Use of Electronic Resources in the Field of Medical Science: A Study of Review of Literature

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The advancement of technology has a great influence on electronic publishing. The astounding features of information technology bring revolution to the academic community. The world is moving from print to digital media and digital media is found to be one of the easiest and fastest communication channels. It has removed all the territorial barriers by establishing a central connection of entire world research, e.g., Scopus and Web of Science are the databases which are designed to measure the quantitative aspects of research as well as provide currents in trends of research in a specific discipline. This paper is pertinent to reviewing the use of e-resources in medical science. It has been found that a lot of research has been conducted, however, only relevant literature is reviewed in the study. The entire work is original and very much useful for the other researchers who are doing research on the use of e-resources by the medical science academic community.

Keywords:*Electronic Resources, Consortium, ICT, Medical Science, Knowledge Society, etc.*

1   INTRODUCTION

Libraries have played an indispensable role in supporting education at all levels, from elementary school to colleges and universities, toachieve their sets of goals by providing high-quality libraries and information support services. However, advancements in technology have brought both challenges and opportunities to the Library and Information Science professionals. The library must contend with the high costs of collection upkeep, storage space, and skilled human resources, as well as "the difficulties offered by breakthroughs in the field of information and communication technology." Print resources have now evolved into electronic resources, with scholarly

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publications accessible via automated transmission. These are web-based and accessible 24 hours a day, seven days a week, 365 days a year, making them an excellent resource for medical libraries. *Access to current knowledge* has been made available since *e-resources are routinely updated.*

The accessibility of ICT has made e-resource access and usage feasible. Most institutions of higher learning no longer rely only on printed materials to satisfy their information demands; instead, they employ e-resources. Students, researchers, faculty, and staff use electronic materials to augment or replace printed books in academic settings. E-books, e-journals, and other electronic resources are all examples of electronic resources. They can be accessed at anytime, anywhere, including at home, in the residence hall, office, or anywhere else as long as there is an internet connection; they allow easy text searching and high-speed access while allowing access to a wide variety of information; they allow graphics to be animated; they can be downloaded, stored, and printed; they allow cut and paste, move, add, and delete as much as you want[1].

E-resources are described as electronic goods that comprise data, full-text, picture collections, and other interactive technology, as well as statistical, graphical, or time-based content. These are commercially accessible titles that are available offline on CD-ROMs, cassettes, or online via the internet and technology. However, various procedures and associated standards have been established in recent years that allow documents to be generated and transferred in electronic form; as a result, libraries are changing toward using them and accumulating them on user requests to meet them quickly and properly.

A medical library was constantly in need of precise and up-to-date information, such as new illness inventions, patient care-related data, disease treatment, surgical and operation procedures, medical science research themes, and so on. Modern technologies are rapidly being utilized in medical libraries to gather, store, retrieve, and disseminate large amounts of data to aid medical professionals in their daily work in the fields of learning, research, and clinical practice.

The consortium is used by the majority of the libraries to get e-resources, according to the report. However, one of the key causes of ineffective utilization is the increasing expansion of electronic resources. The magnitude of support influences the awareness zone; from the perspective of users, the access domain and use domain are the most important areas of the library system. Regardless of enhanced access methods supplied by electronic content providers or training offered by subscribing libraries, this growth hinders the correct digital resources from being accessed by the right people at the right time. This problem is prevalent in practically all libraries, particularly medical libraries, which are a unique sort of academic library that deals with a variety of issues. The main problems include a lack of a coordinating agency dedicated to these libraries to form a medical consortium in the nation, as well as the fact that users of

these libraries do not have enough time to be acquainted with these e-resources and lack specificity in access mechanisms.

Following a review of literature based on medical professionals' usage of electronic resources, it was discovered that most medical professionals keep up with new material released in the field of medical science so that they may provide timely assistance. The purpose of this research is to give descriptive literature evaluations on various aspects of India's e-resources and medical libraries as disclosed in online literature.

2   REVIEW OF LITERATURE

To identify the trends of research on the use of e-resources by medical practitioners and find out the gap, several articles, and theses have been reviewed by using various databases. The articles are pertinent to India as well as world perspectives only and the period is limited to 2012-2021 only. The findings of their study are discussed below:

Alabdulwahhab et al.[2] studied the use of internet resources by undergraduate medical students at Majmaah University's college of medicine and found that during the pandemic, the majority of students moved to online resources. Medscape, Mayo Clinics, ResearchGate, and MyWeb were among the free medical sites they used online.

Wiche and Ray-Ogbonna[3] investigated the information needs and seeking behaviour of medical students at Pamo University of Medical Sciences Port Harcourt, finding that academics, the internet, laboratories, and health are the most important sources of information for medical students. The library and the internet were the pupils' primary sources of information. Lecturers went to libraries but ran into issues including irrelevant information, poor search abilities, and insufficient sources.

Machlied et al.[4] investigated European medical students' opinions of digital health education and found that the majority of students had a favourable attitude toward healthcare digitalization and were eager to participate actively in facilitating health literacy for patients. Their main problems were a lack of knowledge and abilities in using and assessing digital health technologies.

March et al.[5] studied the information needs and seeking behaviour of nursing staff at Rivers State University Teaching Hospital (RSUTH) and discovered that drug therapy, disease diagnosis, and patient management are among the information needs of nurses. They used a variety of resources, including coworkers, the internet, and a textbook. They faced obstacles such as a lack of library resources, restricted access, and poor information search abilities.

According to Ashkanani[6], more than half of Kuwait University students who accessed health information modified their habits. Furthermore, after acquiring health information, the majority of students' health awareness grew.

The pupils experienced challenges such as difficulty comprehending medical words and poor online searching abilities.

According to Anasi et al.[7], 40% of pharmacists used the internet for drug-related information, whereas 37.5 per cent sought disease-related information. ToxNet, Medline, and PubMed were all utilized less often. Pharmacists encountered several obstacles, including insufficient electricity, lack of understanding, and access to the internet.

The progress and problems of the Cyprus Academic Libraries Consortium, as well as the process of forming partnerships with publishers, were explored by Harakiand Zervas[8]. However, it was highlighted that a lack of money, lack of structure, and the danger of overlapping information resources are all factors that contribute to the slow growth rate and function as roadblocks for academic libraries in providing information to their users. Establishing a common policy on electronic journal subscriptions, to promote balanced growth of journal collections among partners, as well as savings and access to a larger number of electronic sources to meet the educational and research needs of the participating institutions' users, may assist in establishing a common policy for e-journals.

Academic library consortia, according to Arch and Gilman[9], are focusing on e-resource sharing and purchase as their key activities and value propositions for members. However, consortia have developed to deliver services in academic libraries that are increasingly seeking beyond financial value to demonstrate an impact on institutional goals and student results, according to the report. A substantial influence on teaching, learning, and research at member institutions, as well as potential models for future consortia. To accomplish so, however, consortia and their members must be willing to try new sorts of collaboration and build greater levels of trust inside the group.

Oluwaseye et al.[10] studied the information needs of medical students in Nigeria and discovered that the majority need particular medical information, followed by research, social, reference, and general information. They used the internet, textbooks, journals, peer-to-peer communication, lectures, seminars, and reference materials, but they did not use HINARY or MEDLINE.

Saini[11] mentioned library consortia, which are groups of libraries that collaborate to exchange electronic resources. The author also briefly discusses the idea, advantages, drawbacks, and overview of several types of consortia such as UGC-INFONET, FORSA, CSIR, HELINET, ERMED, DeLCON, and others.

Personal and family illnesses were the most prevalent reasons for accessing health information, according to Sultan et al.[12]. The most popular outlets for accessing health information were WhatsApp and the internet.

At Ghanaian universities, Asibey et al.[13] performed research on students' usage of the internet for health information. 72.4 per cent of all students relied

on internet health information to make lifestyle adjustments. They were limited by a lack of infrastructure, qualified personnel, and a poor internet connection.

Msuya and Mungwabi[14] used a mixed research approach to obtain a deeper understanding of the subject matter in their study on the constraints to the successful expansion of the Consortium of Tanzania University and Research Libraries (COTUL). It was noticed that librarians' awareness of COTUL is low, limiting its expansion and that the present organizational structures are incompatible with COTUL's successful operation. A weak sustainable funding foundation, researchers' limited understanding of e-resources, a lack of e-resource seeking abilities, and a shortage of office space are among the issues noted.

Kahouei et al.[15] studied health information seeking tactics among doctors and medical residents in Iran and found that the majority relied on patient data for clinical decision making and verbal communication from patients for medical information collection. The majority of researchers utilised PubMed and MEDLINE, according to the survey.

Rodrigues[16] explore how library consortiums have been successful in overcoming the gap in information availability among users. Academic libraries, she says, are undergoing a rapid and dynamic transformation. In the current environment of a serious financial crisis and the growing cost of electronic resources, the data collected by consortiums meticulously increases the purchasing power of participating libraries. The librarians in this survey also expressed a desire to collaborate and improve information availability.

Patil[17] talked about the development of two consortia, FORSA and NKRC. When it came to organising consortia, he says there were no clear norms, regulations, or procedures. The book was developed to meet the knowledge needs of consortia in this environment. It includes fifteen chapters that cover resource sharing, e-publishing, library consortium, types and models of the consortium, pricing, licensing models, big deals, consortia negotiations, consortia infrastructure requirements, archival aspects, consortia merger and migration, and Indian consortia activities and experiences.

The influence of e-resources on collection development, collection development strategies, and the changing role of library professionals in the selection of library resources were explored by Moin and Panda[18]. The authors concluded that libraries are participating in sharing resources and consortium approaches in the current information technology era, based on the study's findings. Higher education e-resources consortiums such as UGC INFONET, INDEST, and N-LIST are boosting India's higher education system by offering access to academic information to assist educational institutions in attaining their vision and purpose.

According to Sohail and Ahmad[19], Fiji National University Library users are aware of the value of e-resources and services provided by the libraries,

and there is a growing interest among users in the use of e-resources. However, slow downloading and website blockage are obstacles to the proper use of electronic resources at the university's sixteen campus libraries.

Bhairu et al.[20] conducted a survey of university professors to assess their e-information literacy to calculate an e-information literacy index. According to the research, 60.52% of instructors are computer proficient. Assistant Professors are more e-information savvy than their superiors among professors, and Shivaji University in Kolhapur has the highest index among universities. An e-information literacy index, according to the authors, is a novel way to characterize the features of e-information literate university lecturers.

Kumar[21] conducted a survey of 100 medical students to learn about their use of e-resources and their experiences with them. It's worth noting that the majority of post-graduate and undergraduate students believe that e-resources are educational and useful in keeping up with medical developments. Students make extensive use of research reports and search engines.

At the Indian Institute of Technology Library in Guwahati, Tamrakar and Garg[22] discovered that e-journals are more popular than print journals. To fine-tune its services, the library invites its users' feedback on the challenges they have in using and accessing library materials. According to the findings, the majority of users are aware of library-subscribed e-journals/databases in their topic and can utilize them.

Another study was undertaken to determine the use and access to electronic information resources at Dr. Y. S. Parmar's University of Horticulture and Forestry (DYSPUH&F) library, and the results revealed that the least number of users utilize e-books and e-theses. The favoured e-resources include CAB e-books and Krishi Prabha, and the survey found a substantial difference in the usage of databases that provide indexing and abstracting services, e-journals, and e-theses when compared to e-books (Bhat and Ganaie[23]).

According to Kaur and Kathuria[24], e-resources have become an important element of information because of the ease with which they can be downloaded, the speed with which they can be searched, and the fact that they have decreased workload and incentivized users to undertake smart research. Both paper and electronic information are still preferred by respondents. In comparison to print resources, e-resources have a significant influence on users, as library customers anticipate easy access and maximum use of information in today's technological age. The data might come from any topic or discipline. The social sciences are not unique. The use of social science e-resources at Gulbarga University, for example, demonstrates that e-resource usage is influenced not only by low network speed and reading straight from the computer, but also by a shortage of computers in the library and paid access to information. Effective methods to improve the use of electronic resources should be taken, and librarians should reposition themselves, think imaginatively, and accept new

technology to provide services and tools to promote the use of electronic resources (Kaur[25]).

According to Verma[26], the majority of students at Delhi's Central Science Library are aware of online resources and utilise them for research and knowledge updates. The major source of relevant information indicated by 97% was Web of Science, followed by ABI/INFORM, which was noted by 95.4%.

Another research was undertaken at the University of Agriculture Sciences (UAS) by Krishnamurthy and Awari[27] to investigate the use and effect of electronic information resources among PG students. According to the findings of the study, the majority of users stated that utilising e-resources improved their study quality and that e-resources have a higher influence on respondents. The researchers' usage and access to information have been substantially changed by the e-environment. Electronic journals and online databases are the most popular e-resources among agricultural scientists. Young scientists are more aware of and utilise e-resources than their elder counterparts (Bansal[28]).

According to Nikam& Sathisha[29] of the University of Mysore library, consumers prefer both print and electronic sources of information, and respondents stated that they learnt to utilise E-Journals through 'friends/ colleagues.' They believe there is a dearth of high-quality scientific and scholarly publications to which they may submit their work for publication.

Tawalbeh et al.[30] performed research to examine the usage of e-resources and services, as well as the students' understanding of the AHU library's information resources. Sheeja[31] evaluated medical undergraduate students' perceptions and use of the internet and web-based resources at Sree Narayana Institute of Medical Sciences (SNIMS), Kerala, and found that the students opined very positively about online resources that are useful relating to their studies and that they have not encountered any difficulties in using the internet.

Even if users are aware of the numerous types of e-resources accessible in the library, only a handful of them are valuable to them, according to Gupta and Sharma[32]. Orientation and training programmes for the use of e-resources should be organised because what matters in any library is for the user to use digital resources and services to their full potential. It's noteworthy to notice that library patrons in certain Indian special libraries prefer paper materials over electronic resources. It might be a lack of understanding or technical ability to access and retrieve information online.

Swamy and Kishore[33] performed research at the Institute of Financial Management and Research (IFMR) Library in Chennai to examine the use and satisfaction of print and electronic resources. According to the findings, people rely heavily on print resources. As a result, library officials must take the appropriate steps to ensure that e-resources are used effectively, and it is also imperative that the library's electronic resource collection be improved.

According to Fatma[34], the majority of library customers use various sorts of e-resources. The biggest limitations were identified as time-consuming downloading and bandwidth issues. The issue is that students are not adequately utilizing e-resources since they are unable to efficiently employ Boolean search strategies (Ukachi[35]) and lack sufficient computer expertise (Gakibayo, et. al.[36]). A good online access facility and infrastructure should be established for improved exploitation of e-resources.

Because people's information demands differ, their utilization of electronic resources differs. It mostly depends on the kind and scope of their academic activity. According to Masoumeh[37], e-journals play a significant role in meeting the diverse informational demands of researchers in this setting. The components to justify the rise in budget for e-journals acquisition include identifying the users' demands and the usage of subscribed e-resources, as well as increasing the cost of e-journals subscription and managing it with a restricted library budget. It is critical to maximising the use of e-resources.

Sohail and Alvi[38] did a study at Aligarh Muslim University to learn about the utilisation of web resources. The study's findings show that the majority of respondents use online resources, with Google being the most used search engine, followed by Yahoo. The slow speed was a key disadvantage while accessing web resources. According to the study, computer and internet facilities should be expanded to increase user awareness of web resources.

Puttaswamy and Krishnamurthy[39] did another study to investigate the relevance of information usage patterns and e-resource reliance levels among faculty members of several engineering institutions in the Bangalore region under the Vishveshwaraya Technological University (VTU), Karnataka. The study's findings show the necessity for an effective orientation programme to encourage students to use web resources and to provide them with the knowledge they require.

Remote access to licensed/subscribed e-resources has been proposed by Baikady, et al.[40], which provides a broad collection of electronic information resources for its users. The authors believe that the EZproxy platform is a solid way for offering remote access to the library's different subscription services and that it is particularly valuable for libraries in providing access to their electronic information resources to users who live off-campus.

According to Amusa et al.[41], effective use of electronic information sources on and offline requires the marketing of library e-resources, regular training programmes, continued subscription and updating of e-resources, alternate solutions for electric power sources, and enhancement of internet speed or suitable bandwidth subscriptions.

Due to the expansion of electronic resources, according to Anbu et al.[42], libraries are having trouble producing, acquiring, and managing e-resources.

Farid[43] found that the faculty members of government medical colleges use library resources, but the teaching faculty of private medical schools use various channels to keep up to speed on the themes and difficulties they confront. Faculty from commercial and government medical institutions sought information in different ways, according to the survey. As a result, library counsel will be more useful for users in making the most use of library resources and services (Pareek and Rana[44]).

Kandpal, et al.[45] carried out a similar study at NTR College of Veterinary Science and Sri Venkateswara Veterinary University in Gannavaram, Andhra Pradesh. The purpose of the study was to determine ICT exposure and e-resource utilization. The study found that students of Veterinary Sciences are aware of and use various e-resources. Based on the findings, the study recommended that students improve their internet speed and subscribe to additional e-resources. Usage statistics can be used to assess the utilization of electronic resources. It assists libraries in improving their services based on user research and in a networked setting (Tripathi and Jeevan[46]).

According to Londhe and Deshpande[47], the use of e-resources is growing, and more people are becoming aware of them and accessing them. Users in the sciences are more likely to use e-databases. Because databases contain a small number of titles with significant utilization, library collection growth is based on user demands and provides a variety of library services to meet users' information and document needs.

Libraries in the fields of science and technology in general, and medicine in particular, need to develop systems that allow library professionals to quantify perceived quality, satisfaction, and loyalty to libraries, as well as the degree to which specific elements of a library's services, collections, and environment contribute to those perceptions (Satpathy and Satpathy[48]).

Using the Integrated Digital Library (IDL) portal, Nemati and Fahimeh[49] performed a study to better understand and compare the awareness and capacity to use e-resources among medical students at three Iranian institutions. The survey discovered that respondents at three institutions have different levels of knowledge and use of e-resources. The lack of understanding regarding the IDL was identified as the major issue in the survey.

The goal of Hwang, et al.[50] is to explore and evaluate the usage patterns of electronic book (e-book) consumers as well as their impressions of e-books from various angles. The authors of the study concluded that the role of the library is most important in motivating its users to make the best use of the library's e-books and that users with higher education are more easily recognised and have better experiences with e-book services in South Korean university libraries.

According to Natalee[51], the availability of e-library resources has improved the overall utilization of library items in both electronic and print formats. The

library must take steps to encourage users to make proper use of its infrastructure and e-resources, and library staff must be trained to manage the library in an electronic environment, which includes critical factors like information literacy, computer competency, usefulness, and user attitude. (Millawithanachchi[52]).

Digital resources are heavily used by students and academic members. However, they encounter issues such as an excess of information on the internet and difficulties in accessing it (Bellary[53]).

E-learning, according to Kattimani and Naik[54], has become an intrinsic element of the educational system. E-vidya is an e-learning system. ICT and sophisticated technologies improved the learning process when it came to the efficient utilization of e-resources in any form.

Adeniran[55] performed research among Redeemer's University library users who were studying UG courses. The study discovered that, despite the library's adequate e-resources, utilization is low. It was proposed that the library solve accessibility concerns and incentivize people to use the library's e-resources.

According to Gaur and Tripathi[56], there is tremendous growth in the volume of e-resources-e-journals, e-books, online databases, and so on due to rapid advances in ICTs, and libraries are spending phenomenally on the acquisition of these e-resources to provide information services to their users. Its accessibility and use by future generations are dependent on continually expanding and changing technology.

In research done at Kerala Agricultural University, Thrissur, Francis[57] expressed the same viewpoint. According to the survey, consortia-based information services have gained traction throughout the world in recent years. The study discovered that the majority of users are familiar with using online digital information resources and that the users have learned the skills required in using and accessing digital information resources, making ensuring access to e-resources for digital natives a challenge for libraries.

3   CONCLUSION

From the above analysis, it is concluded that medical practitioners are very much satisfied with electronic publishing. Most of the study shows that they seek information in e-format instead of print. They want quick information instead of standing in a long queue. In addition, most of the studies reflected that they want to publish articles in e-format as well. The most preferable source of seeking information is electronic consortia. At the same time, there some obstacles have also been found in several studies. Financial constraint is alwaysan issue for the libraries. Due to insufficient funds, libraries are unable to arrange resources, however, they arrange from their external sources which is a time-consuming process, on the contrary, medical students expect quick information. Slow bandwidth and more recall and less precision value are the

most common cause of dissatisfaction. They expect a Google-like search engine. However, it may vary from platform to platform. The research in the field of medical science is more value-added for the country's growth and development as well as saves human lives from deadly diseases.The library should establish a collaborative network of resource sharing to minimize the scarcity of funds. Information managers may provide services beyond their expectations. In addition, Library professionals may equip themselves with all the latest trends and technology to bring efficiency and effectiveness tofunctioning libraries.

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