society publications an agreement with each publisher must be carefully crafted in the consortia. Within every institution, libraries should get support and co-operation from administrators, educators, and the other units of the universities like the computer center and research section for technical and resource development services. With the current pandemic at least, this is being understood by medical educators and researchers that health resources should not be kept behind pay walls.

4.3 Staff Strength

Staffing requirements in libraries may vary from institution to institution depending upon the number of full-time faculty employed, students enrolled, and courses offered by the institutions. For example, in institutions running several courses such as MBBS and Nursing programs, also offering masters' and doctoral programmes the strength of library staff needs to be more in comparison to colleges having only MBBS courses. Therefore, in such resourceful institutions, there should be a post of a library director or Chief Librarian in UGC pay scale Level-14 according to 7th Pay Commission responsible for managing and supervising the entire library. A Deputy Librarian (1) in UGC pay scale Level -12 for coordination of duties with junior staff and management of various library operations and developing web-based services and repositories. Assistant Librarians (3) in Level-10 responsible for journals subscription, databases procurement, books purchase and User services. Professional Assistant (4) in UGC Level-6 to assist seniors in various library routine works like membership, circulation, user services, and miscellaneous jobs of the library. Semi Library Professionals (5) in UGC level 5 for shelving and miscellaneous library work. Libraries

should be administered by a professionally trained and experienced librarian preferably person having a science background. Librarians who are creative, technologically savvy, knowledgeable, experts in literature searching should be given preference in selection. A Librarian who holds a doctoral degree in library science from a recognized university, having publications and innovative work, and possessing UGC NET qualifications should be recruited for the top positions. For a small college library, there should be at least a knowledgeable librarian and two full-time professional staff in support positions.

The minimum staff requirement in an academic UG medical college library is a College Librarian (Grade Pay Rs. 6000) who must be a graduate, postgraduate in Library and Information Science with UGC-NET qualification and having experience of managing a library of repute. Librarians should have a fair knowledge of library automation, institutional repositories, etc. The library should also have one Assistant Librarian in pay level-10 Professional Assistant (GP-4200) and a Semi-Professional Assistant (GP-2800) responsible for carrying out library work. DEO for data entry and a programmer to facilitate library software development and maintenance of up-to-date library webpage facilities in medical libraries may be considered.

As per the NMC-UG regulations, the library cadre structure includes Librarian (with degree in Library Science) (1), Assistant Librarians (2), Library Assistants (4), other staff as required. There is no clarity on pay scales, qualifications, experience provided in the guidelines.

4.4 Technology Laboratory in the Libraries

Libraries should have technology labs in their premises and offer a range of equipment for students, staff, and research scholars to help them with their learning, research, and creativity. Offering space to Information Scientists and, information technology students, library trainees would provide unique opportunities for them to experiment, collaborate in this library space. Emerging topics in the Information Science domain are research on data mining, text mining, and their convergence with library and information science would benefit both communities. This would be an experimental lab or the skill lab where they can think, collaborate and develop connections and create applications to solve human problems. Engaging with AR/VR tools, the developers in libraries may facilitate in designing a host of new tools like AI-based Chat bots for libraries. This community and collaborative space may consider developing and combining skills like programming, robotics, or other coding skills to facilitate the creation of innovative tools.

4.5 User Education

The new generations of medical students admitted to medical colleges are digitally literate; their information needs are much more advanced in comparison with students from non-science backgrounds. They may not need only a book but at times pinpointed or comprehensive information. To them, librarians impart advanced information literacy training courses. Librarians may help MBBS students with their reports writing, for their course work- Orienting Undergraduates to Community Health (OUCH). During their project submission, it should be observed that medical students have attended Health Information Literacy (HIL) classes taken by a qualified medical librarian in an institution. The vastness of health information may deluge students from identifying fake news from fact-based information, open access from subscription access, society journals from commercial publishers, predatory journals to peer-reviewed and low impact factor with high impact factor journals. When a large number of databases, subject repositories, and resource discovery tools are there, navigating through them wisely may bring intellectual curiosity in students. These information literacy-based classes may inform students about publishing trends and librarians may also educate them about collaborative tools, doi, cross-references, and research tools. The librarian should educate students about PubMed searching and other health sciences databases and resources that support the institutions' curriculum and mission.

4.6 Library Services

There are various factors that influence library service quality in the institutions such as the age of the institution, courses offered by the institution, management (private/ government), staff strength, size, research activities, types of libraries -central/ branch library. Depending on these factors the major services provided by most libraries are mostly offering In-depth, comprehensive, or focused reference services using both print and electronic materials, provide support with publication and research,

arrange books exhibition, display and notification, bibliographic compilation, reprographic facilities, internet services, book bank, user orientation, reserve materials, and Inter Library Loan (ILL)/resource sharing, collection development, research laboratories with computers and Internet search facility, digitization, and metadata services along with a description of each digital object, management of archival collections, educational media services, developing social media profile on popular networking sites. Libraries should also conduct programs on the use of library resources, develop library discussion groups, design educational guides for the researchers, assist researchers for measuring impact factor, citations, and altmetrics, engage with researchers on plagiarism check, assist users in project grant and reviews, collaborate for research, librarians also contribute to tracking value of research. Libraries may serve as digital publishers for their institutions.

5. Library Association

Medical librarians should revive the Medical Library Association of India (MLAI), to help in addressing professional issues and unite professionals together for a common goal that is to raise the standard of medical libraries and profession in the country. This would also facilitate filling vacant positions at institutions that do not have permanent librarians.

6. Libraries in Super-Specialty Tertiary Care Centers

The premier tertiary medical institutions like AIIMS, PGIMER Chandigarh, JIPMER Puducherry, NIMHANS Bengaluru, CMC Vellore, and other newly established central institutions of Government of India do not have well defined library staff structure. Most of the medical institutions are following the cadre of ministerial library set-up which is governed by 4thPay Commission recommendations of the Chattopadhayay Committee of 1989. None of the governing bodies understand the services of library staff. Even after 30 years and implementation of 7th Pay Commission, no cadre review and revision of recruitment rules has been done. In 2011, AIIMS New Delhi hired an agency (Deloitte) for "Rationalization/Review of Recruitment Rules and Design of Job Descriptions." Their draft report was submitted in 2012. After that, Ministry of Health and Family Welfare (MoHFW), GOI has declared AIIMS, New Delhi as a nodal body for the staff cadre review and was entrusted to frame recruitment rules which will be applicable to central government-funded medical institutions like AIIMS, PGIMER Chandigarh and JIPMER Puducherry. Revisions in pay scales till date have been kept pending with the authorities.

7. Institutions of National Importance

As of 2020, there are 159 institutes in the country that are declared as Institutes of National Importance (INI) under a distinct Act of Parliament. These INIs include 23 IITs; 15 AIIMSs; 20 IIMs; 31 NITs; 25 IIITs; 7 IISERs, 7 NIPERs; 5 NIDs; 3 SPAs; 5 central universities; 4 medical research institutes and 14 other specialized institutes (Institutions of National Importance 2014).

Almost all the INIs have been following the UGC guidelines with some modifications for the library cadre except the 15 AIIMSs and 4 other medical research institutes namely PGIMER Chandigarh, JIPMER Puducherry, NIMHANS Bengaluru, and SCTIMST, Thiruvananthapuram. Newly established IITs, NITs and IISERs have been developing their institutions with excellent library infrastructure and staff. They have also filled up the top posts (Librarian/Deputy Librarian with UGC pay scales) on a permanent basis to develop a good library system. Unfortunately, the newly established AIIMS are only filling lower-level positions in the library.

A harsh fact about the medical libraries is that it has higher student footfalls, long sitting hours and high dependency on library resources as these are costly, and hence these facts should not be ignored at the time of deciding the library infrastructure and staff strength. It is necessary to mention that guidelines similar to UGC recommended college library structure should be developed for medical college libraries and library staff strength should be determined on the basis of the courses offered, the strength of students and faculty. Even in country's premier medical institutions, the situation of libraries and librarians is extremely pathetic. Libraries have shortage of staff, therefore library offers limited services.

An attempt was made by the author to develop a directory of medical librarians through a Google form. Link was sent over the Facebook and WhatsApp group; it generated records of only a few medical librarians when the country has as many as 542 medical colleges.

If the quality of medical education and research must be improved in the country library standards should be appropriately defined. A knowledgeable health sciences librarian should be recruited in the institutions of national importance for development and delivery of quality services and resources to the end-users. For ensuring professional and institutional growth of its employees, library staff should be provided with appropriate career pathways and career progression schemes and further incentives should be offered to them based on their performances. It is evident that, in the future, positions requiring low-level skills in medical libraries will be lost; so continuous professional development and training provision of librarians should be encouraged in the institutions.

8. Conclusion

Standards for medical libraries are essential for advancing medical education, health care, and research. Compliance with these minimal library standards by medical colleges would drive forward the modernization of medical libraries enabling delivery of quality-based services aligned with the objectives of the institution. Investment in libraries for their infrastructure, services, resources, technology, is important for institutional growth. Library services should be frequently revised based on user needs, their convenience, and comfort kept as the focal point of library development. Institutional administrators, educators should be proactive to facilitate revision of recruitment rules for medical libraries, fill vacant positions, and make libraries high tech. Regulatory and accreditation agencies in medical education should devise a checklist to see that libraries have sufficient resources, staff and are well represented in education policy documents. The current set of minimal standards for libraries may be considered by policy developers and decision-makers in establishing digital medical libraries. It is in this context that NMC may consider developing quality indicators as per other INIs like IITs, NITs, IIMs for academic libraries to be in their best form. To achieve these standards, it is essential for medical institutions to adopt UGC pay scales, recruit a sufficient and competent workforce who could support institutions' mission which seems not to be happening in the country.

It is essential for the health advisors, policymakers, educators, administrators in the Ministry of Health and Family Welfare (MoHFW), National Medical Commission (NMC) and medical institutions to take cognizance of issues facing medical libraries and effectively develop and implement appropriate library standards.

9. Outcome

It is expected that with these suggestions, libraries will be valued in the institutions and that administrators and educators in the medical colleges would take special interest in the development of libraries, encourage students to use library services, and would raise the status of library personnel in the medical institutes.

10. Disclaimer

Views expressed in this paper are based on the authors' personal experiences with the aim to define or refine the standard of libraries in academic medical institutions.

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