

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

December 2021

Review of Literature on Medical Librarianship in Pakistan

Ikram Ul Haq

Librarian, College of Dentistry, King Saud bin Abdulaziz University for Health Sciences, King Abdullah International Medical Research Centre, Riyadh, Saudi Arabia, ikram34439@yahoo.com

Follow this and additional works at: <https://digitalcommons.unl.edu/libphilprac>



Part of the [Health Sciences and Medical Librarianship Commons](#)

Haq, Ikram Ul, "Review of Literature on Medical Librarianship in Pakistan" (2021). *Library Philosophy and Practice (e-journal)*. 6594.

<https://digitalcommons.unl.edu/libphilprac/6594>

Review of Literature on Medical Librarianship in Pakistan

Ikram Ul Haq

*Librarian, College of Dentistry,
King Saud bin Abdulaziz University for Health Sciences, King Abdullah International Medical
Research Centre, Riyadh, Saudi Arabia*

Abstract

Background and Aim: The number of medical institutions is growing along with the development of the healthcare sector in the Pakistan. Similarly, the library and information science (LIS) professionals are rendering their valuable services in the teaching/learning process, research support and patient care in these institutions/organizations. The purpose of this study is to assess the publications' output in the area of medical librarianship in Pakistan.

Research Methodology: The documents written by Pakistani LIS authors on medical librarianship were extracted from various print and online sources. The data covered the period from 1960 to 2020, because the first document on medical librarianship was published 1960. Unpublished theses were not included and the data of retrieved documents has been added as an appendix of this paper. The periodic growth, authorship pattern, productive authors and preferred sources of publications were evaluated in the data analysis.

Results: A total of 165 documents contributed by 356 authors (including multiple counts) with an average of 2.15 authors per document were found. The ratio of the single-author pattern was high in the documents published before 2000 but after that, 86% of the documents was the result of research collaboration. Midrar Ullah emerged as the most productive author with 22 documents, followed by Rubina Bhatti and Salman Bin Naeem. All the retrieved documents were published in 57 sources, and the highest number of documents were published in the Pakistan Library and Information Science Journal followed by Library Philosophy and Practice (e-journal).

Significance of the Study: This is study significant and it will enhance the new information in the area of medical librarianship in the Pakistani context and is equally useful to LIS professionals, serving in other libraries. The appendix of the study will be served as reference tool and the findings will support the authorities of medical universities, medical librarians/researchers and the faculty of LIS departments to understand the status of medical librarianship in Pakistan.

Conclusion: Medical libraries are responsible to develop the systems and services to meet the knowledge-based information required by the users and parent organization. These libraries play a crucial role in the practice of health care delivery, education and research. The continues research in medical librarianship support to improving the library organisms and facilities. Pakistani LIS authors contributed ample research, especially during the last two decades. The shift from single-author to collaborative research and from opinion-based paper to empirical research was explicit. There is a need to activate the medical library association, establish national library of medicine and conduct more research on diverse aspects of medical librarianship.

Key words: Medical Librarianship, Research productivity, Library and Information Science Research, Pakistan, Bibliometric

Introduction

Medical and health sciences librarianship is the distinct branch of the library and information science (LIS) and one of the vital components of healthcare organizations. The LIS professionals serve the salient community of health professionals. Health care professionals should be well-aware of the current medical information, and up-to-date about the technological developments for teaching/learning process, research and most importantly, for patient care. The purpose can be accomplished by the well-stocked and well-equipped library with print and electronic learning resources along with supportive technologies as well as trained LIS professionals (Qureshi, 1990a; Mairaj & El-Hadi, 2012; Haq & Ullah, 2014).

The LIS professionals of Pakistan have been performing the creditable services in the medical libraries to fulfill the educational, research and patient care requirements of their clientele. Besides this, they are also producing valuable literature in the field of medical librarianship to improve the standard of services (Haq & Ullah 2014). The evaluation of literature on a specific topic, such as medical librarianship would not only support understanding the status of the profession, as well as the preparation of bibliography, is considered a helpful reference tool for researchers (Haq, 2013).

The history of medical education, in the area now located in Pakistan, was started 1860, when King Edward Medical College was established in Lahore. Pakistan came into being in 1947 and it inherited two medical colleges (Haider, 1981). Now the number of medical colleges rose to 118, (45 in public and 73 in private sectors), along with 59 dental colleges, (17 in public and 42 in private sectors) (<https://www.pmc.gov.pk/Colleges>). One hundred and four journals on biomedical science are being published from here (<https://www.pakmedinet.com/>). Medical personnel, including doctors, dentists, pharmacists, nurses, para professionals and axillary health professionals of Pakistan have been rendering their valuable healthcare services not only in Pakistan but also abroad. Medical librarians have adequately been organizing and providing the required information services to all medical personnel (Ullah et al., 2021). Haq and Rehman (2021) stated that out of all the research produced by Pakistani authors from 2001 to 2020, more than one-fourth (27%) consisted of biomedical sciences. Earlier, Meo, Almasri and Usmani (2013) quantified that 58,133 documents were produced by the Pakistan from 1996 to 2012, the share of medical sciences was counted 25,604 (44%).

The profession of medical librarianship in the Pakistan was a bit lucky in the beginning because renowned American medical librarian, Elieen R. Cunningham joined Basic Medical Sciences Institute, Karachi as visiting librarian in 1958. Now, this institute is attached with Jinnah Postgraduate Medical Centre, Karachi. She served two years in Pakistan and laid a foundation of medical librarianship (Haider 1981; Khan 1999; Sultana 1999). She wrote the first prominent article on medical librarianship of Pakistan and highlighted the problems faced by medical libraries in Pakistan such as shortage of foreign currency to procure new reading material, and inadequately trained staff. She was very optimistic that medical libraries would improve over time (Cunningham, 1960). Haider (1981) acknowledged Cunningham services in these words, “*the library [Basic Medical Sciences Institute) was fortunate to be headed by one of the most outstanding American medical librarians, viz, Mrs. E. R. Cunningham in the initial years of establishment*”. Zakiuddin Ahmed got the training of medical librarianship from Indiana University, USA on her recommendation and later he produced significant literature on medical librarianship during the

1960s. Moinuddin Khan (1999) wrote, “Mrs. Cunningham’s two years stay in Pakistan is crucial in developing the concept of medical librarianship in Third World.”

Haq (2015) mentioned in the preface of his book, “Medical Librarianship in Pakistan” that Mrs. Dorothy Jilani was the first medical librarian in Pakistan. She organized the library of Armed Forces Medical College (Now Armed Forces Post Graduate Medical Institute), Rawalpindi during 1955-1957. She classified the library material according to Dewey Decimal Classification Scheme and prepared the Card Catalogue of the Library. She was the wife of an Army doctor, K. Jilani. When the doctor went abroad for higher studies, eventually he met Dorothy and got married. Axford (1966) wrote the name of Dorothy Spofford, a staff member in the library of United States Information Services (USIS), Lahore who taught the library science classes in the University of Punjab during 1957-1958. Whether Dorothy Jilani and Dorothy Spofford were the same? I assumed, after serving two years in Rawalpindi, Dr. K. Jilani was posted/moved in Lahore, where his wife got another job in USIS, Lahore.

Ahmed (1966) described the four utmost requirements for the improvement of medical library services in Pakistan; adequate budget, flexible physical space, trained staff and quality services. He wrote another paper in which he stressed the acquisition of trained staff as the important ingredient for a successful medical library (Ahmed, 1969). Ansari (1974) reported that the one of main causes of inadequate medical research in Pakistan was due to non-availability of reference materials and lack of well-stocked libraries. He suggested that pharmaceutical industries should provide their support to improve the situation. Haider (1981) identified the problems faced by medical libraries and librarians, lack of funds, trained staff, service structure, modern technology and moreover the non-serious attitude of authorities towards libraries.

The administration of Aga Khan University with the assistance of British Council arranged a short course to train the local medical librarians in March 1987. Mr. Peter B. Morgan, medical librarian of Cambridge University and Moinuddin Khan of Aga Khan University were the resource persons, 20 individuals working in 18 different medical libraries of Pakistan participated in this workshop (Morgan, 1988). Pakistan Medical Library Association was also formed at the end of this workshop later it became the Medical Library Association of Pakistan (MELAP). Celebrated Pakistani atomic scientist Dr. Abdul Qadeer Khan presided its 50th session and appreciated the activities of MELAP. Azra Qureshi and other medical librarians produced valuable scholarly literature during this period. *Pakistan Library Bulletin* published a special issue on medical librarianship in 1999. Sain Muhammad Malik, former Librarian of Khyber Medical College, former President of Pakistan Library Association designed standards for medical libraries in 1983 and further revised in 1989 (Malik 1983; Malik 1989).

An important milestone event was taking place in 2003, when the “Third Regional Conference on Eastern Mediterranean Region (EMR) Health Sciences Virtual Library: Creating Digital Health Sciences Libraries in the Region” was held in Karachi on 3-6 September. The conference was organized by World Health Organization – Eastern Mediterranean Region in collaboration with College of Physicians and Surgeons Pakistan, Ziauddin Medical University, Aga Khan University and PASTIC. A number of international and local medical library experts participated and shared their experiences. This conference helped to enhance the image of medical librarianship in the country (Khalil, 2003).

Haq (2013) evaluated the 108 publications on medical librarianship produced by Pakistan. This paper also included the unpublished theses. The present study is the continuation of this work with some alteration. Valuable addition has been made in LIS literature of Pakistan by the LIS professionals during the last decade.

The study is intended to fill this gap. The study aimed to measure the publication growth on medical librarianship in Pakistan from 1960 to 2020.

Objectives

Following were the objectives of the study:

1. To assess the periodic growth of literature on medical librarianship in Pakistan
2. To review the authorship patterns
3. To highlight the productive authors
4. To examine the preferred source of publications

Literature Review

This section presents the review of relevant literature on medical librarianship in Pakistan. Cunningham recorded the early history of medical librarianship in Pakistan. Ahmed (1969) and Haider (1981) pointed out the problems faced by medical libraries and their possible solutions. Morgan (1988) supported to the establishment of a medical library association in Pakistan.

Anjum (1990) surveyed 15 medical libraries of Punjab and Islamabad. He reported that nearly all libraries were facing financial constrain, lack of professional staff, deficiency of adequate reading material and lack of cooperation. Qureshi (1990) recommended that there should be a proper service structure for the medical librarians and this would positively affect their efficiency and performance. Hanif (1991) lamented that medical librarianship had not been given its due recognition and he recommended to establishing the National Library of Medicine in the country.

Naeem Aon Jafarey was a medical researcher and journalist, occasionally, he had been writing on the improvement of medical library services in Pakistan. In his first paper, he opined that the standard of the library could not be measured by its collections but by the quality of its services. He suggested improving the status of librarians and to prepare the mechanism of resource sharing among libraries (Jafarey, 1971). In another paper, he appreciated the inter-library agreement made by the three medical libraries of Karachi and he expected that the medical library association would bring positive changes in medical librarianship (Jafarey, 1988). In 1994, he observed the changing environment from print to digital and assumed that the future medical libraries might be without shelves, meanly relying on digital resources (Jafarey, 1994).

Ahmed (1965) explained the three-fold connection of physicians with a medical library. Firstly, the primary task of a physician is to treat the sick. Every physician has his specialty to deal with. The books and other related reading material to him is as a tool of his art, a general sort of way to aware the latest developments, so he must keep in touch with the library. Secondly, the physician has to carry out research and publish their findings. It is undeniable fact that the quality of teaching and medical practice in the health care organization entirely depends on the quality of research that is conducted in the organization. And finally, the practitioners become mentors for the young medical students. They convey the standard teaching to their specialty to their students. A good teacher

always needs the latest knowledge on his specialty and a mandatory amount of information is not possible without utilizing libraries.

Qureshi (1985), Fatima (1999), Sultana (1999) and Fatima, Saher and Alam (1999) presented the case studies of the medical libraries of Aga Khan University, Baqai Medical University, Jinnah Postgraduate Medical Institute and Ziauddin Medical University, respectively, and all these case studies were published in the special issue of PLB.

Bhatti and Asghar (2010) conducted a user satisfaction survey about the library resources and services of Quaid-e-Azam Medical College, Bahawalpur. The majority of the respondents showed their dissatisfaction with library resources and services. Iqbal, Mahmood and Arif (2012) assessed the users' need of postgraduate medical students and the majority were not gratified with the library resources and services. Mairaj and Naseer (2013) examined the users' satisfaction at the Punjab Institute of Cardiology, Lahore, most of the respondents were satisfied about library services and resources but they showed their concern about library timing, furniture and space. Rubina Bhatti and Muhammad Waqas Javed conducted three studies on Nishtar Medical College, Multan. Firstly, they inspected the information usage pattern of postgraduate students. Secondly, they evaluated the internet usage of postgraduate medical students and lastly, they surveyed the usage of social media by medical and dental students (Javed & Bhatti, 2013; Javed & Bhatti, 2014; Javed & Bhatti, 2015). Rafiq (2018) assessed the utilization of E-book and Rafique (2019) reviewed the knowledge sharing practice by medical students.

Ullah and Anwar (2012) carried out a study on the needed competencies by practicing medical librarians and chairpersons of library committees in the medical libraries of Pakistan. Out of 84 competencies, librarians validated 83 and chairpersons of library committees validated 80 competencies. The study concluded that adequate knowledge of medical sciences terminology would be required as additional competency for medical librarians. Ullah and Ameen (2014) explored the status of information literacy practices in the academic medical libraries of Pakistan and stated that 74% of the respondents had offered such services, ranging from library orientation to research-oriented sessions. The paper suggested that there should be a collaboration between librarians and faculty to integrate information literacy as part of the curriculum.

Mairaj and El-Hadi (2012) assessed the status of Information communication technologies (ICTs) in the 22 medical libraries of Lahore. The study provided the detail of hardware, automation, internet accessibility, resource sharing practices, library websites, and training of ICTs for library staff. Lack of support from administration and insufficient budget were the main problems in the effective utilization of ICTs in the medical libraries of Lahore, Pakistan.

Haq (2013) presented the bibliometric review of the literature on medical librarianship published from Pakistan from 1947 to 2013. A total of 108 items were found contributed by 87 authors and 75% of the documents were written by a single author. The majority of work was published as journal articles (57.79%), followed by theses (26.60%), conference papers (12.84%) and books/book chapters (2.72%). Maximum literature was published from 1990-1999 and authors affiliated with Karachi contributed 32% of the literature. The study concluded that continuing professional education like seminars and workshops of research writing could enhance research productivity.

Haq and Ullah (2014) traced the history and development of medical libraries in Pakistan and described the role of a medical librarian. The purpose of establishing medical libraries is to provide the required information services to fulfill the users' needs as well as to accomplish the objectives of its parent organization.

Ullah et al., (2021) investigated the impact of libraries on clinical decision-making and medical practice in the two institutions of Khyber Pakhtunkhwa, Pakistan. Periodicals were considered a vital source of current information and the study suggested although the users were satisfied with resources and services provided by the libraries. Users demanded more electronic learning resources.

Dimitroff (1992) inspected the 1,218 documents published in Bulletin of Medical Library Association from 1996 to 1990. Academic medical librarians contributed more than half (51%) of the literature while faculty of library schools contributed 13% of the literature. Forty-six percent of the work was written by a single author.

Rana and Sahu (2021) examined the research growth of the Journal of Medical Library Association (JMLA) from 2002 to 2020. A total of 1,356 documents was published and these documents gained 16,465 citations with an average of 12.14 citations per document. The highest number of papers was contributed by a single author pattern (n=534; 39.38%) and 79% (1,067) of the documents were contributed by the authors affiliated to the United States.

Haq (2021) analyzed the publication output of the Health Information and Libraries Journal (HILJ) from 2001 to 2020. A total of 920 papers were published contributed by 2,226 authors, with a mean of 2.42 authors per paper. Forty percent (n=368) of the papers were written by a solo author, open-accessed papers gained the higher citation impact and about half of the papers (47%) were contributed by the authors of the United Kingdom.

Methodology

Various online and printed sources were searched to extract the record of publications on medical librarianship in Pakistan. The unpublished theses / dissertations and conference papers were excluded. The published articles, books, book chapters, and conference papers published in the proceedings were included in the survey. A total of 165 documents were found that was published from 1960 to 2020. All the records were typed in text file later shifted to Microsoft Excel for analysis.

Limitation(s)

The author of this paper tries his level best to collect all the published material, but this kind of effort cannot be devoid of errors and might be a chance that some publications are overlooked or missed.

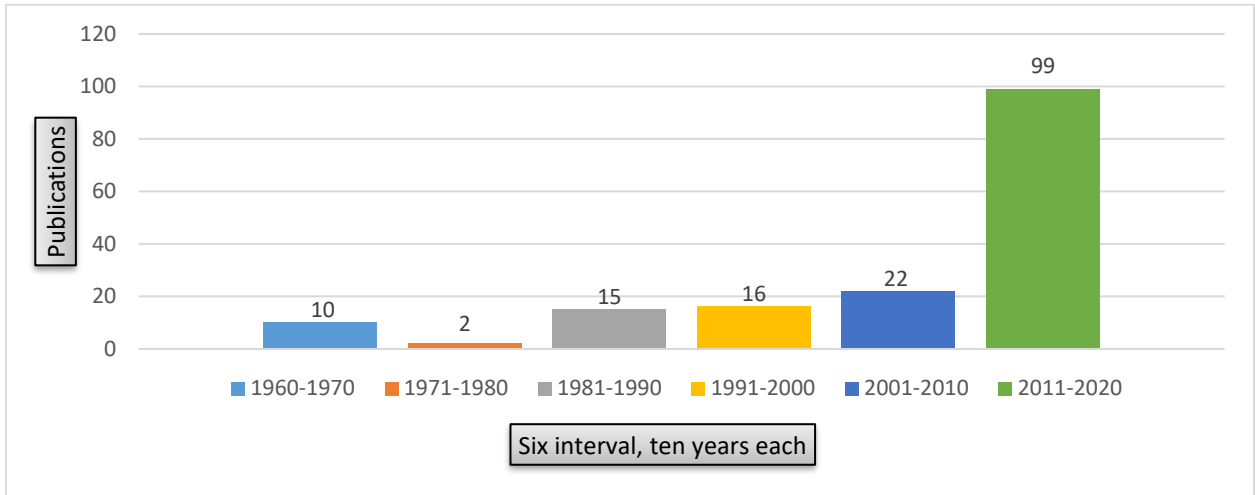
Results

Periodic growth of documents

A total of 165 documents on medical librarianship were found, including, 11 published conference papers, three books and one book chapter. The first paper was published in 1960, and 26% (n=43) of the documents were found till 2000, means, one-fourth of the documents (n=43; 26%) were published in the first 40 years from 1960 to 2000, while the rest of the (n=122; 74%) literature was

produced from 2001 to 2020. The highest number of documents (n=24) were published in the year 2020. Figure 1 showed that the highest number of documents were published in the last interval (2011-2020) and the least number of documents were published during the second interval (1971-1980). During the first interval (1960-1970), four papers were contributed by two expatriate librarians, four by Zakiuddin Ahmed, and one by a medical doctor (Detail available in Appendix).

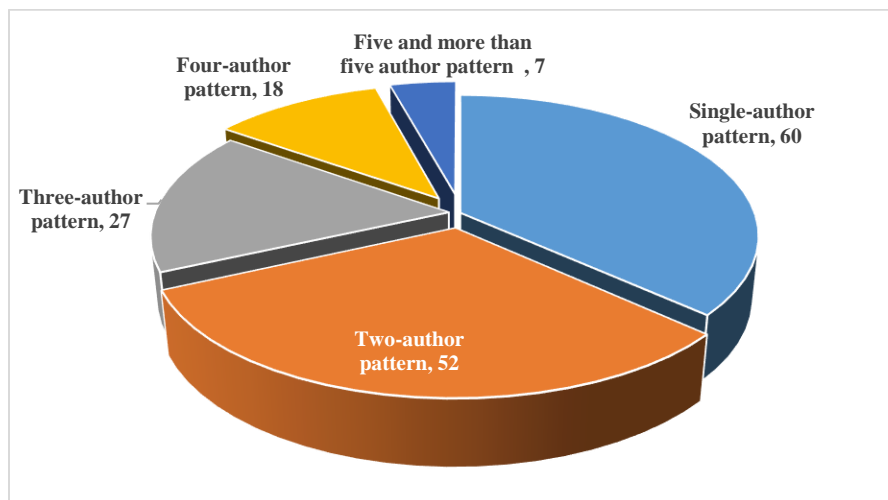
Figure 1, Distribution of documents by six intervals



Authorship patterns

Figure 1 revealed the analysis of authorship pattern that slightly more than one-third (n=60; 37%) of the documents were contributed by a single author. The ratio of the single-author documents was high (n=41; 95%) from 1960 to 2000, whereas this ratio was significantly decreased (n=19; 15.57%) in the literature published from 2001 to onwards. Fifty-two papers (31.51%) were written by two-author pattern, followed by three-author (n=27; 16.36%), and four-author (n=18; 10.90%) patterns. The collaboration of five and or more than five authors was found in seven documents only.

Figure 1, Analysis of authorship pattern



Total authors

A total of 356 authors including multiple counts contributed in 165 documents with an average of 2.15 authors per document. By means of a separate author, a total of 142 authors were identified, 76 (53.52%) authors contributed in the single document each, followed by 27 (19%) and 18 (13%) authors contributed in two and three documents each, respectively. Fifteen authors contributed five or more than five documents each.

Significant individual contribution

Midrar Ullah emerged as the most prolific author with 22 (13.33%) documents in the subject area of medical librarianship in Pakistan. Presently, he is serving as Chief Librarian at the National University of Sciences and Technology, earlier he served as Librarian and Literature Search Officer at Army Medical College for about twenty years. He was awarded the “Cunningham Memorial International Fellowship Award” by the Medical Library Association, the United States in 2012. He conducted research on “Development and validation of competencies for medical librarians in Pakistan” to fulfill the requirement of M.Phil. degree and his area of research was “The status of information literacy instruction in medical libraries of Pakistan: An appraisal” during his Ph.D. He obtained both degrees from the Department of Information Management, University of Punjab in 2011 and 2015, respectively. He produced four and six articles in research collaboration with Mumtaz Ali Anwar and Kanwal Ameen, respectively.

Rubina Bhatti was the second most productive author with 19 papers. Currently, she is serving as Dean, Faculty of Social Sciences, and chairperson of Department of Library and Information Science, at the Islamia University of Bahawalpur. She supervised a number of research theses that varies from M.L.I.S. (Master of Library and Information Science) to Ph.D. levels on the various aspects of medical librarianship. Salman Bin Naeem and Muhammad Waqar Javed were her students and she collaborated in the number of articles on medical librarianship with them.

Salman Bin Naeem, presently serving as Associate Professor at the Islamia University of Bahawalpur, earlier served as Medical Librarian, The Children’s Hospital & Institute of Child Health, Multan, contributed 16 documents. His area of research is “Health Information Outreach”. Rubina Bhatti was his supervisor in his Ph.D. and both collaborated in number of research projects.

Zameer Husain Baladi and Ikram Ul Haq, contributed 16 and 14 documents respectively. Both are working as medical librarians at King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia. Their areas of research are mostly related to bibliometrics. Arza Qureshi and Saeed Ullah Jan, both contributed nine papers each. Azra Qureshi served as Chief Librarian at Aga Khan University and former President of Medical Library Association of Pakistan (MELAP) and Saeed Ullah Jan is the chairperson, Department of Library and Information Science, Khushal Khan Khattak University Karak. Shakil Ahmed Khalil, contributed seven papers, he served in one Pakistani and two Saudis medical universities. Muhammad Ibrahim, Chief Librarian of Khyber Medical College, Abid Hussain, Librarian Elementary & Secondary Education Department, KPK, contributed six and five papers, respectively.

Moinuddin Khan, Saeed Ullah, Ghulam Farid, Sarah Saeed, and Zakiuddin Ahmed also contributed significant literature. Ihsan Basit and Ghulam Farid collaborated on the medical sciences papers with medical practitioners.

Although, the first paper on Pakistan medical librarianship was published in an international journal (Cunningham, 1960), the second paper was published in an international journal after the gap of 21 years (Haider, 1981). In the first 40 years, out of the 43 documents, only four documents were published in international journals and two of them were contributed by international authors (Cunningham, 1960; Morgan, 1988) and one was the letter to the editor (Khan, 1999). So one significant paper was produced by Pakistani LIS author (Haider, 1981) at the international level from 1960 to 2000.

A total 122 documents were identified on Pakistan medical librarianship from 2001 to 2020 and the majority of the documents (n=69; 57%) were published in international sources, and only 53 (43%) documents were published in local sources.

All the documents were published in 57 different sources and there were 38 sources with one publication each. The highest number of papers (n=39; 24%) were published in Pakistan Library Bulletin, now renamed as Pakistan Library and Information Science Journal. This journal published a special issue on medical librarianship in 1999. Library Philosophy and Practice (e-journal) occurred as the second most preferred source (n=22; 13%), followed by Health Information and Libraries Journal (n=12). The detail of other sources is presented in Table -1

Table 1, List of top 10 preferred sources of publications

Serial No.	Name of Journal	Number of Publications
1.	Pakistan Library Bulletin (PLB), now renamed as Pakistan Library and Information Science Journal (PLISJ)	39
2.	Library Philosophy and Practice (e-journal)	22
3.	Health Information and Libraries Journal	12
4.	The Journal of the Pakistan Medical Association: JPMA	6
5.	Pakistan Library Association Journal	5
6.	Pakistan Journal of Information Management & Libraries	5
7.	Journal of Hospital Librarianship	5
8.	Bulletin of the Medical Library Association now renamed as Journal of the Medical Library Association: JMLA	4
9.	Rawal Medical Journal	4
10.	Pakistan Armed Forces Medical Journal	4

Discussion

Medical sciences are developing quickly and health care professionals require rapid and proficient access to current information sources to abreast themselves with emerging techniques, new theories, innovative procedures and most important with the relevant reading materials. The well-organized and well-stocked libraries fulfill their specialized information needs. Library plays the role of a heart or nucleus in the medical teaching institution. It is a paradise for book-lovers, researchers and readers.

The present study was limited to 165 documents on medical librarianship published from 1960 to 2020, 26% of the documents were published in the first 40 years while 74% were published after 2000. Sixty percent (n=90) of the documents were published in the last ten years. The highest number of documents were written by a single author pattern (n=60; 36%), followed by two-author

pattern (n=52; 31.51%). One hundred and forty-two authors contributed in 165 documents and 53% of the authors contributed in a single document each. Midrar Ullah contributed the highest number of documents, Haq (2013) also endorsed the same finding in terms of the most productive author. Rubina Bhatti and Salman bin Naeem also contributed significant literature. Non-residents Pakistani LIS authors also shared valuable literature on medical librarianship, especially in bibliometric studies. The highest number of papers were published in the *Pakistan Library and Information Science Journal*, followed by *Library Philosophy and Practice* (e-journal).

Earlier studies discussed the problems faced by medical libraries (Anjum 1990; Qureshi 1990). Later, the users' responses regarding library services and resources were also recorded (Bhatti & Asghar 2010; Iqbal, Mahmood & Arif 2012; Mairaj & Naseer 2013). Javed and Bhatti (2013) reported that the postgraduate students of Nishtar Medical College-Multan were satisfied with the learning resource of the library, students used the internet for educational purposes but they showed their concerns on availability of databases. A recent study conducted by Ullah et al., (2021) on the impact of libraries on and medical practice in the two institutions of Khyber Pakhtunkhwa, Pakistan. Respondents were satisfied with the services but they demanded more electronic learning resources with the accessibility of the scientific contents. Sadiq, Shahzad and Bhatti (2021) pointed out the barriers to carrying out successful resource-sharing among the medical libraries of Lahore. The findings showed the financial constrain, lack of staff, the unsupportive attitude of authorities, and unavailability of union catalogue were major barriers.

Pakistan has a decent history of medical education as well as library science education. The first medical college was established in 1860, and the first library science class started in 1915. Now the number of medical colleges reached 118, all have libraries, along with other medical libraries located in postgraduate medical institutions, medical universities and medical research organizations. The data of a total number of medical libraries in Pakistan is not available. The data should be maintained by the medical library association. The efforts had been made time to time to formulate medical library association at the national level, but mostly it was operated at a local level, limited to one city, instead of a national level. That's why the up-to-date statistics are not existing. An international medical librarian, motivated the medical library community of Pakistan to create their association in 1987, so the Pakistan Medical Library Association came into being (Morgan, 1988). But it was remained inactive and in 1991, Azra Qureshi and her colleague revised it as Medial Library Association of Pakistan (MELAP) at Aga Khan University. The main objectives of MELAP were to promote medical librarianship, improve the services and impart continuing medical library education. MELAP was very active during 1999-2005, even collaborated with World Health Organization to organize an international conference in which 24 Gulf librarians and 100 Pakistani librarians participated. Recently, a meeting was held in Karachi to reactivate MELAP by Shakil Ahmed Khalil and other medical librarians of the city. It is suggested that senior medical librarians should come forward for the betterment of the medical librarianship of Pakistan.

There is a high time to establish the National Library of Medicine in Pakistan. It would serve as a national center for health care information with state of art scholarly electronic resources. Now medical libraries in Pakistan have been subscribing to medical journals for their respective communities. For cost effective perspective, instead of subscribing to journals individually, the National Library of Medicine should subscribe and give access to all medical libraries.

Conclusion

The evaluation of literature on medical librarianship reflects its status in Pakistan. Adequate literature on medical librarianship has been produced after the commencement of M.Phil. and Ph.D. programs in various universities of Pakistan. More than half (60%) of the literature was published in the last decade. It shows that as far as the literature is a concern, medical librarianship is much better than agriculture, law and engineering librarianship. There is a dire need to revive the Medical Library Association in all provinces of Pakistan for the development of other aspects of medical librarianship, like resource sharing, training, and maintaining the statistics. It is obvious that if the medical librarianship would grow, it would positively affect medical education, research and practice. Some medical practitioners also composed their reflections and collaborated with librarians about the issues of medical libraries.

This study contains valuable information on medical librarianship in the Pakistani context and it is equally useful to the rest of the world to assess the contribution of developing countries in medical librarianship. The findings of the current study would support the authorities in medical universities, medical librarians, researchers and the faculty of LIS departments in the policy-making process.

References

- Ahmed, S. (1965). Medical Libraries – A Karachi surgeon's point of view. In: *Proceeding of the Symposium on Development of Scientific and Technical Libraries of Pakistan*, Karachi, 14-16 March 1963, organized by Pakistan National Scientific and Technical Documentation Centre (PANSDOC). Edited by Said Ahmed. Karachi: 1965, 42-44.
- Ahmed, Z. (1966). Need for Medical Libraries in Pakistan. *Journal of the Pakistan Medical Association*, 16(9), 341-344.
- Ahmed, Z. (1969). Development of Medical Libraries and Manpower Needs in Pakistan. *Pakistan Library Bulletin*, 1(2-3), 99-108.
- Anjum. M. A. K. (1990). Medical Libraries in Punjab and Islamabad: a Profile. *PULSAA News*, 2(3), 31-43.
- Ansari, R. A. (1974) Medical Studies and Research in Pakistan. *Pakistan Library Bulletin*, 6(3-4), 17-28.
- Axford, H. W. (1966). Library Education at the University of the Punjab: American Influence. *Journal of Education for Librarianship*, 6(4), 280-289.
- Bhatti, R. & Asghar, M. B. (2010). Library Services to Medical Students Quaid-e-Azam Medical College, Bahawalpur: A Case Study. *Pakistan Library & Information Science Journal*, 41(1), 23-31
- Bhatti, R., & Javed, M. W. (2014). Experience of internet utilization by post graduate students at Nishter Medical College, Multan, Pakistan. *Library Philosophy and Practice (e-journal)*, 1081.
- Cunningham, E. R. (1960). The Library of the Basic Medical Sciences, Institute in Pakistan. *Bulletin of the Medical Library Association*, 48(3), 292-298.

- Dimitroff, A. (1992). Research in health sciences library and information science: a quantitative analysis. *Bulletin of Medical Library Association*, 80(4), 340-346.
- Fatima, N. (1999). Baqai Medical University Library (in Urdu). *Pakistan Library Bulletin*, 30(3-4), 1-14.
- Fatima, N., Saher, N. & Alam, M. K. (1999). Learning Resource Centre of Ziauddin Medical University. *Pakistan Library Bulletin*. 30(3-4), 1-16
- Haider, S. J. (1981). Medical Information in Pakistan. *International Library Review*, 13, 117-28.
- Hanif, A. (1991). Medical Librarianship in Pakistan. (Editorial). *Pakistan Library Bulletin*, 22 (4), i-ii.
- Haq, I. H. & Rehman, Z. U. (2021). Medical Research in Pakistan: A Bibliometric Evaluation from 2001 to 2020. *Library Philosophy and Practice (e-journal)*, 5294.
- Haq, I. U. & Ullah, M. (2014). Development of Health Sciences Libraries and Medical Librarianship in Pakistan. *Pakistan Library and Information Science Journal*, 45(2), 49-57.
- Haq, I. U. (2013). *Medical Librarianship in Pakistan: Bibliometric Analysis*. Paper presented in Pakistan Library Association International Conference, held at the University of Punjab, Lahore.
- Haq, I. U. (2015). *Medical Librarianship in Pakistan: Selected articles, Bibliography and List of Medical Libraries*. Islamabad: Library Promotion Bureau & Pakistan Library Association (HQ), 274p.
- Haq, I. U. (2021). Mapping of Research Output of " Health Information and Libraries Journal"(2001-2020). *Library Philosophy and Practice (e-journal)*, 5294.
- Iqbal, A., Mahmood, K., & Arif, M. (2012) Information Needs and Seeking Behaviour of Medical Research in Pakistan: A Survey. *Pakistan Library & Information Science Journal*, 43(3), 18-33
- Jafarey, N. A. (1971). Medical Libraries. *Journal of the Pakistan Medical Association*, 21, 199.
- Jafarey. N. A. (1988). Library Services. *Journal of the Pakistan Medical Association*, 38(2), 28.
- Jaferey, N. A. (1994). Libraries without Shelves. *Journal of Pakistan Medical Association*, 44(6), 157.
- Javed, M. W., & Bhatti, R. (2013). Information Usage Patterns of Postgraduate Students at Nishtar Medical College, Multan, Pakistan. *Journal of Hospital Librarianship*, 13(4), 353-361.
- Javed, M. W., & Bhatti, R. (2015). Usage of Social Media by Medical and Dental Students at Nishtar Medical College, Multan, Pakistan. *Journal of Hospital Librarianship*, 15(1), 53-64.
- Khalil, S. A. (2003). Networking and cooperation between medical libraries of Pakistan; Proceeding WHO 3rd Regional Conference on EMR Health Sciences Virtual Library. *Pakistan Library Bulletin*, 34 (3), 3-6.
- Khan, M. (1999). Eileen R. Cunningham. *Bulletin of the Medical Library Association*, 87(1), 95.

- Mairaj, M. I. & El-Hadi, W. M. (2012). Applications of information and communication technologies in libraries in Pakistan. *Journal of the Medical Library Association: JMLA*, 100(3), 218-222.
- Mairaj, M. I., & Naseer, M. M. (2013). Library services and user satisfaction in developing countries: a case study. *Health Information & Libraries Journal*, 30(4), 318-326.
- Malik, S. M. (1983). *Standards for Medical Libraries*. Peshawar: Pakistan Library Association, 33p.
- Malik, S. M. (1989). Standards for Medical college library. In: *Standardization of library services in Pakistan: Proceeding of the two-day workshop held on 28-29th January 1989, at Karachi*, Edited by S. A. Khan, Karachi: Pakistan Library Association, 62-70.
- Meo, S.A., Almasri, A. A., & Usmani, A. M. (2013). Research Productivity of Pakistan in Medical Sciences during the period 1996-2012. *European Review for Medical and Pharmacological Sciences*, 17(21), 2839-2846.
- Morgan, P. B. (1988). A workshop for medical librarians in Pakistan. *Health Libraries Review*, 5(1), 7-10.
- Qureshi, A. (1985). The Agha Khan University Library: a Perspective. *Pakistan Library Bulletin*, 16(3-4), 79-82.
- Qureshi, A. R. (1990). Medical libraries of Punjab: issues and concerns. *PULSAA News*, 2(3), 182-184.
- Qureshi, N. (1990a). The Role of Medical College Libraries in Pakistan. *Pakistan Library Association Journal*, 10, 10-15.
- Rafiq, S. (2018). Use of E-Resources by Medical Sciences Faculty: A Case of CMH Lahore Medical College and Institute of Dentistry. *Pakistan Library & Information Science Journal*, 49(1), 42-51.
- Rafique, G. M. & Anwar, M. A. (2019). Barriers to Knowledge Sharing among Medical Students in Pakistan. *Journal of Hospital Librarianship*, 19(3), 235-247.
- Rana, C. & Sahu, R. R. (2021). Quantitative Research of the Journal of Medical Library Association (JMLA) Publish during 2002-2020: A Bibliometric Analysis. *Library Philosophy and Practice (e-journal)*, 5825.
- Sultana, S. (1999). Jinnah Postgraduate Medical Centre (JPMC) Library. *Pakistan Library Bulletin*, 30(3-4), 17-20.
- Ullah, M., & Ameen, K. (2014). Current status of information literacy instruction practices in medical libraries of Pakistan. *Journal of the Medical Library Association*, 102(4), 281-287.
- Ullah, M., & Anwar, M. A. (2013). Developing competencies for medical librarians in Pakistan. *Health Information & Libraries Journal*, 30(1), 59-71.
- Ullah, S., Jan, S. U., Khan, G., Hayat, T., & Jan, M.Y. (2021). Impact of Medical Libraries on Clinical Decision Making in Pakistan. *Library Philosophy and Practice (e-journal)*, 4689.

Appendix

1960-1970

1. Eileen R. Cunningham. (1960). The Library of the Basic Medical Sciences Institute in Pakistan. *Bulletin of the Medical Library Association*, 48(3), 292-298.
2. J.G. Robert Asthon. (1961). Medical Librarianship: Future in Pakistan. *Pakistan Library Review*, 3(3-4), 18-20.
3. Eileen R. Cunningham (1961). The Development of Special Libraries. *Pakistan Library Review*, 3(1), 8-12.
4. Zakiuddin Ahmed. (1962). Medical Libraries in Pakistan: their problems and solutions. In: *Pakistan Library Association, Proceeding of the Fourth Annual Conference*, Lahore, 26-29 December, 1961. Edited by Anis Khurshid. Karachi: Pakistan Library Association, 63-66. [Conference Paper]
5. J.G. Robert Asthon. (1962). Basic Medical Science Institute Library. In: *Pakistan Library Association, Proceeding of the Fourth Annual Conference*, Lahore, 26-29, December 1961. Edited by Anis Khurshid. Karachi: Pakistan Library Association, 58-62. [Conference Paper]
6. Said Ahmed. (1965). Medical Libraries – A Karachi surgeon’s point of view. In: *Proceeding of the Symposium on Development of Scientific and Technical Libraries of Pakistan*, Karachi, 14-16 March 1963, organized by Pakistan National Scientific and Technical Documentation Centre (PANSDOC). Edited by Said Ahmed. Karachi: 1965, 42-44. [Conference Paper]
7. Zakiuddin Ahmed. (1965). Need for Medical Libraries in Pakistan. In: *Pakistan Librarianship 1963-1964. Proceeding of the sixth Annual Pakistan Library Association Conference*, Lahore, 26-29 March 1965. Edited by M.S. Khan Dacca: Pakistan Library Association, 124-129. [Conference Paper]
8. Also: Zakiuddin Ahmed. (1966). Need for Medical Libraries in Pakistan. *Journal of the Pakistan Medical Association*, 16(9), 341-344.
9. Zakiuddin Ahmed. (1969). Development of Medical Libraries and Manpower Needs in Pakistan. *Pakistan Library Bulletin*, 1(2-3), 99-108.
10. K. A. Rashid. (1970). Medical Manuscripts in Libraries and Private Collections for Purpose of Medical Research. *Pakistan Library Bulletin*, 2(3-4), 113-114.

1971-1980

11. Naeem Aon Jafarey. (1971). Medical Libraries. *Journal of the Pakistan Medical Association*, 21, 199.
12. Reyaz Ahmed Ansari. (1974) Medical Studies and Research in Pakistan. *Pakistan Library Bulletin*, 6(3-4), 17-28.

1981-1990

13. Syed Jalaluddin Haider. (1981). Medical Information in Pakistan. *International Library Review*, 13(1), 117-128.
14. Sain Muhammad Malik. (1983). *Standards for Medical Libraries*. Peshawar: Pakistan Library Association, 33p.[Book]
15. Azra Qureshi. (1985). The Agha Khan University Library: a Perspective. *Pakistan Library Bulletin*, 16(3-4), 79-82.

16. Moinuddin Khan. (1986). Role of Libraries in a developing society (with particular reference to medical libraries). *Pakistan Library Bulletin*, 17(3-4), 19-25.
17. Jameel Jalibi. (1987). Medical Library Services in Pakistan. *Pakistan Library Bulletin*, 18(2-3), 3-5.
18. First Medical Librarians Workshop, March 7-16, 1987 held at the Health Sciences Library of the Aga Khan University, (1987). *Pakistan Library Bulletin*, 18(2-3), 2-3.
19. Peter B. Morgan, (1988). A workshop for medical librarians in Pakistan. *Health Libraries Review*, 5(1), 7-10.
20. Naeem Aon Jafarey. (1988). Library Services (Editorial). *Journal of the Pakistan Medical Association*, 38(2), 28.
21. Azra Qureshi. (1988). Medlars: Medical Literature Analysis and Retrieval System. (Urdu). *Pakistan Library Association Journal*, 4, 52-61.
22. Moinuddin Khan. (1988). Fugitive Literature in its acquisition in health sciences. *Pakistan Library Association Journal*, 5, 12-17.
23. Sain Muhammad Malik. (1989). Standards for Medical college library In: *Standardization of library services in Pakistan: Proceeding of the two-day workshop held on 28-29th January 1989, at Karachi*, Edited by S. A. Khan, Karachi: Pakistan Library Association, 62-70. [Conference Paper]
24. Manzoor A.K. Anjum. (1990). Medical Libraries in Punjab and Islamabad: a Profile. *PULSAA News*, 2(3), 31-43.
25. Naimuddin Qureshi. (1990). The Role of Medical College Libraries in Pakistan. *Pakistan Library Association Journal*, 10, 10-15.
26. Azizur Rehman Qureshi. (1990). Medical libraries of Punjab: issues and concerns. *PULSAA News*, 2(3), 182-184.
27. A. A. Shoro, (1990). The role of health societies libraries in Pakistan. In: *Proceeding of the library week: Popularizes and promote library movement in Pakistan* organized by Pakistan Library Association (Headquarter) held at University of Karachi on 7-12 October, 1989, p70-73. [Conference Paper]

1991-2000

28. Akhtar Hanif. (1991). Medical Librarianship in Pakistan. (Editorial). *Pakistan Library Bulletin*, 22 (4), i-ii.
29. Nighat A. Sukhera (1992). Medical Librarianship: Need for training professionals in Pakistan: In Sajjad-ur-Rehman, Abdus Sattar Chaudhry and Afzal Haq Qarshi, (Eds). *Library Education in Pakistan; Past, Present and Future*. Lahore; PULSSA, 67-76. [Book Chapter].
30. Moinuddin Khan. (1993). Impact of library legislation on national libraries with reference to national medical library, In: *Impact of library legislation on development of library services in Pakistan, Proceeding of the PLA 14th Conference* Edited by S. A. Khan, held at Sheikh Zayed Islamic Centre, University of Karachi, March, 7-9th 1991, 266-270. [Conference Paper]
31. Naeem Aon Jafarey. (1994). Libraries without Shelves. *Journal of Pakistan Medical Association*, 44(6), 157.
32. Shoukat Sultana. (1991). CD-ROM: A New Advance in Medical Information Retrieval. *Pakistan Library Bulletin*, 27(1-2), 11-14.
33. Murad Khan, Shoukat Sultana, & M.A. Saleem Siddiqui. (1996). *Library Science for Medical Scholars*. Karachi: Azam Sons, 206p.[Book]

34. Shakil Ahmed. (1997). Medical Information Via the Internet. *Pakistan Library Bulletin*, 28 (3), 11-19.
35. Azra Qureshi. (Oct. 1996-Oct. 1997). An Academic Library's Role in Medical Education. *Pakistan Library Association Journal*, 19-20, 79-85.
36. Moinuddin Khan. (1999). Eileen R. Cunningham. (Letter to Editor). *Bulletin of the Medical Library Association*, 87(1), 95.
37. Shoukat Sultana. (1999). Jinnah Postgraduate Medical Centre (JPMC) Library. *Pakistan Library Bulletin*, 30(3-4), 17-20.
38. Nasim Fatima, Naveed-e-Saher, & Muhammad Khurshid Alam. (1999). Learning Resource Centre of Ziauddin Medical University. *Pakistan Library Bulletin*, 30(3-4), 1-16.
39. Nasim Fatima. (1999). Baqai Medical University Library (in Urdu). *Pakistan Library Bulletin*, 30(3-4), 1-14.
40. Shakil Ahmed Khalil. (1999). Aga Khan University Health Science Library: A Pilot Study of Resource Library. *Pakistan Library Bulletin*, 30(1-2), 19-28.
41. Nudrat Ara Alvi. (1999). Medline Searching of Medical Literature. *Pakistan Library Bulletin*, 30(3-4), 30-40.
42. Moinuddin Khan. (1999). Medical Librarianship (Editorial). *Pakistan Library Bulletin*. 30(3-4), i-ii.
43. Azra Qureshi. (1999). Bain-ul-Aqwami Tibbi Librarians Congress (Urdu). *Pakistan Library Bulletin*, 30 (3-4), 26-29.

2000-2010

44. Azra Qureshi, Muhammad Khurshid Alam, Syed Ahmed Naqvi. (2001). Using technology for disseminating information in Pakistani medical colleges. *INSPEL*, 35(3), 172-182.
45. Syed Ahmed Naqvi, Muhammad Khurshid Alam, Azra Qureshi. (2001). Towards a Virtual Health Science Library. *Second Regional Conference on Medical Librarianship: Building the Virtual Health Sciences of the Eastern Mediterranean Tehran, Islamic Republic of Iran*, 11-13 November, 2001. [Conference Paper].
46. Azra Qureshi, Syed Ahmed Naqvi. (2001). Information Technology Infrastructure: AKU Experience. *Second Regional Conference on Medical Librarianship: Building the Virtual Health Sciences of the Eastern Mediterranean Tehran, Islamic Republic of Iran*, 11-13 November, 2001. [Conference Paper].
47. Shakil Ahmed Khalil. (2001). Online Resource Sharing in Pakistan. *Pakistan Library Bulletin*, 32(3-4), 14-17.
48. Shakil Ahmed Khalil. (2003). Networking and cooperation between medical libraries of Pakistan; Proceeding WHO 3rd Regional Conference on EMR Health Sciences Virtual Library. *Pakistan Library Bulletin*, 34 (3), 3-6.
49. Syed Attaullah Shah, Shahid Masud Baig, Azra Qureshi, Shakil Ahmed Khalil. (2005). Digital library services and their impact: a case study of the Faculty of Health Sciences Library, Aga Khan University. *Pakistan Library & Information Science Journal*, 36(3), 17-26.
50. Sohail Anjum. (2005). Role of Medical Library in Medical Education and Research. *Journal of Postgraduate Medical Institute*, 19(3), 341-342.
51. Midrar Ullah. (2006). Impact of online resources on medical research: A citation analysis of Pakistani medical journals. *Rawal Medical Journal*, 31(2), 73-74.
52. Midrar Ullah, Muhammad Najeed Khan. (2006). Online Biomedical Resources: A Pakistani Perspective. *Pakistan Armed Forces Medical Journal*, 56(3), 306-310.

53. Midrar Ullah. (2007). Use of Internet by medical postgraduate trainees. *Pakistan Library & Information Science Journal*, 38(3), 16-20.
54. Midrar Ullah, Muhammad Najeed Khan. (2007). Attitude towards information and communications technology among undergraduate students in Army Medical College: A survey. *Pakistan Armed Forces Medical Journal*, 57(3), 201-205.
55. Khawaja Mustafa, Syed Attaullah Shah. (2007). Online Consumer Health Information in Pakistan. *Pakistan Journal of Library & Information Science*, 8, 63-74.
56. Midrar Ullah. (2007). Medical Library Cooperation: A Necessity. *Rawal Medical Journal*, 32(1), 74-76.
57. Midrar Ullah. (2007). Citing Online Resources in Vancouver Style. *Rawal Medical Journal*, 32(1), 74-76.
58. Midrar Ullah, Idrees Farooq Butt, Muhammad Haroon. (2008). The Journal of Ayub Medical College: a 10-year bibliometric study. *Health Information & Libraries Journal*, 25(2), 116-124.
59. Muhammad Javed, Syed Shoaib Shah. (2008). Rawal Medical Journal-An analysis of citation pattern. *Rawal Medical Journal*, 33(2), 254-257.
60. Midrar Ullah, Idrees Farooq Butt, Azhar Mubarak. (2008). The accuracy of references in manuscripts selected for publication in Pakistan Armed Forces Medical Journal (PAFMJ). *Pakistan Armed Forces Medical Journal*, 58(3), 299-303.
61. Midrar Ullah, Idrees Farooq Butt. (2008). Rating Pakistani medical journals using the principles of citation analysis. *Health Information & Libraries Journal*, 25(1), 50-54.
62. Shakil Ahmed Khalil, S. Abdul Saeed. (2008). Role of libraries and information centers: Problem-based Learning in Medical Education. *Pakistan Library & Information Science Journal*, 39(1), 21-27.
63. Ikram Ul Haq. (2009). Human resources at medical libraries of Islamabad and Rawalpindi. *Pakistan Library & Information Science Journal*, 40(3), 21-27.
64. Shakil Ahmad Khalil, Musa Khan (2009). Networking and Cooperation between Medical Libraries of Pakistan. *Pakistan Library & Information Science Journal*, 40(3), 3-9.
65. Syed Attaullah Shah, Azra Qureshi. (2009). An Evaluation of Integrated Library System (ILS): An In-House Developed Software. *Pakistan Library & Information Science Journal*, 40(1), 13-20.
66. Rubina Bhatti, Mahe Bushra Asghar. (2010). Library Services to Medical Students Quaid-e-Azam Medical College, Bahawalpur: A Case Study. *Pakistan Library & Information Science Journal*, 41(1), 23-31.

2011-2020

67. Midrar Ullah, Kanwal Ameen, Salman Bakhtar. (2011). Professional activities, needed competencies and training needs of medical librarians in Pakistan. *Education for Information*, 28(2-4), 115-123.
68. Muhammad Ijaz Mairaj, Widad Mustafa El-Hadi. (2012). Applications of information and communication technologies in libraries in Pakistan. *Journal of the Medical Library Association: JMLA*, 100(3), 218-222.
69. Azhar Iqbal, Khalid Mahmood, Muhammad Arif. (2012) Information Needs and Seeking Behaviour of Medical Research in Pakistan: A Survey. *Pakistan Library & Information Science Journal*, 43(3), 18-33.
70. Ashraf Sharif. (2012). Citation analysis of editorials of core Pakistani medical journals. *Pakistan Library & Information Science Journal*, 43(1), 27-32.

71. Mahe Bushra Asghar, Farzana Shafique. (2012). Service evaluation in special libraries of Bahawalpur: a comparative study of GCT, QMC, and UCET. *Library Philosophy and Practice (e-journal)*, 822.
72. Midrar Ullah, Mumtaz Ali Anwar. (2013). Developing competencies for medical librarians in Pakistan. *Health Information & Libraries Journal*, 30(1), 59-71.
73. Muhammad Waqas Javed, Rubina Bhatti. (2013). Information Usage Patterns of Postgraduate Students at Nishter Medical College, Multan, Pakistan. *Journal of Hospital Librarianship*, 13(4), 353-361.
74. Salman Bin Naeem, Shamshad Ahmed, Muhammad Waqar. (2013). The impact of hospital libraries on patient care and clinical decision-making: a survey of teaching hospitals. *Journal of Hospital Librarianship*, 13(2), 120-130.
75. Salman Bin Naeem, Shamshad Ahmed, Amjid Khan. (2013). Information seeking in primary care: a survey of doctors working in remote government health facilities in Pakistan. *Library Philosophy and Practice (e-journal)*, 1009.
76. Ghulam Farid, Muhammad Abiodullan & Muhammad Ramzan. (2013). A comparative Study of Information Seeking Behaviors of Medical Faculty Working in Government and Private Run Medical Colleges. *International Journal of Information Management Science*, 2(1), 17-24.
77. Muhammad Ijaz Mairaj, Mirza Muhammad Naseer. (2013). Library services and user satisfaction in developing countries: a case study. *Health Information & Libraries Journal*, 30(4), 318-326.
78. Salman Bin Naeem, Shamshad Ahmed, Kamran Ishfaq. (2013). Information needs and sources of doctors working at remote government health facilities in Pakistan. *Journal of Health Informatics in Developing Countries*, 7(2), 141-152.
79. Ashraf Sharif, Normand Demers. (2013). Connecting Aga Khan University's nine campus libraries across three continents through a shared library system. *IFLA Journal*, 39(4), 319-326.
80. Anil Zafar. (2013). Student's Perception of Electronic Resources in MBBS and Nursing; Aga Khan University. *Pakistan Library & Information Science Journal*, 44(1), 31-37.
81. Midrar Ullah, Kanwal Ameen. (2014). Current status of information literacy instruction practices in medical libraries of Pakistan. *Journal of the Medical Library Association*, 102(4), 281-287.
82. Rubina Bhatti, Muhammad Waqas Javed. (2014). Experience of internet utilization by post graduate students at Nishter Medical College, Multan, Pakistan. *Library Philosophy and Practice (e-journal)*, 1081.
83. Ikram Ul Haq, Midrar Ullah. (2014). Development of Health Sciences Libraries and Medical Librarianship in Pakistan. *Pakistan Library & Information Science Journal*, 45(2), 49-57.
84. Mumtaz Ali Anwar, Midrar Ullah. (2014). Health Sciences Information Services in Pakistan in the 21st Century. International Perspective and initiatives; International trends in health science librarianship part 12: South Asia (India, Pakistan and Sri Lanka). *Health Information & Libraries Journal*, 31(4), 320-322.
85. Rubina Bhatti, Salman Bin Naeem, Rana Muhammad Jamal, Syed Tahir Mahmood Shah. (2014). Internet-based information usage pattern of paediatricians: a survey of southern Punjab, Pakistan. *Library Philosophy and Practice (e-journal)*, 1023.

86. Midrar Ullah, Kanwal Ameen. (2014,). Strategies for the effective implementation of information literacy instruction in medical libraries of Pakistan. In *European Conference on Information Literacy* (pp. 494-503). Springer, Cham.
87. Midrar Ullah, Sahab Ud Din, Irfan Shah. (2014). Awareness and usage of PakMediNet among medical and dental faculty members and postgraduate students. *University Journal of Medicine and Dentistry*, 1(2), 35-40.
88. Muhammad Waqas Javed, Rubina Bhatti, Shakeel Ahmad Khan. (2014). Satisfaction with Library Services: A Survey of Post Graduate Students in Nishtar Medical College, Multan. *Pakistan Library & Information Science Journal*, 45(4), 77-83.
89. Muhammad Waqas Javed, Rubina Bhatti. (2015). Usage of Social Media by Medical and Dental Students at Nishtar Medical College, Multan, Pakistan. *Journal of Hospital Librarianship*, 15(1), 53-64.
90. Waqar Ahmed, Muhammad Shahid Soroya, Ghulam Farid Malik. (2015). Service quality of library front desk staff in medical colleges of Lahore. *Library Management*, 36(1/2), 12-22.
91. Muhammad Ibrahim, Saeed Ullah Jan. (2015). Bibliometric analysis of the Journal of Pakistan Medical Association from 2009 to 2013. *Journal of Pakistan Medical Association*, 65(9), 978-983.
92. Salman Bin Naeem, Rubina Bhatti. (2015). Clinical information needs and access in primary health care: a comparative cross-sectional study of rural and non-rural primary care physicians. *Health Information & Libraries Journal*, 32(4), 287-299.
93. Tazeem Shahbaz, Ghulam Farid, Rana Sajjad Asghar, & Abdul Rashid. (2015). Hepatitis B and C: Knowledge, Attitude and Behavior of health care workers at RLMC and affiliated Hospital (AMTH & HLH). *The Professional Medical Journal*, 22(11), 1383-1389.
94. Amir Latif, Naveed Akhtar Satti, Zia Ahmed Awan. (2015). Users' Satisfaction with Library Resources and Services: A Case Study Allied Health Sciences Library, Shifa Tameer-e-Millat University, Islamabad. *Pakistan Library Association Journal (Online)*, 25-33.
95. Midrar Ullah, Kanwal Ameen. (2015). Perceptions of medical librarians towards the importance of information literacy skills. *Pakistan Journal of Information Management & Libraries*, 16, 1-7.
96. Ikram Ul Haq. (2015). *Medical Librarianship in Pakistan: Selected Articles, Bibliography and List of Medical Libraries*. Islamabad: Pakistan Library Association (HQ) and Library Promotion Bureau, 274p. [Book]
97. Sadaf Rafiq, Nosheen Fatima Warraich. (2016). Utilization of E-Books among Undergraduate Medical Students at Lahore. *Pakistan Journal of Information Management & Libraries*, 17, 191-200.
98. Midrar Ullah, Kanwal Ameen. (2016). Barriers when advocating or providing information literacy instruction in medical institutions of Pakistan. *Pakistan Journal of Information Management & Libraries*, 17, 146-154.
99. Salman Bin Naeem, Rubina Bhatti. (2016). Barriers in seeking health information from primary healthcare facilities in Pakistan. *Information Development*, 32(4), 1014-1026.
100. Salman Bin Naeem, Rubina Bhatti. (2016). Barriers Faced by Rural and Non-Rural Primary Care Physicians During the Process of Seeking Health Information from their Practice Settings. *Pakistan Journal of Information Management & Libraries*, 17, 69-85.
101. Zameer Hussain Baladi, Manzoor Hussain, Senthilvel Vasudevan. (2016). Graphic Users of Interface (GUI) in Medical and Dental College's Libraries in Pakistan: An Overview. *e-Library Science Research Journal*, 4(8), 1-5.

102. Zameer Hussain Baladi, Mohammad Khalaf Al-Mutairi. (2016) A Bibliometric Appraisal Pakistan Journal of Medical Research; 2001-2015. *Indian Stream Research Journal*, 6(9), 1-9.
103. Saeed Ullah, Saeedullah Jan, Tahir Jan, Hafiz Nafees Ahmad, Muhammad Yahya Jan, Muhammad Abdur Rauf. (2016). Journal of College of Physicians and Surgeons Pakistan: Five Years Bibliometric Analysis. *Journal of College of Physicians and Surgeons Pakistan*, 26(11), 920-923.
104. Zameer Hussain Baladi, Manzoor Hussain, Loung Umedani, Senthilvel Vasudevan. (2016). Usage of Information, User's Satisfaction and Professional Performance in the Library of Institute of Chest Diseases Kotri in Sindh Area of Pakistan. *e-Library Science Research Journal*, 4(7),1-10.
105. Zameer Hussain Baladi. (2016). Journal of College of Physicians and Surgeons Pakistan (JCPSP) – A Bibliometric Study 2000-2015. *Review of Research International Online Multidisciplinary Journal*, 5(10), 1-10.
106. Mumtaz Ali Anwar, Midrar Ullah. (2017). Developing an instrument for the validation of competencies: the case of medical librarians. *Library Philosophy and Practice (e-journal)*, 1533.
107. Saeed Ullah, Hafiz Nafees Ahmad, Saeed Ullah Jan, Tahir Jan, Sabir Shah, Najma Iqbal Butt, Muhammad Yahya Jan. (2017). a analysis of Pakistan Journal of Surgery: A bibliometric lens from 2007-2016. *Pakistan Journal Surgery*, 33(2), 123-127.
108. Ghulam Murtaza Rafique, Mumtaz Ali Anwar. (2017). Motivating Knowledge Sharing Among Undergraduate Medical Students of the University of Lahore, Pakistan. *Journal of Information & Knowledge Management*, 16(4), 1750041.
109. Zameer Hussain Baladi, Loung V. Umedani, (2017). Pakistan Journal of Medical Sciences: A bibliometric assessment 2001-2010. *Pakistan Journal of Medical Sciences*, 33(3), 714-719.
110. Rubina Bhatti, Salman Bin Naeem, Kamran Ishfaq (2017). A Comparative Analysis of e-book Use among Undergraduate Medical Students with respect to their Gender. *Medical Forum Monthly*, 28(4), 116 -117.
111. Salman Bin Naeem, Rubina Bhatti, Kamran Ishfaq. (2017). Barriers to Evidence Based Nursing Practices in Tertiary Care Hospitals. *Pakistan Library & Information Science Journal*, 48(3), 35-43.
112. Salman Bin Naeem, Rubina Bhatti, Kamran Ishfaq. (2017). Nurses' use of Information Sources during Nursing Care Decisions. *Pakistan Library & Information Science Journal*, 48(2), 62-71.
113. Zameer Hussain Baladi. (2017). Journal of Liaquat University of Medical & Health Sciences (JLUMHS): Bibliometric Profile 2002-2015. *Journal of the Liaquat University of Medical and Health Sciences*, 16(3), 158-164.
114. Zameer Hussain Baladi. (2017). Bibliometric study of published articles in Journal of Surgery Pakistan. *Journal of Surgery Pakistan (International)*, 22(2), 56-59.
115. Amir Latif, Zia Ahmed, Naveed Akhtar Satti, Ikram Ul Haq. (2017) Information Need and Seeking Behavior of Medical Students at Foundation University Medical College, Pakistan. *Indian Stream Research Journal*, 7(3), 1-9.
116. Zameer Hussain Baladi, Mohammad Khalaf Al-Mutairi, Nasrin Al Harthy, Ikram Ul Haq. (2017). A Bibliometrics Study of Pakistan Pediatric Journal (PPJ): 2015–1996. *Pakistan Pediatrics Journal*, 41(4), 243-248.

117. Rubina Bhatti, Salman Bin Naeem. (2017). Measure of Healthcare Professionals' Behavioral Outcomes Using a Social Learning Theory. In *European Conference on Information Literacy* (pp. 513-525). Springer, Cham.
118. Sadaf Rafiq. (2018). Use of E-Resources by Medical Sciences Faculty: A Case of CMH Lahore Medical College and Institute of Dentistry. *Pakistan Library & Information Science Journal*, 49(1), 42-51.
119. Ghulam Farid, Muhammad Shahid Soroya, Nazish Masooma. (2018). Perception and Behavioral Intention of Electronic and Print format books among medical students: A Comparative Study. *Pakistan Library & Information Science Journal*, 49(1), 52-60.
120. Saeedullah Jan, Abid Hussain, Muhammad Ibrahim, Sarah Saeed. (2018). Use of internet by the teaching faculty of Peshawar Medical College, Peshawar, Khyber Pakhtunkhwa, Pakistan. *The Journal of the Pakistan Medical Association*, 68(3), 459-462.
121. Salman Bin Naeem, Rubina Bhatti, Kamran Ishfaq. (2018). Doctors and Nurses' Use of Internet for Information Seeking from Clinical Practices. *Pakistan Library & Information Science Journal*, 49(3), 3-12.
122. Salman Bin Naeem, Rubina Bhatti, (2018). Proposed information outreach programme in primary and secondary health care of Punjab, Pakistan. *Health Information & Libraries Journal*, 35, 160-164.
123. Sadaf Shahid. (2018). Modern library services in developing world: An overview of Aga Khan University Libraries. *Pakistan Library & Information Science Journal*, 49(3), 41-48.
124. Zameer Hussain Baladi, Mumtaz Hussain Satti. (2018). Comparative Research Productivity of Pakistan Heart Journal and Journal of Saudi Heart Association (JSHA): A Bibliometric Analysis 2012–2016. *Pakistan Heart Journal*, 51(1), 9-14.
125. Zameer Hussain Baladi, Ikram Ul Haq, Manzoor Hussain, Gulnaz Elahi. (2018). Pakistan Journal of Pharmaceutical Sciences; A Bibliometric Assessment from 1998-2012. *Library Philosophy and Practice (e-journal)*, 1743.
126. Zameer Hussain Baladi, Ikram Ul Haq. (2018). Comparative Bibliometric Analysis of Six Health Science Journals Published in Pakistan 2006-2015. *Library Philosophy and Practice (e-journal)*, 2001.
127. Muhammad Mudasir Saleem, Mishal Pervaiz, Bilal Baig, Waseem Ahmed Khan, Bilqees Akhtar Malik (2018). Pakistan Armed Forces Medical Journal: Five Year Bibliometric Analysis from 2011 to 2015. *Pakistan Armed Forces Medical Journal*, 68(4), 1037-1041.
128. Saeed Ullah, Saeed Ullah Jan, Sabir Shah, Najma Iqbal Butt. (2018). Literature Citation by Medical Researchers: A Citation Analysis of Three Pakistani Medical Journals. *Journal of Postgraduate Medical Institute (Peshawar-Pakistan)*, 32(4), 414-418.
129. Ishtiaq Ahmed, & Midrar Ullah (2018). A 10-Year Bibliometric Study of Pakistan Journal of Pharmaceutical Sciences. *Library Philosophy and Practice (e-journal)*, 2128.
130. Ghulam Murtaza Rafique & Mumtaz Ali Anwar (2019). Barriers to Knowledge Sharing among Medical Students in Pakistan. *Journal of Hospital Librarianship*, 19(3), 235-247.
131. Ikram Ul Haq, Gulnaz Elahi, & Iqra Dana (2019). Research Publications on Medical Microbiology in Pakistan during the period 2013-2017. *Library Philosophy and Practice (e-journal)*, 2253.
132. Midrar Ullah & Kanwal Ameen. (2019). Teaching information literacy skills to medical students: perceptions of health sciences librarians. *Health Information & Libraries Journal*, 36, 357–366.
133. Sadaf Rafiq & Nosheen Fatima Warraich. (2019). Medical undergraduate students' perception towards the use and non-use of e-books: a case from Pakistan. *Collection and Curation*, 38(2), 32-38.

134. Zameer Hussain Baladi. (2019). Research productivity of the Journal of Pakistan Medical Association published during the period 1978-2017. *Library Philosophy and Practice (e-journal)*, 2817.
135. Zameer Hussain Baladi, Mohammad Khalaf Al Mutairi, Nesrin Al Harthy & Farhan Alenazi. (2019). Mapping the contribution in research productivity of Colleges of Applied Medical Sciences affiliated with universities of Saudi Arabia published in PubMed indexed journals during the period 2009-2018. *Library Philosophy and Practice (e-journal)*, 2982.
136. Zameer Hussain Baladi, Mohammad Khalaf Mutairi, & Abdullah Alabdali (2019). The research trends of emergency medical services in Saudi Arabia during the period 2004 – 2018. *Library Philosophy and Practice (e-Journal)*, 3024.
137. Abid Hussain, Saeed Ullah Jan, Muhammad Ibrahim, Abdus Salam, & Sarah Saeed. (2019). Statistical Analysis of the Journal of Saidu Medical College, Swat, Pakistan. *Journal of Saidu Medical College*, 9(1), 117-121.
138. Saeed Ullah, Dr. Saeedullah Jan, Tahir Jan, Muhammad Yahya Jan (2019). Comparative Research Productivity Journal of Medical Sciences (JMS) and Journal of Postgraduate Medical Institute (JPMI): A Bibliometric Analysis 2014-2018. *Journal of Information Management and Library Studies*, 2(1), 52-63.
139. Ihsan Basit, & Hafiz Nazeer Hussain. (2019). Linked Data Applications for Content Management of Serial Publications: A Case Study of Proceedings SZMC. *Library Philosophy and Practice (e-journal)*, 2986.
140. Zameer Hussain Baladi, Mumtaz Hussain Satti. (2019). Pakistan Journal of Ophthalmology: A bibliometric review from 2018-1995. *Pakistan Journal of Ophthalmology*, 35(4), 217-222.
141. Vankata Ratnadeep Suri, Shaheen Majid, Schubert Foo, Hannah Trinity Dumauual-Sibal, & Yun-Ke Chang. (2019). Understanding Health Literacy Through the Lens of Phronesis: The Case of Coronary Artery Disease Patients. In *European Conference on Information Literacy* (pp. 166-175). Springer, Cham. [Conference Paper]
142. Ghulam Murtaza Rafique, Mumtaz Ali Anwar. (2020). Knowledge Sharing Channels used by Medical Students in Pakistan. *Library Philosophy and Practice (e-journal)*, 3945.
143. Ikram Ul Haq, Midrar Ullah, Muhammad Tanveer. (2020). Research Output of Army Medical College, Pakistan: A Bibliometric Study based on Scopus Database. *Library Philosophy and Practice (e-journal)*, 3926.
144. Muhammad Ibrahim, Abid Hussain, Arif Khan, Abdus Salaam, Sarah Saeed. (2020). Current Status of Information Literacy Practices in Medical Libraries of Pakistan. *Library Philosophy and Practice (e-journal)*, 4858.
145. Muhammad Ibrahim, Abid Hussain, Sarah Saeed, Abdus Salam. (2020). Examining Usability of the Internet by the Teaching Staff of the Peshawar Medical College. *Library Philosophy and Practice (e-journal)*, 5007.
146. Muhammad Tanveer, Amiya Bhaumik, Shafiqul Hassan, Ikram Ul Haq. (2020). A Scopus Based Bibliometric Evaluation of Saudi Medical Journal from 1979 to 2019. *Journal of Talent Development and Excellence*, 12(2s), 2328-2337.
147. Muhammad Tanveer, Ikram Ul Haq, Amiya Bhaumik, Zahoor ur Rehman. (2020). Saudi Medical Journal: A Citation Analysis. *Journal of Seybold Report*, 15(9), 3006-3017.
148. Saeed Ullah, Saeed Ullah Jan. (2020). Bibliometric Analysis of Published Literature in Journal of Medical Sciences Peshawar-Pakistan. *Library Philosophy and Practice (e-journal)*, 4722.
149. Shakeel Ahmad Khan. (2020). Educational Uses of Social Media among Medical Students: A Case of King Edward Medical University, Lahore, Pakistan. *Library Philosophy and Practice (e-journal)*, 4163.
150. Shakil Ahmad. (2020). Measuring Research Performance of the Oldest Medical School of Pakistan. *Library Philosophy and Practice (e-journal)*, 4114.

151. Zahida Anjum. (2020). Visualize the Research Productivity of the Journal of Pakistan Association of Dermatologists Published from 2019 – 1999. *Scholars Journal of Applied Medical Sciences*, 8(8), 1895-1900.
152. Zameer Hussain Baladi, Abdullah Alabdali. (2020). Employing bibliometric analysis on research published in Pakistan Journal of Medical and Health Sciences from 2019–2009. *Library Philosophy and Practice (e-journal)*, 4392.
153. Zameer Hussain Baladi, Tahira Yasmin, Iqra Dana, Catharine Leo. (2020). Trends on Dermatology Research Published in the Journal of Pakistan Association of Dermatologists, Indian Journal of Dermatology, and Dermatology Research and Practice Journal from 2009 – 2019. *Scholars Journal of Applied Medical Sciences*, 8(8), 1855-1858.
154. Seema Gul, Shafiq Ur Rehman, Murtaza Ashiq, Amira Khattak. (2020). Mapping the Scientific Literature on COVID-19 and Mental Health. *Psychiatria Danubina*, 32(3-4), 463-471.
155. Salman Bin Naeem, Rubina Bhatti. (2020). Measures of self-efficacy among doctors in conducting an online search for clinical decision making. *Health Information and Libraries Journal*, 37(2), 128-142.
156. Salman Bin Naeem, Rubina Bhatti. (2020). The Covid-19 ‘infodemic’: a new front for information professionals. *Health Information & Libraries Journal*, 37(3), 233-239.
157. Muhammad Yousuf Ali, Salman Bin Naeem, Rubina Bhatti. (2020). Digital Technologies Applications in the Provision of Library and Information Services in Health Crises. *Journal of Hospital Librarianship*, 20(4), 342-351.
158. Muhammad Yousuf Ali, Rubina Bhatti. (2020). COVID-19 (Coronavirus) Pandemic: Information Sources Channels for the Public Health Awareness. *Asia Pacific Journal of Public Health*, 32(4), 168-169.
159. Peter Gatiti, Anil Khamis. (2020). A bibliometric analysis of the Aga Khan University Research Contribution in Early Child Development. *International Journal of Child Development and Mental Health*, 8(2), 48-59.
160. Muhammad Yousuf Ali, Peter Gatiti. (2020). The COVID-19 (Coronavirus) pandemic: reflections on the roles of librarians and information professionals. *Health Information & Libraries Journal*, 37(2), 158-162.
161. Ikram Ul Haq, Shafiq Ur Rehman, Hanan M. Al-Kadri, Rai Khalid Farooq. (2020). Research productivity in the health sciences in Saudi Arabia: 2008-2017. *Annals of Saudi Medicine*, 40(2), 147-154.
162. Hafiz Nazeer Hussain, Ihsan Basit & Hafiz Faheem Ullah Khan. (2020). Study of Birth Complications in Diabetic Mothers. *International Journal of Diabetics & Metabolic Disorders*, 5(1), 10-23.
163. Amani H. Alhibshi, Widyana A. Alamoudi, Ikram Ul Haq, Shafiq Ur Rehman, Rai K. Farooq, Foziah J. Al Shamrani. (2020). Bibliometric analysis of Neurosciences research productivity in Saudi Arabia from 2013-2018. *Neurosciences*, 25(2), 134-143.
164. Amir Latif, Ikram Ul Haq. (2020). Bibliometric research productivity analysis: A case study of Shifa Tameer-e-Millat University. *Journal of Shifa Tameer-e-Millat University*, 3(1), 49-55.
165. Saeed Ullah Jan, Abid Hussain, Muhammad Ibrahim, Muhammad Akhtar Rind. (2020). Statistical Analysis of the Research Journal of Physical Education and Sport Sciences the Shield. *Library Philosophy and Practice (e-journal)*, 4479.