

Knowledge and Skill Requirements for Health Science Library Professionals in India: A Survey

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Abstract - The survey method was considered most appropriate for this study because, it measures users background, experience and what they know about knowledge and skills in professional development in enhancing their knowledge in day to day working environment and it is well suited to the research questions taken up for this study. A total of 218 questionnaires were administered personally and 183 dully-filled-in questionnaire for received with response rate of 83.94% and were considered for analysis. The study findings were that 66.67% knew Dewey Decimal Classification (DDC), the National Library of Medicine Classification (NLM) with 14.75%.The response “No Answer” with 15.3% connotes these libraries have not classified their collection. Only 3.28% knew Library of Congress Classification though it is not much used in Indian libraries probably the respondents’ knowledge of this would be from their study. The mean and standard deviation are computed and ranks were assigned to each of the Medical databases corresponding to the respective designations. This comparison found MedInd/IndMed ranking is much higher than MEDLINE. So the data has no uniformity and conformity with the content and therefore the ranking are not commensurate with the subject content and wider use of the databases worldwide.

Keywords: Health Science Library, Professionals, Survey

I. INTRODUCTION

The medical science or broadly health science is one of the classical subjects and as it has its roots from ancient times, and has now grown as a big Banyan Tree. Both in the east and in the west there have been well known medical science documents written by the practioners engaged in the human health care. Health Science is regarded as one among the applied sciences and it closely related to the other biological sciences; mainly with biochemistry, forensic science, pharmaceuticals and drugs, biophysics, microbiology, and broadly biomedical sciences. The Encyclopedia Britannica defines “medical education is directed toward imparting to persons seeking to become physicians the knowledge and skills required for the preventions and treatment of disease. It also develops the methods and objectives appropriate to the study of the still unknown factors that produce disease or promote well-being”. The main aim is maintain the health, prevention of disease and relieve people from suffering and all this is acquired through education and learning through vast knowledge and literature made available since centuries and the libraries have been preserving this knowledge and also providing services to the users. (Chawla, *et al.*, 1997)

II. OBJECTIVES OF THE STUDY

1. To study the existing knowledge and skills of health science library (HSL) professionals. Are these skills and knowledge are enough to maximize the information services to the health science library personnel.
2. To study the knowledge and skills as acquired by HSL professionals on the job.
3. To identify the motivational factors among HSL professionals for acquiring knowledge and skills on job (internal and external factors).
4. To study the performance level of highly and that of less motivated personnel.
5. To study and identify various core areas of interest required for 21st Century knowledge and skills for health science professionals.
6. To identify the core areas of knowledge and skills required for HSL professionals.
7. To give a framework for drafting suitable guidelines for enhancing the knowledge of health science library professionals.
8. To suggest strategies to raise knowledge for health science professionals.

III. METHODS

A survey method of research has been adopted to collect primary data from health science institutions’ library professionals. The survey is confined to the health sciences institutions that come under the “Rajiv Gandhi University of Health Sciences (RGUHS), Bangalore, Karnataka.” The health science institutions covered are Medical, Dental, Pharmacy and Nursing Colleges under the purview of the University. There by the study intends to investigate how for the findings will have bearing upon health science institution as well as library professionals. This would be examined and enquired as a futuristic study.

IV. SURVEY AND ANALYSIS

The survey method was considered most appropriate for this study because, it measures users background, experience and what they know about knowledge and skills in professional development in enhancing their knowledge in day to day working environment and it is well suited to the research questions taken up for this study. The data has been

obtained by using well designed questioner which was standardized for comparison. Sufficient time was given to the response to furnish the required data. A total of 218 questionnaires were administered personally and 183 dully-filled-in questionnaire for received with response rate of 83.94% and were considered for analysis.

The scope of the present studies is limited to the health science library professionals working in affiliated colleges under “Rajiv Gandhi University of Health Sciences (RGUHS) and Deemed University of Karnataka.” The number of colleges affiliated to RGUHS is 428 and it would be difficult to cover the entire population of Medical Colleges which are spread along the length and breadth of the state. The health institutions under RGUHS are grouped under four regions viz., Bangalore, Belgaum, Gulbarga and Mysore. The scope of this study is limited to the Allopathic system only and cover, Medical, Dental, Pharmacy and Nursing Colleges and Institutions. This study covers the knowledge and skills requirements of health science library professionals affiliated to RGUHS, Karnataka covering the category of colleges mentioned above.

VI. RESULTS AND DISCUSSION

The response in quite natural that most of the library professionals are aware of Dewey Decimal Classification (DDC) system with 66.67%. The next is the National Library of Medicine Classification (NLM) with 14.75%. Surprisingly as much as 15.3% of them have “No Answer” to this query and this implies that some of them might not have classified their collection. Only a small number of them know about the Library of Congress Classification with only 3.28% of them. It is quite an optimal response as most of the library professionals are aware of DDC and that the health science professionals are aware of NLM to some extent and LCC is least known as it is not used in any library in India probably and the respondents’ knowledge of this would be from their study.

TABLE I KNOWLEDGE AND SKILLS ON CLASSIFICATION BY THE RESPONDENTS (N=183)

	Classification Scheme used				Total
	NLM	DDC	LC	No Answer	
Medical	22	65	0	21	108
	20.37%	60.19%	0.0%	19.44%	
Dental	3	23	6	1	33
	9.09%	69.7%	18.18%	3.03%	
Pharmacy	0	17	0	4	21
	0.0%	80.95%	0.0%	19.05%	
Nursing	2	17	0	2	21
	9.52%	80.96%	0.0%	9.52%	
Total	27	122	6	28	183
	14.75%	66.67%	3.28%	15.3%	100%
$X^2=40.908, p=0.000$					

As many as 15 different kinds of service both traditional and computer based services are identified to seek their knowledge and skills. The services are deemed to be provided manually and also online and it is possible that the respondents might be using both manual and online services. To assess the tendency of three variables – Manual, Online and Manual and Online, it was found desirable to do statistical inferences so the mean and median values and the standard deviation are computed and presented in this context. So the total sample is 183 comprising all four categories of health science institutions. The tabulated data is analysed and discussed in the light of these variable and results are discussed above.

The highlighted rows are computer-based services. It might be curious to know how it is possible to offer the services like WebOPAC and OPAC manually. But they fallacies as the respondents are not quite aware of offering these services from the respective libraries. Ignoring these false replies, it can be inferred that most traditional services are offered manually as the responses in these cases are higher than their online counterpart.

The statistical inferences of these services are visible from the values of standard deviation which lie between 0.86 and 0.92 and the differences from mean values are higher in them. Comparing these values with the computer based services like OPAC the values for online mode are higher than the manual modes and the respective standard deviation differences show lower than their mean values. Among the manual services the knowledge of Newspaper Clipping service, Circulation service and Library Orientation services are higher than others in the same class of traditional services. The lowest being the literature search service.

In the case of computer-based services the library professionals’ familiarity with electronic bulletin board service is higher than OPAC and WebOPAC. It can be presumed about the status of library automation in the health science institutions’ libraries and this service can be provided if only and if the library is automated. So the respondents feeling and assumption is that it is the manual catalogue service that can be the possible to answer to the query and OPAC provision may not be there in the libraries. In the previous section, a general over view of knowledge and skills of health science library professionals are seen about the library services – both traditional and computer based services. Further now the analysis is made to know the managerial skills like human resource development, library finance/budget, library marketing and Library automation and so on of library professionals working in the health science libraries under study. The responses are presented in Table III The Lickert’s five point scale is applied to these skills such as i) Great Extent ii) Some Extent iii) Little Extent iv) Not at all v) Can’t say and so on. Further they are statistically analyses by computing mean, median and standard deviation. The results of analysis are presented here.

TABLE II KNOWLEDGE AND SKILLS ON LIBRARY SERVICE BY THE HEALTH SCIENCE LIBRARY PROFESSIONALS (N=183)

Library Services	Manual	Online	Manual & Online	Mean	Median	S D
Newspaper Clipping Service	123	12	48	1.590	1.000	0.8779
	67.21%	6.56%	26.23%			
Electronic Bulletin Board	88	61	34	1.705	2.000	0.7634
	48.09%	33.33%	18.58%			
Inter-library loan service	99	27	57	1.770	1.000	0.8968
	54.10%	14.75%	31.15%			
Library Orientation	103	18	62	1.776	1.000	0.9253
	56.28%	9.84%	33.88%			
Circulation Service	92	38	53	1.787	1.000	0.8666
	50.27%	20.77%	28.96%			
Document Delivery Service	101	19	63	1.792	1.000	0.9261
	55.19%	10.38%	34.43%			
OPAC	54	109	20	1.814	2.000	0.6098
	29.51%	59.56%	10.93%			
Alert service	88	36	59	1.842	2.000	0.8846
	48.09%	19.67%	32.24%			
Web OPAC	60	90	33	1.852	2.000	0.6994
	32.79%	49.18%	18.03%			
Reference Service	89	30	64	1.863	2.000	0.9066
	48.63%	16.39%	34.97%			
Information literacy programme	85	38	60	1.863	2.000	0.882
	46.45%	20.77%	32.79%			
SDI	85	32	66	1.896	2.000	0.9049
	46.45%	17.49%	36.07%			
C AS	77	45	61	1.913	2.000	0.8663
	42.08%	24.59%	33.33%			
Bibliographic Service	74	42	67	1.962	2.000	0.8793
	40.44%	22.95%	36.61%			
Literature Search service	51	63	69	2.098	2.000	0.806
	27.87%	34.43%	37.70%			

The data from the Table III show that the four of the services have knowledge and skills are good among the library professionals. The responses “Great Extent “ on all four are higher and then to Some Extent comes next. So together they can be reckoned as having good managerial skills in the four services. If they statistically observed, the mean and standard deviation values prove these responses without much deviation of scales.

The next three services knowledge and skills are lower as in them the involvement of library professionals is somewhat indirect. For instance the Human Resource Management aspect where the role of library professional is partial as the selection of personnel and other related issues like salaries, benefits etc., generally of office and establishment sections. In this context the ‘Lack of Professional Recognition becomes a big gap and it is evident from the response of 85.24%. So these responses definitely specify some very apt professional knowledge and skills for the health science

library and information professionals. The respondents were asked to reply which are the motivating factors for acquiring knowledge and skills by health science library professionals on job. The data are presented in Table IV. The statistic on the responses was also inferred by standard deviation measures.

Four factors which are the key motivating factors are highlighted. Among them to help the fellow professionals in the highest motivating factor, next is the motivation to other LIS professionals and equally to get recognition in the profession. And the least influencing factor is Passion with just 59.02% shows for the profession which would a retarding factor for motivating a professional because, feeling for the profession and emotional attachment make best transformation in the professional advancement. The corresponding standard deviation results confirm this inference.

TABLE III KNOWLEDGE AND SKILLS IN LIBRARY MANAGEMENT BY HEALTH SCIENCE LIBRARIANS (N=183)

Library Services	Rating Scales					Mean	Median	S D
	Great Extent	Some Extent	Little Extent	Not at All	Can't Say			
Circulation	119	46	1	9	8	1.585	1.000	1.0389
	65.02%	25.13%	.54%	4.91%	4.37%			
Acquisition Activities	102	60	5	9	7	1.683	1.000	1.0153
	55.73%	32.78%	2.73%	4.91%	3.82%			
Library Finance / Budget	95	66	6	8	8	1.732	1.000	1.0268
	51.91%	36.06%	3.27%	4.37%	4.37%			
Library Automation	105	51	7	9	11	1.743	1.000	1.1361
	57.37%	27.86%	3.82%	4.91%	6.01%			
Human Resource Management	74	72	12	17	8	1.978	2.000	1.1141
	40.43%	39.34%	6.55%	9.28%	4.37%			
Serials Control System	72	74	16	9	12	1.989	2.000	1.1290
	39.34%	40.43%	8.74%	4.91%	6.55%			
Library Marketing	56	72	30	10	15	2.213	2.000	1.1783
	30.60%	39.34%	16.39%	5.46%	8.19%			

TABLE IV PROFESSIONAL KNOWLEDGE AND SKILLS

Professional Skills	Rating Scales					Mean	Median	SD
	Great Extent	Some Extent	Little Extent	Not at all	Can't Say			
Diversity in user needs	90 49.18	67 36.61%	9 4.92%	9 4.92%	8 4.37%	1.902	2.000	1.1100
Ever-changing nature of subjects	72 39.34%	68 37.16%	18 9.84%	16 8.74%	9 4.92%	1.858	2.000	1.0595
Increased professional expectations	96 52.46%	48 26.23%	23 12.57%	10 5.46%	6 3.28%	2.000	2.000	1.0844
Lack of support of Library Associations	44 24.04%	67 36.61%	43 23.50%	18 9.84%	11 6.01%	2.344	2.000	1.1798
Lack support of Professional Colleagues	30 16.39%	78 42.62%	46 25.14%	11 6.01%	18 9.84%	2.372	2.000	1.1308
Lack of Continuing Education / lifelong learning	51 27.87%	48 26.23%	47 25.68%	18 9.84%	19 10.38%	2.486	2.000	1.2790
Lack of Professional Recognition	76 41.53%	47 25.68%	33 18.03%	10 5.46%	17 9.29%	2.514	2.000	1.4368
Lack of Awareness of various LIS programs	47 25.68%	50 27.32%	44 24.04%	15 8.20%	27 14.75%	2.590	2.000	1.3471
Lack of scholarly professional Information	44 24.04%	59 32.24%	30 16.39%	22 12.02%	28 15.30%	2.623	2.000	1.3728

TABLE V FACTORS THAT MOTIVATE FOR ACQUIRING KNOWLEDGE AND SKILLS ON THE JOB (N=183)

Motivating Factors	Yes	No	Mean	Median	SD
For better financial prospects	141 77.05%	42 22.95%	1.230	1.000	.4217
For career advancement	166 90.71%	17 9.29%	1.093	1.000	.2911
For individual recognition	156 85.25%	27 14.75%	1.148	1.000	.3556
Passion	108 59.02%	75 40.98%	1.410	1.000	.4932
To be a leader in the profession	163 89.07%	20 10.93%	1.109	1.000	.3129
To get recognition in the organization	171 93.44%	12 6.56%	1.066	1.000	.2482
To Get Recognition in the profession	174 95.08%	9 4.92%	1.049	1.000	.2168
To help fellow LIS professionals	176 96.17%	7 3.83%	1.038	1.000	.1923
To motivate other LIS professionals	174 95.08%	9 4.92%	1.049	1.000	.2168

TABLE VI ACQUISITION OF SOFT SKILLS (INTERPERSONAL) N=183

Soft Skills	Rating Scales				
	Great Extent	Some Extent	Little Extent	Not at all	Can't Say
Lack of Communication Skills	51 27.88%	38 20.76%	43 23.5%	13 7.1%	38 20.76%
Lack of Knowledge of English language	27 14.75%	60 32.78%	34 18.58%	11 6.01%	51 27.88%
Lack of Institutional working atmosphere	46 25.14%	63 34.43%	37 20.22%	10 5.46%	27 14.75%
Total	124 67.77%	161 87.97%	111 60.65%	34 18.57%	116 62.39%

TABLE VII KNOWLEDGE AND SKILLS IN LIBRARY MANAGEMENT

Managerial Skills	Rating Scales					Mean	Median	SD
	Great Extent	Some Extent	Little Extent	Not at all	Can't Say			
Manpower constraints	73 39.89%	63 34.43%	29 15.85%	10 5.46%	8 4.37%	2.339	2.000	1.4277
Time Constraint	84 45.90%	66 36.07%	16 8.74%	9 4.92%	8 4.37%	2.426	2.000	1.3317
Inadequacy of infrastructure	62 33.88%	38 20.77%	40 21.86%	13 7.10%	30 16.39%	2.470	2.000	1.2958
Lack of support from the institution	35 19.13%	59 32.24%	42 22.95%	27 14.75%	20 10.93%	2.661	2.000	1.2514
Lack of financial Problems	47 25.68%	60 32.79%	35 19.13%	20 10.93%	21 11.48%	2.667	2.000	1.3960
Unsatisfactory Salary Structure	56 30.60%	40 21.86%	51 27.87%	17 9.29%	19 10.38%	2.721	3.000	1.4691

TABLE VIII KNOWLEDGE AND SKILLS OF MEDICAL DATABASES BY DESIGNATIONS

Medical Databases	Designations											
	Chief Libn (N=17)			SR. Libn. (N=13)			Librarian(N=70)			Asst. Libn.(N=83)		
	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank	Mean	SD	Rank
Cochrane Library	2.412	2.412	2.412	1.385	.5064	3	2.271	1.1154	6	1.855	1.0492	7
EBSCO	2.000	2.000	2.000	1.462	.6602	5	1.743	1.1507	2	1.759	1.1217	5
EMBASE	2.176	2.176	2.176	1.846	1.1435	7	2.786	1.4536	7	1.892	1.1478	6
MedIND / IndMED	1.882	1.882	1.882	1.154	.5064	1	1.957	1.2210	4	1.554	1.0031	3
Medline	1.882	1.882	1.882	1.692	1.4936	6	1.929	1.1587	3	1.590	.9504	4
OVID Database	2.000	2.000	2.000	1.231	.4385	2	2.000	1.2277	5	1.470	.9670	2
ProQuest	1.882	1.882	1.882	1.462	.6602	4	1.686	1.1615	1	1.470	1.1238	1
PsycINFO	2.529	2.529	2.529	2.231	.4385	8	2.843	1.5193	8	2.084	1.1604	8

The Table VI presents the data on Interpersonal soft skills. The lack of institutional working atmosphere is the highest with 25.14% for Great Extent, 34.43% for some extent and 20.2% for little extent communication skills is higher in three categories. However the 'Some Extent' seems highest with 87.97% for all three options and overall the interpersonal skills are very essential in health science education.

The next category is for the professional soft skills and it is important that the library and information professionals also need soft skills (professional) like Communication skills as they have interact with users of health science academics with diverse specializations. Negotiation skills as they have

to deal with the present day electronic resources' vendors as pricing policies are the crucial factors in the present context. So for these and many more professional soft skill the data was collected from the library professionals and the responses are presented in Table IX.

The manpower constraints is one of the main factor in library management in general and it also applies to the health science library environment too. Because of lack of manpower then arises the Time Constraint to provide good services and this factor is also 90.71% and the other factors are also to be considered especially the salaries of the library and information professionals working the health science educational institutions.

VII. SUGGESTIONS

The study after a thorough investigation of the knowledge and skills required for the health science library and information professionals covering Medical, Dental, Pharmacy and Nursing Institutions in the State of Karnataka has arrived at some important findings as detailed above. However it is not possible to cover the entire domain and the user community. So the study makes following suggestions.

1. The health science domain is growing with many specializations and super-specialisations and it is not possible to cover them with the library professionals in the investigation and therefore it is suggestion that the users – with specializations studies can be conducted.
2. The medical databases are now growing in born digital and in full text and the search techniques are developing with the web in context, hence a suggestion can be made to study this gap.
3. The study also makes a suggestion to conduct workshops for the library and information professionals on different skill sets required – such as communication skills, domain specific knowledge, managerial and leadership skills and the negotiation skills which are becoming essential in the present web based information resources and systems.
4. A suggestion on the development of health science domains and their impact of the library and information can be made to assess the new knowledge and skills requirements for library and information professionals.
5. The research study made an analysis of the data on demographic, professional, knowledge resources in libraries, the resources in electronic forms and the basic and advanced ICT knowledge of the library professionals. The knowledge and skills to search information on health sciences is one of the key intent to investigate as health science is becoming more and more complex due the growth of subject and offering many specializations and super-specialisation. It also investigated on the knowledge resources in digital form and infrastructure facilities like In-house ICT facilities as complement to the library resources and services.

VIII. CONCLUSION

The research study made an analysis of the data on demographic, professional, knowledge resources in libraries, the resources in electronic forms and the basic and advanced ICT knowledge of the library professionals. The knowledge and skills to search information on health sciences is one of the key intent to investigate as health science is becoming more and more complex due the growth of subject and offering many specializations and super-specialisation. It also investigated on the knowledge resources in digital form and infrastructure facilities like In-

house ICT facilities as complement to the library resources and services. In conclusion the research claims to have filled some gaps in knowing and assessing the required gaps for the library and information professionals working in the health science institutions. The statistical analysis of the data has been made using the standard dimension statistic and that the study has arrived at fair conclusions. The study claims to add new knowledge to the subject undertaken for the research in this context.

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