

Evaluation of usage of E-resources and INMAS Library Services Through User's Perspective: An analytical study

Navin Kumar Soni^{#,*}, Savita Rani[#], Avdhesh Kumar[#] and Jitendra Shrivastava[§]

[#]DRDO-Institute of Nuclear Medicine & Allied Sciences (INMAS), Delhi - 110 054, India

[§]MLB Govt. College of Excellence, Gwalior - 474 011, India

*E-mail: navinsoni22@gmail.com

ABSTRACT

The study has been an attempted to find out about the usage pattern of electronic & print journals, books and other services among users, delivered by the Institute of Nuclear Medicine & Allied Sciences (INMAS) TIRC Library. A questionnaire survey was conducted in INMAS to study the pattern of usage of library services. A total number of 150 questionnaires were distributed randomly among Scientists & Service Officers, Defence Research Technical Cadre (DRTC) and Research scholars of INMAS and 121 users responded back. The outcome of the study shows that users were quite aware about the services of the library, actively participated in collection development of books and journals, more comfortable and preferring in usage of electronic information resources. With the introduction of electronic journals/resources in library, the usage is increased manifold among users. Printed resources are also referred in good numbers by the users.

Keywords: INMAS; DRDO; E-resources library consortia; Information resources; Library services; Library usage; User study; Orientation program.

1. INTRODUCTION

Libraries and Information centres are the always highest knowledge centres and technical house of any institute and research & development organisation, as they are standing firmly behind all the research & development activities of the organisation. Their goal is to support the Institute's mission of research, and service by providing the means for the discovery and the pursuit of knowledge of its scientists and technical staff. Special libraries are today moving towards digitisation of information services, providing online access to electronic resources available in the institutional collection, as they are the major intellectual hubs of information, guiding researchers to pursuit knowledge in their respective subject areas¹. Libraries and information centres have started subscribing more and more e-resources, either individually or through their institutional e-journal consortia. To support research and development activities of the scientific community of the INMAS, Technical Information & Resource Centre (TIRC)-Library is providing full text access to huge number of electronic and print resources and this study is done to found out the pattern of usage and its impact, to imply the utilisation of print and e-resources at the INMAS library resources. But it is always difficult to find out the research productivity and impact of library services and resources on the research and development work of an institute. The number of research publications, products & technologies developed and transferred, patents granted and awards received by the institutes and its employees are inter-related to it.

2. ABOUT INSTITUTE OF NUCLEAR MEDICINE & ALLIED SCIENCES

The Institute of Nuclear Medicine and Allied Sciences (INMAS), established in 1961 located at New Delhi, which is an important life sciences Institute within the Defence Research and Development Organisation (DRDO). It is a unique establishment of DRDO with a glorious past, vibrant present and a promising potential in the fields of Biological Radioprotection, Radionuclide and other Non-Invasive Imaging Fields, Endocrinology and Radiation Disaster Medical Management. The laboratory has carved an important niche in radioprotection research and nuclear imaging technologies and has long emerged as a leading scientific entity in the country. This Institute has been pursuing the development of new effective agents/ methods for countering the harmful biological effects of radiation as well as to support soldiers facing arduous field conditions such as at high altitudes. Medical management of nuclear disaster is also one of the important focuses of INMAS. Besides, the Institute also successfully harnesses the benefits of radiation and non-invasive imaging for the benefit of soldier, rightly living up to the slogan 'Atom for Peace' realised for the Institute during its inception.

3. ABOUT INMAS TECHNICAL INFORMATION & RESOURCE CENTRE LIBRARY

Technical information & resource centre (TIRC) library in the Institute of Nuclear Medicine and Allied Sciences (INMAS), DRDO, is the backbone of the institute as it

disseminates current & specific information to all categories of users². The library with its modern collection of knowledge resources and innovative information services fills an essential role for scientists, researchers & students and the surrounding DRDO community in their intellectual pursuits. It is a hybrid library with technological applications. The library holds knowledge resources predominantly related to Life Science & other allied subjects. The library has a unique collection of publications in various fields, such as Radiation Protection, Biotechnology, PET-CT, CBRN Defence, Nuclear Medicine, Magnetic Resonance Imaging, Non-invasive Imaging, Biomedical Engineering, Endocrinology, Toxicology, Combat casualty management, Computer Science and other general management areas.

It has collection of over 28041 documents including 12440 textbooks, reference books, reports, manuals and yearbooks, 11288 bound volumes of journals, 65 E-books and 85 PhD theses. It also subscribes to 165 current periodicals in print and electronic format. INMAS library is presently subscribing to 142 electronic journals with high impact factor from renowned international publishers such as ACS, Elsevier, John Wiley Online, IOP, OVID, OUP, Nature Publishing Group, Sage, Taylor & Francis and Springer Link. Apart from these individually subscribed 142 e-journals, INMAS Library also got institutional access to 152+ e-journals through DRDO E-journals Consortium hosted by DESIDOC Library. To promote the use of Rajbhasha Hindi, a separate collection of 3626 Hindi books are managed in the library which is searchable through Koha ILMS. A good collection of dissertations/theses submitted by Institutes scientists and research scholars for partial completion of their PhD/MTech/MS work is also made available to users. INMAS Library has fully automated by customised Koha, open-source software an integrated library automation package. INMAS in-house publication and research papers are made available to its users on Knowledge Repository hosted on intranet LAN. The Library is holding institutional membership of DELNET, New Delhi & sharing its resources with various DRDO Laboratories, Academic Institutions and Medical Libraries through interlibrary loan. INMAS Library is also an active member of DRDO E-journals Consortium.

4. LITERATURE REVIEW

Many studies have been carried out to assess the usage of print & electronic resources of different libraries to improve their information services and increase user satisfaction with the coming time. Navalur, Balasubramani, & Kumar³ conducted a study to know the usage of e-resources in Bharathidasan University found out that 47.18 per cent of users prefer to access to read articles in an online format and Html is preferred format to download. Also found out that slow internet connection, lack of orientation and training programmes hamper the access to e-resources. Singh⁴ surveyed to know the use of e-resources and services of IIM Bangalore and found out that 97.3 per cent of users were aware of e-resources services & facilities provided by the library and many users recommended to include more e-resources in library collection such as reference sources & online databases.

Nisha and Ali⁵ in their study at IIT Delhi and University of Delhi libraries found out that majority of the users were well aware of the usage of electronic resources available in libraries and retrieving information to publish research papers, to complete other academic assignments and largely to update their own knowledge. Libraries of well-known institutions like IIT Delhi and the University of Delhi, New Delhi, were also facing the inherent problem of the slow speed of internet connection and limited availability of computer terminals to access e-journals and they needs to immediately upgrade their ICT infrastructures. Jotwani⁶ in his study at 7 IITs of India observed that IIT libraries were spent a large share of their allocated library budget to subscribe online resources and it clearly shows that the migration of financial resources in collection development policies of IIT libraries where e-resources have occupied a significant part of their core collections. In future, IIT libraries have to improve strategies to sustain the higher usages of e-journals among users.

Senthil and Madhusudan⁷ analysed that to enhance the usage of e-journals in DRDO Consortium, Scientists and staff should be motivated and trained to use e-journals for their research, development and academic pursuit. It is suggested that training and orientation programmes should be made available in each DRDO lab for optimum use of available e-journals. Akpojotor⁸ investigated a survey and revealed that postgraduate students of library and information science in Southern Nigeria were quite aware about usage of e-resources. It is also revealed from the study that PG LIS students were highly skilled in usage of available e-resource and it's an essential tool for empowering postgraduate students.

Modi⁹ gave a detailed overview about the usage of DRDO E-journal Consortium among Scientists, for the period 2012-2017 and found out that the utilisation of e-journals was economical and cost-effective. E-journals were in great demand among DRDO scientific community, the research publications of Elsevier and IEEE journals were most popular. It was also come out from the study that after implementation of consortium in DRDO, the productivity in the form of research publication had increased. E-journals were more preferred on print journals subscription by majority of users.

5. OBJECTIVES

The main objective of this study was to found out the user awareness, usage pattern and problems faced by user scientists of INMAS library while browsing and searching library documents to further enhance the utility and impact of available resources in the Institute. The other objectives set for the study were to:

- Study the frequency of using the resources and services available in the library
- Examine the awareness about the resources among the users
- Know the specific purpose of using electronic resources
- Know the preference of usage of library resources for research work
- Know the usage of different types of library services available in INMAS
- Find out the dependency of scientists and research

Table 1. Gender wise response of questionnaire

Gender ratio	Scientists & service officers (N=51) (%)	DRTC officers & staff (N=35) (%)	Research scholars (N=35) (%)	Total (121) (%)
Male	31 (60.78)	21 (60)	14 (40)	66 (54.55)
Female	20 (39.23)	14 (40)	21 (60)	55 (45.45)

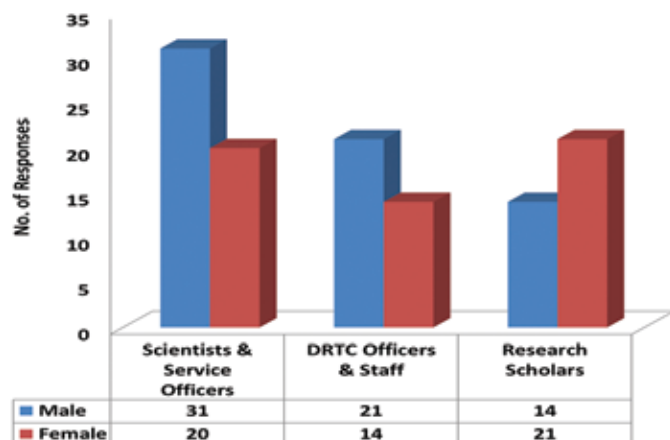


Figure 1. Gender wise responses.

Table 2. Frequency to visit library

Frequency	Scientists & service officers (N=51) (%)	DRTC officers & staff (N=35) (%)	Research scholars (N=35) (%)	Total (121) (%)
Daily	2 (3.92)	5 (14.29)	2 (5.71)	9 (7.44)
At least once a week	16 (31.37)	15 (42.86)	13 (37.14)	44 (36.36)
Once a month	25 (49.02)	10 (28.57)	14 (40)	49 (40.50)
Once every six months	7 (13.73)	4 (11.43)	4 (11.43)	15 (12.39)
Once a year	1 (1.96)	1 (2.85)	2 (5.72)	4 (3.31)
Never	0	0	0	0

- scholars on e-resources
- Study the impact of e-resources and its services on the research projects of scientists & technical cadre and research scholars
- Know the awareness about the INMAS and DRDO knowledge repository among of scientists & technical cadre and research scholars.

6. SCOPE & LIMITATION OF THE STUDY:

The scope of the present study is confined to the users of INMAS, DRDO, Delhi (scientists & service officers, DRTC officers & staff and research scholars). Every institute/organisation has the print and electronic/digital resource

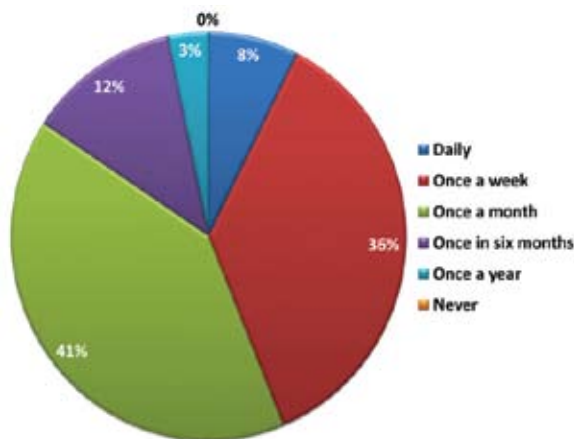


Figure 2. Frequency to visit library.

Table 3. Frequency to visit library website

Frequency to visit to the library website	Scientists & service officers (N=51) (%)	DRTC officers & staff (N=35) (%)	Research scholars (N=35) (%)	Total (121) (%)
Daily	9 (17.65)	6 (17.14)	2 (5.71)	17 (14.04)
Weekly	16 (31.37)	12 (34.29)	12 (34.29)	40 (33.05)
About once a month	8 (15.69)	3 (8.57)	6 (17.14)	17 (14.04)
Several times a month	1 (1.96)	2 (5.71)	2 (5.71)	5 (4.13)
As & when required	17 (33.33)	12 (34.29)	13 (37.15)	42 (37.71)

collection in its libraries but the present study covers the usage and impact of library resources on the R&D activities of INMAS.

7. NEED FOR THE STUDY

Academic and research institutions are always been the higher Intellectual hubs to create, publish and transmit knowledge among scientists, technologists and research students through various innovative and creative means and in this, the library is always been playing an important part. It is quality of good information manager to consistently review the information needs of the targeted user groups and found out the impact of information provided on the research and development projects or activities. This will help to understand and implement the cost-effective budget in new library services and to analyse its impact constantly on information need of the users. With this motive kept in mind and to measure the impact of usage of costly print and electronic resources, the survey was done to know the current state of the use of various library resources and its impact on the scientists, technical staff and research scholars of the INMAS, to further increase the usage and utility of available library resources.

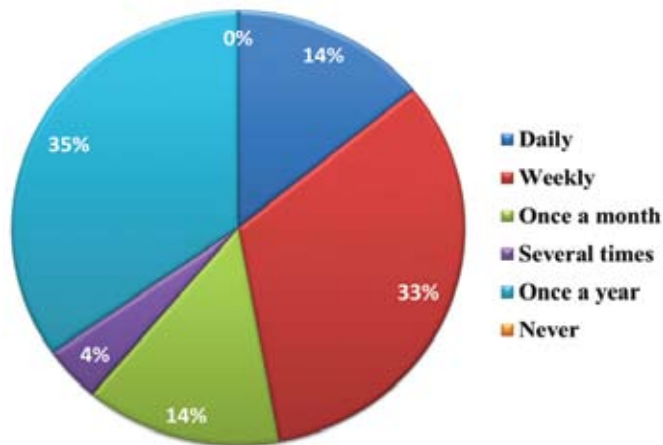


Figure 3. Frequency to visit library website.

Table 4. Recommendation before selection and finalisation of print and electronic journals

Recommendation to library before finalisation of print and electronic journals	Scientists & service officers (N=51) (%)	DRTC officers & staff (N=35) (%)	Research scholars (N=35) (%)	Total (121) (%)
Yes	50 (98.04)	34 (97.14)	25 (71.43)	109 (90.83)
No	1 (1.96)	1 (2.86)	10 (28.57)	12 (9.17)

8. METHODOLOGY

This evaluation study of library resources has been carried out by survey method using questionnaires in electronic and print format for scientists, service officers, technical cadre and research scholar. 150 questionnaires were randomly distributed among the scientists, technical officers and research scholars working at the institutes. Out of the total of 150 respondents, only 121 were responded back to the questionnaire. Some of the questionnaires were submitted incomplete and to complete the questionnaire, a personal interview was organised with respondents. The evaluation and analyses of the present study are purely based on the responses received in the questionnaire by the respondents and the personal interviews conducted informally with users.

9. STATEMENT OF THE PROBLEM

The survey has been done to find out the influence of available print and electronic resources, the problems faced by the users in accessing information and try to identify the problems and their tentative solutions to enhance the usage and impact of print and e-resources available in the INMAS Library.

10. SIGNIFICANCE OF THE STUDY

Since the inception of INMAS in the year 1961, a lot of public money is invested in providing best infrastructure facility to the library in the form of print and e-resources, as of

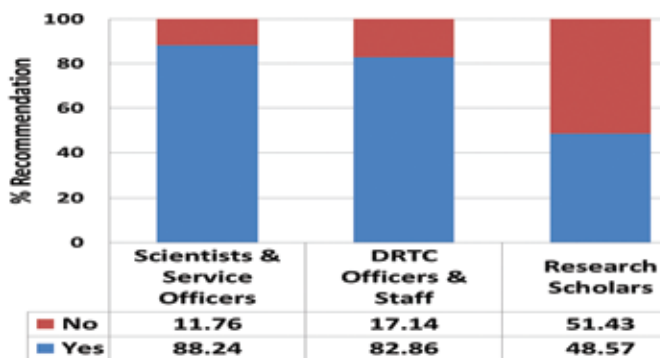


Figure 4. Recommendation before selection and finalisation of journals.

Table 5. Awareness of print and electronic journals

Awareness of users about print and electronic journals	Scientists & Service Officers (N=51) (%)	DRTC Officers & Staff (N=35) (%)	Research Scholars (N=35) (%)	Total (121) (%)
Yes	45 (88.24)	29 (85.29)	17 (48.57)	91 (75.21)
No	6 (11.76)	6 (17.14)	18 (51.43)	30 (24.79)

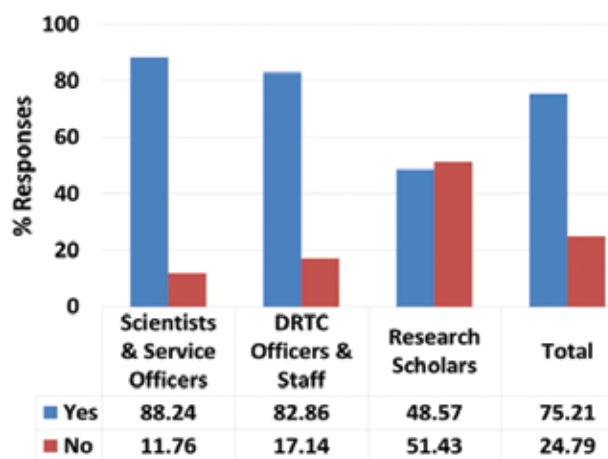


Figure 5. Awareness of users about print and electronic journals available in library.

now, there were no attempts were made to evaluate and analyse the impact and usefulness of available library resources in the past. With this idea in mind, it is felt by the higher authority and library personnel that it is high time to conduct a study regarding usage and impact of print and electronic resources of the INMAS library on R&D work/projects. The present study will help to assess and evaluate the impact of available print and e-resources on R&D work/projects of Institute and its users and the study will also be helpful to improve the balanced collection development and usefulness of library resources.

11. DATA ANALYSIS AND INTERPRETATION

11.1 Gender Wise Response of Questionnaire

Table 1 shows the number of respondents according

Table 6. Specific purpose of using e-resources of library & DRDO e-journals consortium

Category of Users	Scientists & Service Officers (N=51)		DRTC Officers & Staff (N=35)		Research Scholars (N=35)		Total (%)	
	Yes	No	Yes	No	Yes	No	Yes	No
Purpose of Usage								
To search for full-text papers in e-journals	51 (100)	0 (0)	30 (85.71)	5 (14.29)	31 (88.57)	4 (11.43)	112 (92.56)	9 (7.44)
To know the latest development published in subject area	46 (90.20)	5 (9.80)	29 (82.86)	6 (17.14)	26 (74.29)	9 (27.71)	101 (83.47)	20 (16.53)
To search specific paper in subject area	47 (92.16)	4 (7.84)	26 (74.29)	7 (25.71)	26 (74.29)	7 (25.71)	99 (81.82)	22 (18.18)
To search paper in archives of e-journal databases	44 (86.27)	7 (13.73)	20 (57.14)	15 (42.86)	23 (65.71)	12 (34.29)	87 (71.90)	34 (28.10)

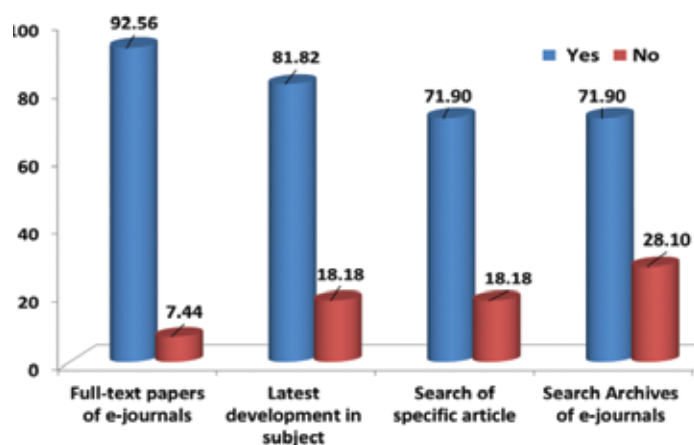


Figure 6. Specific purpose of using e-resources of library & DRDO e-journals consortium.

to gender as well as the category of respondents. According to the gender of 121 respondents, 66 (54.55 %) are male and remaining 55(45.45 %) are female. On the other hand, according to the category of respondents, out of 51 scientists, 60.78 per cent are male & 39.23 per cent are female scientists. In DRTC staff, 60 per cent are male and 40 per cent are female respondents, whereas in research scholars, 40 per cent are male & 60 per cent are female (Fig. 1).

11.2 Frequency to Visit Library

INMAS library is a special medical library, located on the third floor of admin building in INMAS. All the library information services are hosted of the library website and INMAS users are comfortable in getting information on their desktop in their respective labs. Data of frequency to visit to the library has been present in Table 2. It shows that majority 49.02 per cent of Scientists & Service Officers and 40 per cent of research scholars visited the library once in a month and 42.86 per cent DRTC officers & staff, visited the library at least once a week.

Out of the total of all user categories, 40.50 per cent of library users visited once a month, 36.36 per cent once a week, 12.39 per cent visited once in six months and 7.44 per cent users

visited the library on daily basis. A total per cent frequency to visit the library is represented in Fig. 2.

11.3 Frequency to Visit Library Website

INMAS library website is hosted on its intranet LAN, which contains information about all available the library services and resources. After analysis of data given in Table 3, we can say that 33.33 per cent of Scientists, 34.29 per cent DRTC and 37.15 per cent of research scholars have visited library website as and when information is required by them. Weekly visitors of library website were 31.37 per cent of Scientists, 34.29 per cent DRTC & 34.29 per cent of research scholars. Whereas 17.65 per cent of scientists, 17.14 per cent of DRTC & 5.71 per cent of research scholars were visiting the library website daily (Fig. 3).

11.4 Do Library Ask your Recommendation before Selection and Finalisation of Print and Electronic Journals

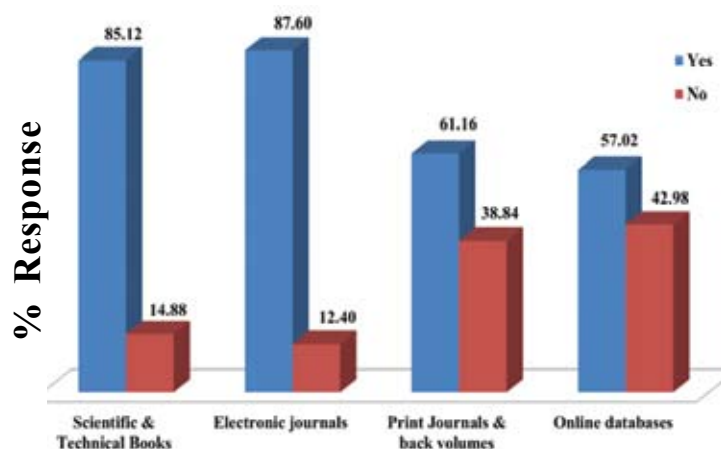
Before finalisation of an annual subscription of print and electronic journals of INMAS library, the librarian on behalf of its library committee circulated information to ask its users to suggest new journals or continue with current journals, from respective departments before selection and finalisation. It clearly shows in Table 4, that 98.04 per cent of Scientists & Service Officers, 97.14 per cent of DRTC & 71.43 per cent of Research scholars responded to send their recommendations, before selection and finalisation of journals. (Fig. 4).

11.5 Awareness of Users about Print and Electronic Journals in their Respective Subject Area Available in Library

Library also found out the level of awareness among users, about print & electronic journals subscribed by library, in their respective subject areas of researchers. From the Table 5, it indicates that 88.24 per cent of scientists & service officers, 85.29 per cent of DRTC & 48.57 per cent of the respective research scholar are well aware of journals subscribed in their respective subject area (Fig. 5). Library should introduce innovative strategies and sustain the frequency of orientation programs to enhance awareness about library resources among users.

Table 7. Preference of Information Source to access for required information

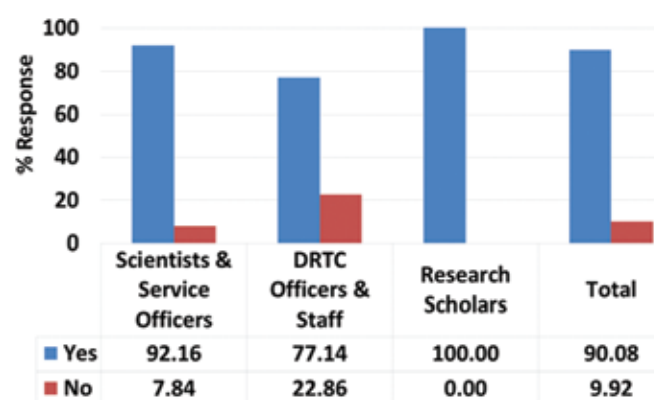
Category of users	Scientists & service officers (N=51) (%)		DRTC officers & staff (N=35) (%)		Research scholars (N=35) (%)		Total (121) (%)	
	Yes	No	Yes	No	Yes	No	Yes	No
Preference of Information Source								
Scientific & technical Books	40 (78.43)	11 (21.57)	33 (94.29)	2 (5.71)	30 (85.71)	5 (14.29)	103 (85.12)	18 (14.88)
Electronic journals	40 (78.43)	11 (21.57)	33 (94.29)	2 (5.71)	33 (94.29)	2 (5.71)	106 (87.60)	15 (12.41)
Print Journals & back volumes	30 (58.82)	21 (41.18)	22 (62.86)	13 (37.14)	22 (62.86)	13 (37.14)	74 (61.16)	47 (38.84)
Online databases	31 (60.78)	20 (39.22)	22 (62.86)	13 (37.14)	16 (45.71)	19 (54.29)	69 (57.02)	52 (42.98)

**Figure 7. Preference of information source to access for required information.****Table 8. Awareness about current awareness services**

Awareness about current awareness service from library	Scientists & service officers (N=51) (%)	DRTC officers & staff (N=35) (%)	Research scholars (N=35) (%)	Total (121) (%)
Yes	47 (92.16)	27 (77.14)	35 (100)	109 (90.09)
No	4 (7.84)	8 (22.86)	0	12 (9.91)

11.6 Specific Purpose of using E-resources of Library & DRDO E-journals Consortium

Journals are the primary source of information and users are regularly searching and referring e-journals to know the latest information published in their subject areas. Table 6 shows the specific purposes of using e-resources available in the library and also DRDO e-journal consortium by the respondents. In INMAS, 100 per cent of Scientists & Service Officers, 85.71 per cent of DRTC and 88.57 per cent of research scholars are searching e-journals to download full-text papers. 90.20 per cent of scientists, 82.86 per cent of

**Figure 8. Awareness about CAS from library.**

DRTC and 74.29 per cent of research scholars are referring e-journals for keeping themselves updated in the subject area. Each user group (92.16 %, scientists, 74.26 % DRTC and 74.29 % of research scholars) search e-journals for specific paper in subject area. Apart from above, 86.27 per cent of scientists, 57.14 per cent of DRTC & 65.71 per cent of research scholars are only searching e-journals to find out specific papers from archives of journals database (Fig. 6).

11.7 Preference of Information Source to Access for Required Information

INMAS library also tries to find out that which specific category of library documents was regularly used by the users, so that more attention can be given to a particular area for collection development. After tabulating data in Table 7, it can be analysed that 78.43 per cent of scientists, 94.29 per cent of DRTC & 85.71 per cent of research scholars prefer to use S&T books. 78.43 per cent of scientists, 94.29 per cent by DRTC & 94.29 per cent of Research scholars are using e-journals. 58.82 per cent of scientists, 62.86 per cent of DRTC & research scholars are referring to print journals & back volumes for research work. Online databases such as ScienceDirect, Wiley online library, SpringerLink and IEL library, were used by 60.78 per cent of scientists, 62.86 per cent of DRTC and only 45.71 per cent of research scholars (Fig. 7).

Table 9. Awareness about ‘INMAS knowledge repository

Awareness about ‘INMAS Knowledge Repository’	Scientists & Service Officers (N=51) (%)	DRTC Officers & Staff (N=35) (%)	Research Scholars (N=35) (%)	Total (121) (%)
Yes	47 (92.16)	21 (60)	6 (17.14)	74 (61.16)
No	4 (7.84)	14 (40)	29 (82.86)	47 (38.84)
Do you submitted paper in IR				
Yes	16 (31.37)	4 (11.43)	2 (5.71)	22 (18.18)
No	35 (68.63)	31 (88.57)	33 (94.29)	99 (81.82)

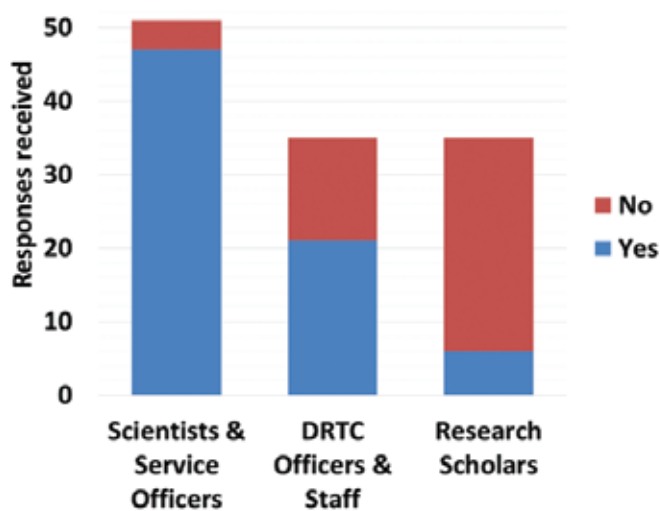


Figure 9. Awareness about ‘INMAS knowledge repository.

Table 10. Is library staff is cooperative and ready to help user/you?

Is library staff is cooperative and ready to help user/you	Scientists & service officers (N=51) (%)	DRTC officers & staff (N=35) (%)	Research scholars (N=35) (%)	Total (121) (%)
Yes	51 (100)	35 (100)	35 (100)	121 (100)
No	0	0	0	

11.8 Awareness about Current Awareness Service from Library

Table 8, shows that 92.16 per cent of scientists, 77.14 per cent of DRTC cadre & 100 per cent of researcher scholars were aware about current awareness services given by library (Fig. 8).

11.9 Awareness about ‘INMAS Knowledge Repository’

The Library has recently set up a knowledge repository of INMAS publications on its intranet for preservation & future

Table 11. Information services availed from library

Services availed	Scientists & service officers (N=51)	DRTC officers & staff (N=35)	Research scholars (N=35)	Total (N=121)
Online public access catalogue (OPAC)	40	28	23	91
Document delivery service (DDS)	40	27	22	89
Reprography (photocopy) service	33	20	13	66
Reference service	11	25	16	52
Inter library loan (ILL) service	10	18	11	39
Table of content (ToC) alert service	22	22	13	57
Current awareness service (CAS)	17	26	15	58

references of the institute. Therefore, the Library had tried to know the awareness level among its users about this new service. After analysing data in Table 9, it shows that 92.16 per cent of scientists, 60 per cent of DRTC & only 17.14 per cent of researcher scholars are aware of this new service (Fig. 9). It is also tried to found out that whether users have shared/ submitted their published research papers in INMAS IR. Table 9 shown that only 31.37 per cent of scientists, 11.43 per cent of DRTC and 5.71 per cent of research scholars have submitted their papers to the library for INMAS IR. The Library should increase awareness and encourage its users to share their published research papers in the knowledge repository.

11.10 Is library Staff is Cooperative and Ready to Help User/You?

The study is also trying to investigate the level of satisfaction among users about cooperation and attitude of library staffs and readiness to help users coming to or consulting library. After analysis of Table 10, shown the 100 per cent of users are feeling that library staff is cooperative and ready to help them to get information and services from the library.

11.11 Information Services Availed by the Users

INMAS library is provided with a variety of information services to its users working under different research projects. To analysis the usefulness and services availed among the different category of users, the library has designed this study and found out that scientists are mostly using OPAC and document delivery services, followed by reprography, ToC services and current awareness service. Among DRTC users, OPAC, CAS and document delivery services are most popular, followed by reference services, ToC and reprographic services.

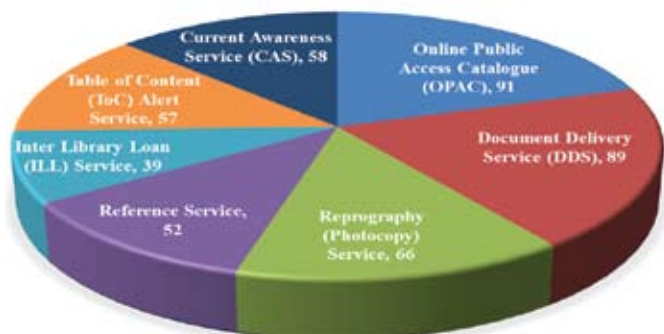


Figure 10. Services availed by users from library.

Among research scholars, OPAC, DDS & Reference service mostly used, followed by CAS, ToC alert and reprographic service (Fig. 10).

12. FINDINGS OF THE STUDY

- The total of all categories of users, 40.50 per cent are visiting the library once a month, 36.36 per cent visiting once a week, 12.39 per cent visiting once in six months and only 7.44 per cent of users are coming library daily.
- Regarding visit the library website for availing service, It is also found out that 37.71 per cent of users are visiting library website, as and when they required, 33.05 per cent of each are visiting daily and once a month.
- Most of the users (98.04 % of scientists & service officers, 97.14 % of DRTC and 71.43 % of research scholars) said that library is asking their recommendation before selection and finalisation of print & electronic journals. It shows that users actively participated in journal selection and collection development of the library.
- It is found out from the study that research scholars are less aware of the print and electronics journals subscribed in the library. Scientists & DRTC officers and staff are quite aware of the print and electronics journals subscribed in their research subject area, in the library.
- Scientists, DRTC Officers and research scholars have used E-resources of library and DRDO E-Journals consortium for searching and downloading full-text papers, to know the latest development in their subject area, to search specific papers and to search paper from archives of E-journals.
- E-journals and scientific and technical books are mostly used by all categories of user.
- Bound journals and online databases are less preferred information source among users to refer for required information.
- Majority of the users are well aware of new arrivals and articles alert service of the library.
- To increase awareness about INMAS knowledge repository, the library has to organise more orientation program for research scholars and to encourage users to submit their research papers in knowledge Repository (KR).
- 100 per cent of users are agreed that library staff is cooperative and ready to serve/ help as and when asked / approached for information.
- OPAC, DDS, ToC alert and CAS is the most popular services among all category of users.

13. SUGGESTION

- After analysing of data of user frequency to visit the library, it is suggested that location of library matters a lot, should be located in such a common area of the main building so that users can approach easily & visit the library frequently, then only footfall of users can be increased.
- Library should introduce more innovative services to attract users and create high-quality infrastructure development in the library.
- Library should organise orientation programs regularly for each category of users to increase awareness about library services & resources, specifically for research scholars.
- Frequency of usage and usability of library resources by its users should be made done on a regular basis by the library.
- Apart from subscribing electronic journals, print books, e-books and other e-resources should also be acquired by the library.
- Library users have to be made aware of library services & resources programmes. To achieve this, contents on library website should be increased; virtual walkthrough of library should be uploaded on website and annual report & newsletter of the institution should highlight the available library resources to the users.
- There is an urgent need to organise more orientation & targeted training programmes for all categories of users about the availability of library resource & its facilities, on different occasions.

14. CONCLUSIONS

The study comes out with findings that all categories of INMAS users are using available library resources satisfactorily. Library users are also satisfied with the assistance, promotion and guidance of library staff in accessing print & electronic resources in library. Apart from these services, library is constantly working with DESIDOC to provide remote access facility to INMAS users to access INMAS as well as DRDO Consortium e-journals and similarity check or plagiarism checking services to INMAS users regularly. To enhance the usage of library services, the speed of the internet and ICT infrastructure should be upgraded by the institute on priority basis.

REFERENCES

1. Mondal, Dhiman & Maity, Arabinda. Selection and acquisition of e-resource collection in selected libraries of R&D institutions in Kolkata city: A survey of current practices. *Int. Res.: J. Libr. Inf. Sci.*, 2016, **6**(3), 2016, 540-553.
2. INMAS, Defence Research & Development Organisation. <https://www.drdo.gov.in/labs-establishment/about-us/institute-nuclear-medicine-allied-sciences-inmas> (Accessed on 17 August 2019).
3. Navalur, S.A.; Balasubramani, R. & Kumar, P. Usage of e-resources by faculty, research scholars and PG students of Bharathidasan University: A study. *J. Adv. Libr. Inf. Sci.*, 2012, **1**(4), 165-172.

4. Singh, Vinod Kumar. Use of e-resources and services by users at Indian Institute of Management Bangalore: A study. *Int. J. Humanit. Soc. Sci. Invent.*, 2013, **2**(9), 16-31.
5. Nisha, Faizul & P.M., Naushad Ali. Awareness and use of e-journals by IIT Delhi and Delhi University library users. *Collection Building*, 2012, **32**(2), 57-64. doi: 10.1108/01604951311322039.
6. Jotwani, D. Trends in acquisition and usage of electronic resources at Indian Institutes of Technology libraries. *Annals Libr. Inf. Stud.*, 2014, **61**, 33-39.
7. Senthil, V. & Madhusudhan, M. DRDO e-journal consortium in defence science and technology. *DESIDOC J. Libr. Inf. Technol.*, 2018, **38**(1), 16-20. doi: 10.14429/djlit.38.1.11444.
8. Akpojotor, Lucky O. Awareness and usage of electronic information resources among postgraduate students of library and information science in Southern Nigeria". *Libr. Philos. Pract. (e-journal)*, 2016, 1408. <http://digitalcommons.unl.edu/libphilprac/1408> (Accessed on 14 July 2020).
9. Modi, Yogesh; Suri, Alka; Gupta, Pallavi & Sahu, Ravi Karan. Utilisation of scholarly communication through DRDO e-journal consortium during 2012-2017. *DESIDOC J. Libr. Inf. Technol.*, 2018, **38**(6), 423-428, doi: 10.14429/djlit.38.6.12991.

ACKNOWLEDGEMENT

The authors are sincerely thankful to Dr TarunSekhri, Outstanding Scientist & Director, INMAS for his continuous encouragement, guidance and permission to submit this paper in DJLIT.

CONTRIBUTORS

Mr Navin Kumar Soni is presently working as Scientist 'D', Head TIRC-Library & Officer-in-Charge HRD, Coordinator-Academic Cell & Editor 'Nucleus' in house bulletin, Institute of Nuclear Medicine & Allied Sciences (INMAS), DRDO, Delhi. He had obtained his M.Sc. in Zoology from Annamalai University, Annamalainagar (TN) and M.L.I.Sc. from Dr Hari Singh Gaur University, Sagar (MP). His area of interest is Library automation, Digital library, Open Access Initiatives, E-learning applications and Knowledge management. He has conceptualised the paper by designing the questionnaire, data collections, analysing and writing the manuscript.

Ms Savita Rani, is presently working as Technical Officer B, TIRC-Library, DRDO-INMAS, Delhi. She has done her B.Sc. from CCS University, Meerut and BLISc from Bundelkhand University, Jhansi. Her areas of interest are Knowledge organisation and information retrieval. She helped in designing the questionnaire and data collections.

Mr Avdhesh Kumar, is presently working as Technical Officer B, TIRC-Library, DRDO-INMAS, Delhi. He has done her M.Sc.(IT) from Shobhit University and MLISc from Annamalai University, Annamalainagar (TN). His areas of interest are Collection development and information retrieval. He helped in designing the questionnaire and data collections.

Dr Jitendra Shrivastava, Professor, currently working at Department of Library and Information Science at Maharani Laxmi Bai Government College of Excellence, Gwalior (MP). His specialisation area is Information Technology Applications in Libraries & Information services and information processing & Retrieval system. Contribution in the current study is guidance and supervision while writing this manuscript.