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Use of E-Journals by Medical Professionals: A Study of Indian Council of Medical Research (ICMR) Libraries in Delhi

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Introduction

The enormous developments in Information and Communication Technology (ICT) have changed the world information scene. It has brought drastic changes in the way the information generated, stored, organized, accessed, retrieved and consumed. In the present time almost information sources are available in electronic form. Many printed journals have now been made available online. E-journals are major resources for scholarly communication. They take less time to publish, occupy less space and can access from remote location.

Objectives of the Study

The main objectives of the study are to know the usage of e-journals among the users of ICMR libraries in Delhi. The objectives include:

1. To discover awareness and extent of use of e-journals in ICMR libraries;
2. To identify the purpose of using e-journals;
3. To discover the frequency of using e-journals;
4. To discover the most used format for downloading e-journal articles;
5. To identify the problems being faced by the users while accessing e-journals.

6. To discover existing user training programmes

Literature Review

Baljinder Kaur and Verma (2009) discuss the awareness level of IIT users towards use of e-resources particularly e-journals. They found that the impact of scholarly e-journals on academic community and suggested right ways to increase the usage of e-journals. They have raised the issue of accessing them at public domain that is accessing these facilities from outside the library for registered users. Khan and Ahmed (2009) explore the comparative use of e-journals among researchers of AMU and BHU. They found that the researchers of the both universities are much aware about the use of e-journals facility in respective universities. They sought the purpose of using e-journals facility. Deahpande and Pathak (2008) analyze the role of e-journals among astronomy and astrophysics libraries in India. The study discussed the matter of awareness, place, and frequency of accessing e-journals. They also have given emphasis to information literacy programmes. Moghaddam and Talawar (2008) explore the use of electronic journals at the Indian Institute of Science libraries in India. The questionnaire method was used to collect the data from respondents. Dhingra and Mahajan (2007) examine the use of electronic journals at A.C. Joshi Library of Panjab University, Chandigarh. It has taken several issues regarding usage of e-journals among users and highlights the major problems to accessing them. They found that lack of proper training and infrastructure facility hinders the use of e-journals. They have given prolific suggestions for further improvement. Raza and Upadhyay (2006) have studied the usage of e-journals by the researchers of Aligarh Muslim University. The article revealed the awareness level of researchers about e-journals, appropriate place for accessing them, purpose of use and the main obstacles which are faced by the researchers while accessing the e-journals. Its findings stress orientation programmes that should be conducted frequently by the library for researchers. The journal Nature, Science and Proceeding of the National Academy of Science are most popular journals among the respondents. Bhatt (2005)⁹ has stated that e-journals play a pivot role in the research and development activities. He has discussed in details the concept of e-journals and its benefits. He has also evaluated the problems and perspectives of e-journals in an Indian context. Renwick (2005) determines the medical science faculty's perception regarding use of e-resources in number and frequency in Medical Science Library at The University of the West Indies. He found that the most of the respondents were computer literate, hence they were quite used to these resources. The most of the respondents felt need of training in the form of workshops. Tenopir, King and Bush (2004) investigated how medical faculty members use scholarly journals, whether print or electronic, what is the pattern to use them and what are the similarities and differences between the use of journals by medical faculty and faculty in other disciplines. They found that medical faculty read more journals' article as compared to other scientists. The medical faculty relies more on the print form of the journal rather than electronic. The main purpose of using journal is to support primary research and keep up-to-date. Singh (2003) discussed the concept of e-journal portal and their role in the library and information centers. He defines the importance of e-journal portals in acquisition and dissemination of full text information to library and information centers. Some e-journal portals such as Emerald, Science Direct, J-Gate and IDEAL are defined in paper. He also explored the various facets and issues of e-portal journals in brief.

Scope of the Study

The scope of the study is limited to health science institutes which have been co-affiliated to ICMR Headquarters in Delhi region. These institutes have been conducting research in diverse fields of biomedical sciences. Their libraries are well equipped and providing adequate resources to the users which are associated to the respective institutes. This study focuses on the usage pattern of e-journals among the members of their institutes. The study covers the various types of users like, researchers, scientists, doctors, faculty, DNB students etc. While conducting the study we have undertaken the following ICMR Libraries of Delhi region including its Headquarters:

1. Indian Council of Medical Research (ICMR) Headquarters, New Delhi;
2. Institute of Pathology (IOP), New Delhi;
3. National Institute of Medical Statistics (NIMS), New Delhi;

⁹“Use of E-Journals by Medical Professionals: A Study of Indian Council of Medical Research (ICMR) Libraries in Delhi,” Dr. K P Singh, Malkeet Singh Gill. *Library Philosophy and Practice* 2012

4. National Institute of Malaria Research (NIMR), New Delhi.

Methodology

This study is a questionnaire based survey of ICMR Libraries use among users. The simple, well recognized questionnaire was designed in a way to collect the relevant data from the respondents. The appropriate questions have been added in the questionnaire and discarded those questions which could create confusion. The questionnaire was designed while keeping in mind the objectives of the study. Its design is based on review of literature. The questionnaires were distributed among the users i.e. Academic staff, Scientists, Doctors, Faculty, Research Associates, Research Scholars, DNB students, Post-doctoral fellows etc.

The collected data through the questionnaire was thoroughly organized and tabulated by using simple statistical methods. It summarizes and analyses user responses to understand the research problems and to find out the solution of related problems. All questions in the received back filled questionnaire were analyzed to prepare appropriate tables for further interpretation. The separate tables were prepared for each aspect asked from the users. In the end, findings, conclusion as well as suggestions have been given, which are based on the analysis.

Hypotheses

1. Most of the users of ICMR Libraries are well aware about the availability of e-journals;
2. PDF format is the most preferred for downloading articles;
3. The users easily access e-journals mostly due to information literacy programmes.

Analysis and Discussion

The following table shows that total sample size and response rate of users which have been received in the study. It also shows that the gender and age group of the respondents in these institutions.

Table 1: Administration the Questionnaires by Institutions Sample Size, Gender and Age Group

Libraries	Sample size			Gender		Age Group						Total	
	Distributed	Returned	Response Rate (%)	Male	Female	>25	25-30	30-35	35-40	40-45	45+		
ICMR Hqrs	50	32	64	18 (56.2%)	14 (43.7%)	32	3 (25%)		2 (6.2%)	4 (12.5%)	18 (56.2%)	32	
IOP	50	34	68	17 (50%)	17 (50%)	34	3 (9%)	26 (76.4%)	5 (14.7%)			34	
NIMS	9	7	77.7	6 (85.7%)	1 (14.2%)	7			1 (14.2%)	1 (14.2%)	5 (71.4%)	7	
NIMR	55	36	65.4	18 (50%)	18 (50%)	36	3 (8.3%)	24 (66.6%)	5 (13.9%)		4 (11.1%)	36	
Total	164	109	66.4%	59	50	109	6	58	10	3	5	27	109

Table 1 represents the combined data of total sample size, gender and age group of the respondents in respective institutions. The sample of the population shows that total 164 questionnaires were distributed among the respondents in which 109 questionnaires were received back with making a response rate of 66.4%. The data regarding gender shows that the male and female respondents are almost equal. On the other hand data of the age group shows that most of the respondents are in the age group of 25-30. It signifies that young respondents are more willing to provide information and accessing e-journals.

Table 2: Awareness regarding E-Journals

	ICMR Hqrs	IOP	NIMS	NIMR
Yes	32 (100%)	33 (97%)	6 (85.7%)	31 (86.1%)
No	0	1 (3%)	1 (14.2%)	5 (13.8%)
Total	32	34	7	36

Table 2 reveals the awareness level of respondents regarding availability of e-journals. It shows about 93.5% positive response regarding the awareness of e-journals. Only 1 user i.e. 3% of IOP, 1 user i.e. 14.2% of NIMS and 5 users i.e. 13.8% respondents of NIMR were found to be unaware about e-journals. It means majority of the respondents are much aware about the availability of e-journals at their institutions.

Table 3: Purpose of Using E-Journals

Purpose	ICMR Hqrs	IOP	NIMS	NIMR
Research	28 (87.5%)	32 (94.1%)	7 (100%)	36 (100%)
Education	10 (31.2%)	20 (58.8%)	2 (28.5%)	13 (36.1%)
Professional Achievements	5 (15.6%)	9 (26.4%)	2 (28.5%)	1 (2.7%)
Writing Articles	12 (37.5%)	22 (64.7%)	3 (42.8%)	17 (47.2%)
Teaching Assignments	1 (3.1%)	5 (14.7%)	1 (14.2%)	2 (5.5%)
Current Information	22 (68.7%)	25 (73.5%)	2 (28.5%)	22 (61.1%)
Presentation	10 (31.2%)	19 (55.8%)	-	11 (30.5%)

Table 3 represents the data related to purpose of usage of e-journals which indicates that 28 users i.e. 87.5% of ICMR Hqrs, 32 users i.e. 94.1% of IOP, 7 users i.e. 100% of NIMS and 36 users i.e. 100% of NIMR access e-journals for their research. While 22 users i.e. 68.7% of ICMR Hqrs, 25 users i.e. 73.5% of IOP, 2 users i.e. 28.5% of NIMS and 22 users i.e. 61.1% of NIMR use e-journals for gaining current information. Similarly, 12 users i.e. 37.5% of ICMR Hqrs, 22 users i.e. 64.7% of IOP, 3 users i.e. 42.8% of NIMS and 17 users i.e. 47.2% of NIMR use e-journals to write articles. So, mainly there are three major purposes for which respondents are using the e-journals.

Table 4: Place of Access of E-Journals

Place of Access	ICMR Hqrs	IOP	NIMS	NIMR
Library	8 (25%)	18 (52.9%)	-	2 (5.5%)
Office	25 (78.1%)	12 (35.2%)	6 (85.7%)	25 (69.4%)
Computer Lab	1 (3.1%)	5 (14.7%)	-	14 (38.8%)
Residence	7 (21.8%)	9 (26.4%)	2 (28.5%)	9 (25%)

Table 4 shows the probable place where the respondents are accessing e-journals. It shows that 8 users i.e. 25% of ICMR Hqrs, 18 users i.e. 52.9% of IOP and 2 users i.e. 5.5% of NIMR access e-journals from institute's library. Whereas 25 users i.e. 78.1% of ICMR Hqrs, 12 users i.e. 35.2% of IOP, 6 users i.e. 85.7% of NIMS and 25 users i.e. 69.4% of NIMR access e-journals from their office. Some respondents i.e. 1 user i.e. 3.1% of ICMR Hqrs, 5 users i.e. 14.7% of IOP and 14 users i.e. 38.8% of NIMR access from computer libraries. Whereas 7 users i.e. 21.8% of ICMR Hqrs, 9 users i.e. 26.4% of IOP, 2 users i.e. 28.5% of NIMS and 9 users i.e. 25% of NIMR access e-journals from their residences. The offices of the respondents are more suitable place for accessing e-journals.

Table 5: Average Access of E-Journals

Average Access	ICMR Hqrs	IOP	NIMS	NIMR
Daily	18 (56.2%)	24 (70.5%)	-	29 (80.5%)
Biweekly	6 (18.7%)	4 (11.7%)	3 (42.8%)	1 (2.7%)
Weekly	5 (15.6%)	3 (8.8%)	1 (14.2%)	6 (16.6%)
Fortnightly	1 (3.1%)	1 (2.9%)	1 (14.2%)	-
Monthly	2 (6.2%)	2 (5.8%)	2 (28.5%)	-
Total	32	34	7	36

Table 5 shows the frequency of using e-journals by the respondents. It indicates that 18 users i.e. 56.2% of ICMR Hqrs, 24 users i.e. 70.5% of IOP and 29 users i.e. 80.5% of NIMR use e-journals daily. There was a negative response at NIMS with regard to daily use of e-journals. While 6 users i.e. 18.7% of ICMR Hqrs, 4 users i.e. 11.7% of IOP, 3 users i.e. 42.8% of NIMS and 1 user i.e. 2.7% of NIMR use e-journals biweekly. Whereas 5 users i.e. 15.6% of ICMR Hqrs, 3 users i.e. 8.8% of IOP, 1 user i.e. 14.2% of NIMS and 6 users i.e. 16.6% of NIMR use them weekly. A very few respondents are using e-journals once in a fortnight or a month.

Table 6: Period of Accessing E-Journals

Period	ICMR Hqrs	IOP	NIMS	NIMR
Less than 1 year	6 (18.7%)	5 (14.7%)	2 (28.5%)	7 (19.4%)
Between 1-2 years	3 (9.3%)	8 (23.5%)	-	5 (13.8%)
2-3 years	2 (6.2%)	8 (23.5%)	2 (28.5%)	3 (8.3%)
3-4 years	7 (21.8%)	5 (14.7%)	1 (14.2%)	3 (8.3%)
More than 4 years	14 (43.7%)	8 (23.5%)	2 (28.5%)	18 (50%)
Total	32	34	7	36

Table 6 shows the time period, for which the users access e-journals. It shows that 6 users i.e. 18.7% of ICMR Hqrs, 5 users i.e. 14.7% of IOP, 2 users i.e. 28.5% of NIMS and 7 users i.e. 19.4% of NIMR were accessing e-journals for a period of less than one year. Similarly, 3 users i.e. 9.3% of ICMR Hqrs, 8 users i.e. 23.5% of IOP and 5 users i.e. 13.8% of NIMR are accessing from the last 1 to 2 years. Likewise 2 users i.e. 6.2%, 8 users i.e. 23.5%, 2 users i.e. 28.5%, 3 users i.e. 8.3% respectively from ICMR Hqrs, IOP, NIMS and NIMR are accessing them for 2 to 3 years. Whereas 7 users i.e. 21.8% of ICMR Hqrs, 5 users i.e. 14.7% of IOP, 1 user i.e. 14.2% of NIMS and 3 users i.e. 8.3% of NIMR were accessing e-journals for the last 3 to 4 years. On the other hand 14 users i.e. 43.7% of ICMR Hqrs, 8 users i.e. 23.5% of IOP, 2 users i.e. 28.5% of NIMS and 18 users i.e. 50% of NIMR are accessing e-journals for a long time i.e. more than 4 years.

Table 7: Preferred Format for Downloading

Formats	ICMR Hqrs	IOP	NIMS	NIMR
PDF	31 (96.8%)	34 (100%)	7 (100%)	36 (100%)
HTML	1 (3.1%)	2 (5.8%)	1 (14.2%)	-
DOC.	1 (3.1%)	1 (2.9%)	1 (14.2%)	-
XML	-	-	-	-

Table 7 reveals the most suitable format chosen by respondents while downloading of articles. The respondents have given responses 100% in favour of PDF format. A very small size of population chooses other formats such as HTML, DOC. and XML.

Table 8: Mode of Reading of E-Journals

Modes	ICMR Hqrs	IOP	NIMS	NIMR
Reading on monitor	12 (37.5%)	10 (29.4%)	2 (28.5%)	14 (38.8%)
Read print out	13 (40.6%)	14 (41%)	2 (28.5%)	9 (25%)
Both	7 (21.8%)	10 (29.4%)	3 (42.8%)	13 (36.1%)
Total	32	34	7	36

Table 8 indicates reading mode of e-journals. 12 users i.e. 37.5% from ICMR Hqrs, 10 users i.e. 29.4% from IOP, 2 users i.e. 28.5% from NIMS and 14 users i.e. 38.8% from NIMR read e-journals on computer screen, whereas 13 users i.e. 40.6% from ICMR Hqrs, 14 users i.e. 41% from IOP, 2 users i.e. 28.5% from NIMS and 9 users i.e. 25% from NIMR read e-journals after taking print of the articles. On the other hand 7 users i.e. 21.8% from ICMR Hqrs, 10 users i.e. 29.4% from IOP, 3 users i.e. 42.8% from NIMS and 13 users i.e. 36.1% from NIMR use both methods to read the articles. It shows the mix responses regarding methods of reading e-journals.

Table 9: Challenges and problems being faced by the users while using E-Journals

Problem	ICMR Hqrs	IOP	NIMS	NIMR
Searching	3 (9.3%)	6 (17.6%)	1 (14.2%)	5 (13.8%)
Downloading	14 (43.7%)	20 (58.8%)	4 (57.1%)	18 (50%)
Printing	1 (3%)	2 (5.8%)	1 (14.2%)	-
Browsing	4 (12.5%)	3 (8.8%)	1 (14.2%)	3 (8.3%)
Slow Speed	15 (46.8%)	16 (47%)	3 (42.8%)	10 (27.7%)
Limited Access Terminals	15 (46.8%)	19 (55.8%)	1 (14.2%)	25 (69.4%)

Lack of training	4 (12.5%)	5 (14.7%)	2 (28.5%)	5 (13.8%)
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Table 9 shows that the problems which were faced by the respondents while accessing e-journals. It shows the major problem is of limited access to terminals: 15 users i.e. 46.8%, 19 users i.e. 55.8%, 1 user i.e. 14.2%, 25 users i.e. 69.4% respectively from ICMR Hqrs, IOP, NIMS and NIMR find limited access to terminals. On the other hand 14 users i.e. 43.7%, 20 users i.e. 58.8%, 4 users i.e. 57.1%, 18 users i.e. 50% respectively from ICMR Hqrs, IOP, NIMS and NIMR faced problems of slow downloading. Similarly, 15 users i.e. 46.8% of ICMR Hqrs, 16 users i.e. 47% of IOP, 3 users i.e. 42.8% of NIMS and 10 users i.e. 27.7% of NIMR were not using e-journals due to slow speed. These are some of the major problems being faced by the respondents while accessing e-journals.

Table 10: Orientation Programme being provided by the library

	ICMR Hqrs	IOP	NIMS	NIMR
Yes	21 (65.6%)	29 (85.2%)	6 (85.7%)	9 (25%)
No	11 (34.3%)	5 (14.7%)	1 (14.2%)	27 (75%)
Total	32	34	7	36

Table 10 shows that the respondents response regard getting any orientation programmes training provided by the library. It shows that 21 users i.e. 65.6%, 29 users i.e. 85.2%, 6 users i.e. 85.7%, 9 users i.e. 25% respectively from ICMR Hqrs, IOP, NIMS and NIMR were getting library orientation training. On the other hand 11 users i.e. 34.3% of ICMR Hqrs, 5 users i.e. 14.7% of IOP, 1 user i.e. 14.2% of NIMS and 27 users i.e. 75% of NIMR were not getting any library orientation training. In this regard respondents at NIMR have given negative response in context of getting any formal training to access these e-journals.

Findings

The following are the major findings of the study:

- **Awareness:** The study found that 94% respondents are aware and only 6% respondents are not aware about the availability of e-journals.
- **Purpose:** It is observed that 94.4% respondents are using e-journals for their research work, followed by 65% current information and 49.5% for writing article.
- **Location:** It is observed that 62.3% respondents access e-journals from their office, followed by 25.6% from the library.
- **Time Period:** The study found that 38.5% respondents accessing e-journals facility for the last 4 years, followed by 18.3% less than one year.
- **Frequency:** It is found that 65.1% respondents are using e-journals daily, followed by 13.7% weekly and 12.8% biweekly.
- **Format:** The study also observed that 99% respondents were in favour of PDF format. They accept that it is most suitable format for downloading an online article.
- **Problems:** The survey revealed that 55% respondents have limited access to terminals which is a major problem for accessing e-journals, followed by 51% downloading, followed by 40% slow speed.
- **Information Literacy Training:** Approximately 60% respondents have received information literacy training directly or indirectly from the library staff to gain familiarity with access to e-journals subscribed by the library and 40% respondents did not get any such of programme specially NIMR respondent i.e. 75% respondent were not getting any such kind of programme.

Testing the hypotheses

1. The survey found that most of the users are aware about the availability of e-journals. So, this hypothesis is proved.

2. The study revealed that almost i.e. 99% respondents are using PDF format for downloading the article. It is also true.
3. The study resulted in the finding that most of the users are getting training in information literacy programmes directly or indirectly from the library except at NIMR. It is partially true.

Suggestions

The present study sought to examine the usage of e-journals by the users of ICMR libraries in the Delhi region. The survey reveals that all the respondents are much aware of e-journals in their institutes. E-journals are becoming increasingly a valuable service among the health/medical science community. The results show a significant high acceptance of e-journals by users of all categories. This study confirms that e-journal's usage is constantly increasing. The following suggestions are made to enhance their use:

- It is suggested to increase the quantity of computer terminals and speed of internet browsing to overcome the problems of limited access of terminals and slow downloading.
- The library should start new alert system to inform the users about new additions to journals, newly subscribed journals.
- The number of e-journals should be increased to provide access to more journals in respective fields.
- The library should introduce feed back system to know about the proper use of e-journals service and problems of users.
- There is need of more trained and skilled staff well aware of the functioning of electronic resources specially e-journals so that they can provide better services to the users while they are facing any problem in accessing e-journals.
- To improve the efficiency of the users to access e-journals, NIMR library should conduct information literacy programme. However study suggests that continuous information literacy programmes should be undertaken by the other libraries.
- It is suggested that Headquarters should acquire e-journals accessibility and provide links to all sister institutes under its control instead of separate institutes subscribing same journals in their own library. It will avoid purchasing of duplicate journals. It will increase accessibility to more numbers of e-journals.
- The library timing and services facility should be increased by the institutes' libraries.
- There is need of accessing e-journals facility from public domains that will allow accessing from outside the library for registered users.

Conclusion

The fast development of the information technology in this age has changed the functions and definition of librarianship. The e-resources have become the vital part of the every kind of library. Print format of documents are being changed into electronic form. E-journals have become a need of the library. E-journals have several advantages over the print counterparts. The present study was conducted on the use of e-journals by users of ICMR Libraries in Delhi region. It indicates that e-journals have played a major role in information dissemination process. The study concluded that almost all users of ICMR Libraries are well aware about the availability of e-journals at their institute library and they are using these journals for research needs. The study will be beneficial for the libraries to know the needs of users for better use of e-journals service provided by ICMR Libraries.

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