

## Information literacy competencies among faculty of medical colleges, a chi square test analysis

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### Abstract

The paper analyses responses of 350 faculty members with 35 respondents in each of 10 medical colleges of M.P. Traces short history of information literacy. Analyzes 60% male and 40% female. 60% respondents between age group of 31 to 40 years with all having PG degree. Analyzes searching pattern and find 71% still use manual searching very frequently. Computer and internet searching is used occasionally by 33% and 52% respondents respectively. Analyzes sources of information showing central library by most users. Also paper finds that few respondents know about their sources of information and from where to find those sources. Finds that telemedicine is seldomly used. Reports the results of testing four hypotheses.

**Keywords:** Information literacy, source of information, medical colleges, faculty members, searching pattern, telemedicine

### 1 Introduction

Education is about two fundamental purposes, making a life, and making a livelihood. The information literacy holds the key to both of them. The term information literacy was first used in 1970's in the US. Earlier the terms like user education and library literacy, etc were

used. Later with the explosion of information in the world, it became difficult to search and evaluate the right information by the readers and a newer term 'information literacy' emerged. The term information literacy has been defined by many. In the year 1989 ALA defined the it "Ultimately information literate people are those who have learned how to learn. They know how to learn because they know how information is organized, how to find information, how to use information such way that others can learn from them. The American Library Association's (ALA) Presidential Committee on Information Literacy, Final report defined it, as, a "set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information". In other words information literacy is a set of skills, which enables the individuals to recognize his/her information need.

The US National Commission on Library and Information Science, 2003(13) defined it as "It encompasses knowledge of one's information concerns and need and the ability to identify locate, evaluate, organize and effectively create, use of communicating information to address issues or problems at hand. It is perquisite for participating effectively in the information society, and its part of the basic human rights of lifelong learning."

Thus information literacy has few essential elements

- a) Know own information requirements
- b) Know how information is organized
- c) Know how to find it
- d) Know how to evaluate it
- e) Know how to use it

## **2 Objectives**

The study has been conducted mainly with two objectives

- 1) To assess the level of information literacy competencies among faculty members of medical colleges;
- 2) To assess the ability among medical faculty members to locate, and evaluate their needed information;

### 3 Sampling

The study covers all the 10 medical colleges both government and private in Madhya Pradesh in Bhopal, Ujjain and Indore division. This study is based on questionnaire/interview schedule and covers 35 faculty members in each medical college. Hence the sample size is 350. Selection of respondents has been made using stratified sampling methods.

The study is based on online questionnaire in 10 medical colleges of Madhya Pradesh administrated on Professors, Associate Professors and Assistant Professors, Sampling is done very carefully so that all types of users & both genders are represented. The questionnaires were mailed on Emails, WhatsApp, Facebook and personal contacts were made to peruse to fill them.

### 4 Statistical techniques

Statistical methods like percentages, standard deviations have been used in the research. Mainly chi-squares test have been used. The collected data have been analyzed with the help of chi-squares test.

Mathematically it is represented as:

$$\chi^2 = \sum (O-E)^2/E$$

Where O stands for observed frequency and

E stands for expected frequency of the same event.

$\chi^2$  stands for various Values of Chi-square at various levels of significance with various degrees of freedom.

The values of chi square test have been calculated with the help of Kristopher J. Preacher 's online calculator (<http://www.quantpsy.org/chisq/chisq.htm>).

### 5 Hypotheses

Many hypothesis have been formulated for the research work, a few are given as under

- a) There is no significant input of searching pattern of information;

- b) There is no significant input of source of information;
- c) There is no significant input of source of needed information;
- d) Information literacy competencies are higher among faculty members in the medical colleges.

## **6 Review of literature**

Many similar studies on the topic have been reviewed. A few important have been incorporated here

Belay and Bramo (2017) investigated electronic information literacy level and challenges among academic staffs to support teaching learning in higher learning institution, Ethiopia, during 2015. A cross-sectional study design with both quantitative and qualitative data collection method was used. Reported that librarians and information professionals should conduct continuous training and retraining of academics on information literacy skills acquisition and adequate provision of electronic information resources in their institution.

Deepmala and Shivraj (2016) study is based on information literacy skills among 96 women faculty in 27 engineering colleges of Coimbatore and finds that there is rise in the use of social media for Knowledge share.

Stanger (2009) has discussed Association of College and Research Libraries (ACRL) (2006) standards & development ACRL information literacy skills. Identified relation between librarians and faculty to develop information literacy. Highlights role of librarians.

Eskola (2005) study is based on Tampere University Medical School, Finland. Measures examination of the instruction and guidance given in information searching and the critical judgment of information. The students' preparation of instructions and searching databases use of database, skills in the critical judgment are examined.

Kumar et. al. (2004) have studied information literacy mission in digital environment. They discussed the reasons for illiteracy and present situation and have given meaning of

information, literacy and information literacy in Indian context and correlated them. They have given information literacy plan for developing Indian society for 2020 and has prepared model syllabus.

Donner and Bickeley (1993) studied recent trends of problem based learning in American medical education and pointed the faculty role. Discussed the advantages and disadvantages and suggest the future problem based learning curriculum at all levels of medical education.

## 7 Analysis

In this part paper first analysis of few independent variables such as designations, gender and qualifications of the respondents has been made (Table 1 to 3). Thereafter questions on information literacy competencies have been analyzed as reflected in Tables 4 to 7.

### 7.1 Gender distribution

Table 1

Gender wise distribution of respondents

	Male	Female	Standard Deviation	Responses
All Data	211 (60%)	139 (40%)	36	350

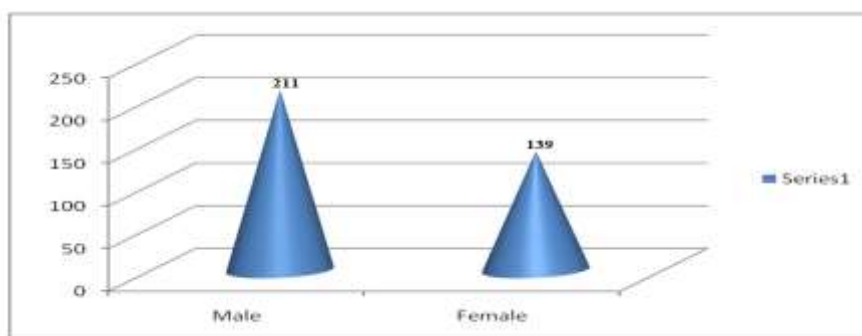


Figure: 1 : Gender wise distribution of respondents

The above Table 1 provides gender wise distribution of the respondents. Following observations are seen from the table

- i. 350 respondents answered the questionnaires;
- ii. There are 60% male and 40% as female respondents. The ratio is quite satisfactory for research purpose.

## 7.2 Age groups

Table 2  
Age groups of the respondents (in years)

	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	Standard Division	Responses
All Data	0 (0%)	5 (1%)	93 (27%)	116 (33%)	54 (15%)	38 (11%)	14 (4%)	5 (1%)	21 (6%)	4 (1%)	38.62	350

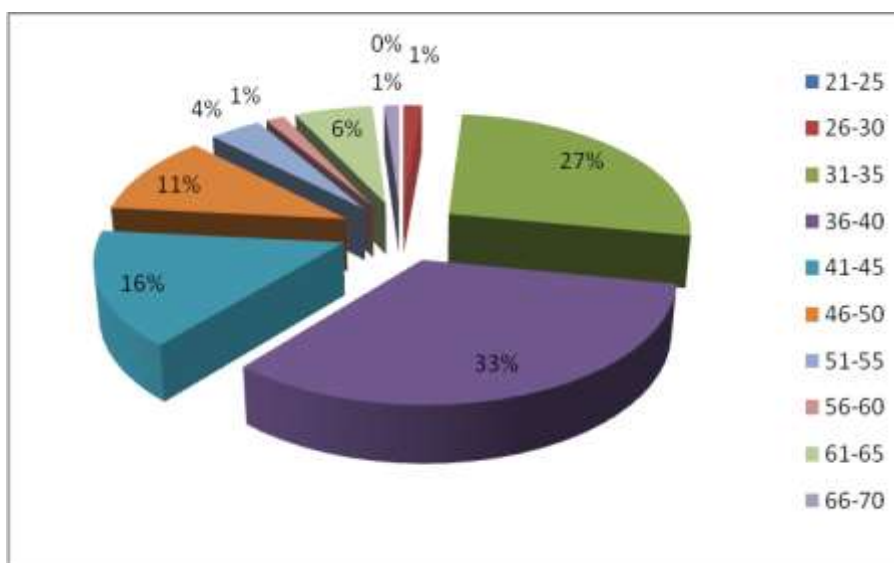


Figure 2: age group of the respondents

Table 2 shows classified age groups of the respondents. Following observations are seen from the table

- i. 8 % respondents are in the age group of 56+;
- ii. 60 % of the respondents are in age group of 31-40;
- iii. 26% respondents are in the age group of 41-50;
- iv. Only 1% respondents are in the range of 21 – 30 years ;
- v. The respondents represent all age groups, mostly productive age group between 30-50 years.

### 7.3 Professional qualifications

Table 3  
Professional qualifications of the respondents

	PG Diploma	MBBS only	M. Sc. Only	MD	MS	Ph.D.	Any other (Please Specify)	Standard Deviation	Responses
All Data	1 (0%)	0 (0%)	2 (1%)	208 (59%)	131 (37%)	7 (2%)	1 (0%)	78.36	350

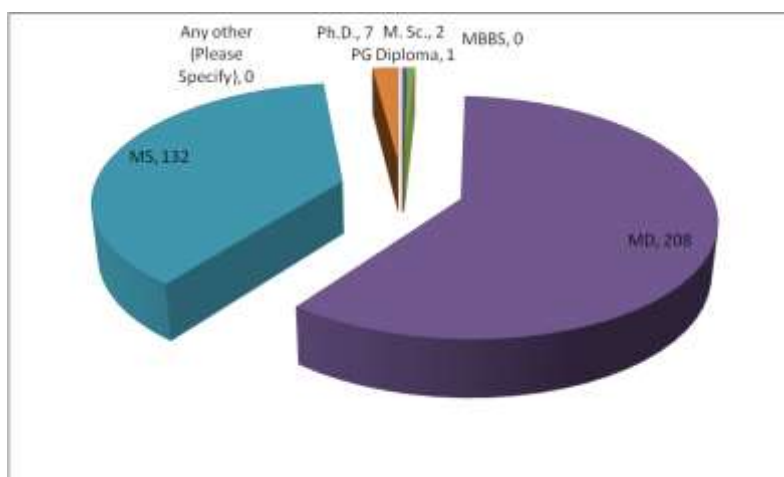


Figure 3 : Professional qualifications of the respondents

Table 3 shows that 96 % respondents are MD/MS since post graduation is the minimum qualification for teaching posts, 2% also have Ph. D., only 2 candidates have M.Sc. Degree.

### 7.4 Searching pattern

Table 4

Day to day searching pattern of information

	Very frequently	Frequently	Occasionally	Rarely	Never	Standard Deviation	Responses	Weighted Average	
Manual searching	250 (71%)	50 (14%)	38 (11%)	12 (3%)	0 (0%)	91.75	350	1.46 / 5	1238 (88%)
Computer searching	98 (28%)	207 (59%)	33 (9%)	11 (3%)	1 (0%)	76.37	350	1.89 / 5	1090 (78%)
Internet searching	132 (38%)	162 (46%)	52 (15%)	4 (1%)	0 (0%)	66.16	350	1.79 / 5	1122 (80%)
Total	480 (45.71%)	419 (39.61%)	123 (11.71%)	27 (2.57%)	1 (0.95%)		1050	1.71/5	3450
Score	1920	1257	246	27	0		3450		

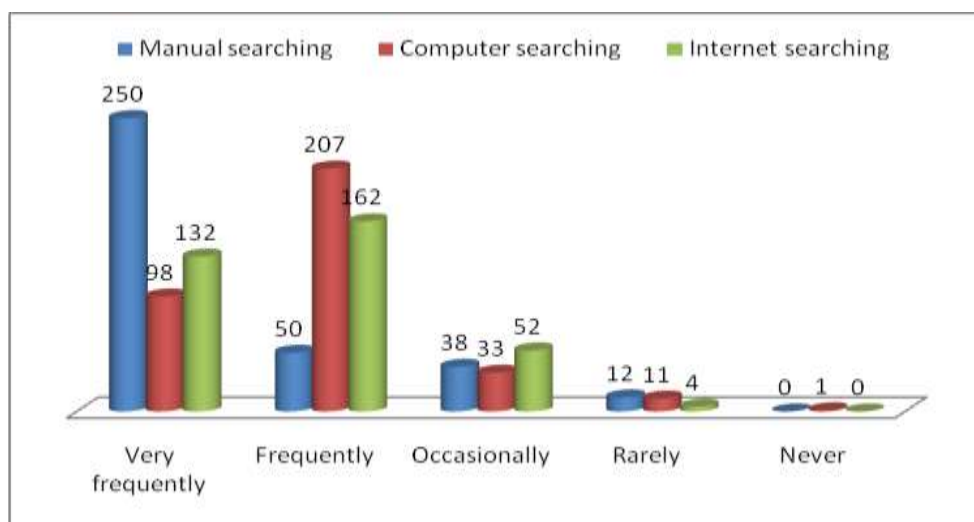


Figure 4 : Day to day searching pattern of information





Table 4 shows day to day information searching pattern of respondents at 5 point scale.

- i. 71 % respondents very frequently use manual searching to meet day to day information requirements;
- ii. 28% use computer searching of information very frequently;
- iii. Only 38% respondents use internet searching very frequently ;

It means search of information through manual searching is still popular among faculty members.

### 7.5 Source of information (A)

Table 5

Sources of information

	Always	Very often	Sometime	Rarely	Never	Standard Deviation	Responses	Weighted Average	
Central Library	100 (29%)	187 (53%)	57 (16%)	5 (1%)	1 (0%)	68.91	350	1.91 / 5	1080 (77%)
Departmental libraries	191 (55%)	96 (27%)	61 (17%)	2 (1%)	0 (0%)	70.6	350	1.64 / 5	1176 (84%)
Other libraries	1 (0%)	13 (4%)	86 (25%)	176 (50%)	74 (21%)	62.48	350	3.88 / 5	391 (28%)
Senior 's	80 (23%)	95 (27%)	150 (43%)	25 (7%)	0 (0%)	53.01	350	2.34 / 5	930 (66%)
Personal collection	54 (15%)	181 (52%)	93 (27%)	22 (6%)	0 (0%)	63.73	350	2.24 / 5	967 (69%)
Online Resources	52 (15%)	65 (19%)	199 (57%)	32 (9%)	2 (1%)	67.91	350	2.62 / 5	833 (59%)
Expert	37 (11%)	71 (20%)	160 (46%)	80 (23%)	2 (1%)	52.75	350	2.83 / 5	761 (54%)
Newspaper	50 (14%)	104 (30%)	107 (31%)	88 (25%)	1 (0%)	40.02	350	2.67 / 5	814 (58%)
Television/ Radio	50 (14%)	80 (23%)	102 (29%)	109 (31%)	9 (3%)	36.79	350	2.85 / 5	753 (54%)
Dictionary / encyclopaedia	100 (29%)	135 (39%)	78 (22%)	36 (10%)	1 (0%)	47.13	350	2.15 / 5	997 (71%)
Total	715 (20%)	1027 (29%)	1093 (31%)	575 (16%)	90 (3%)		3500	2.51/5	8702
Score	2860	3081	2186	575	0		8702		

Score: always -4 very often-3 sometime- 2 rarely-1 never-0

Total score: Number of respondents × score

Example:  $715 \times 4 = 2860$

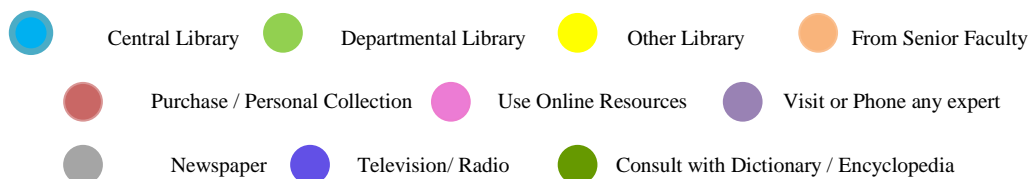
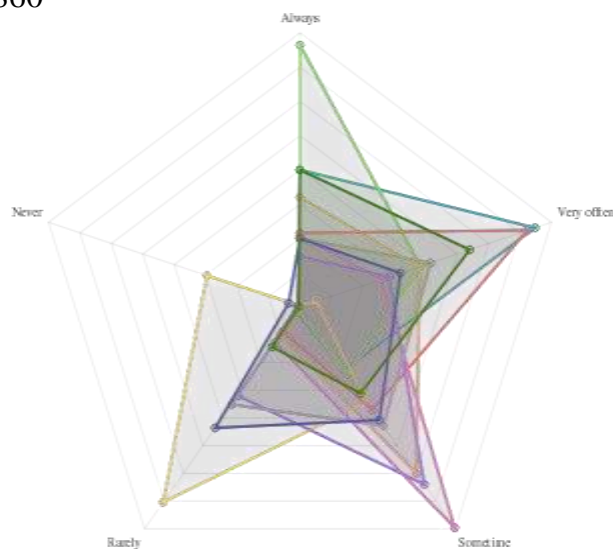


Figure 5: Sources of information

The following observations can be made from above table 4.10

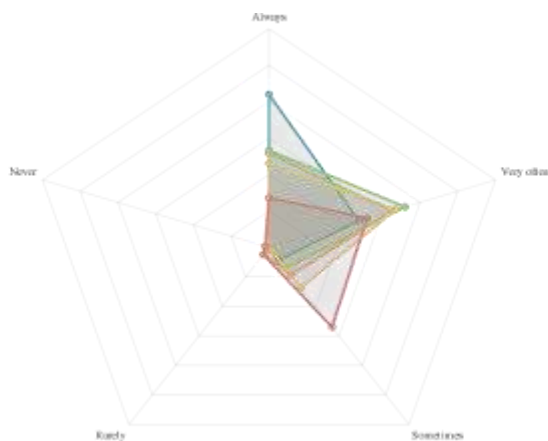
- i. Central library is ‘always’ option sources of knowledge for 29% respondents while it is very often for 53% respondents ;
- ii. For 82 % respondents use of departmental library is ‘always’ option and very often as source of their information needs;
- iii. 50 % respondents consult senior faculty ‘always/very often’ option for their needed information;

- iv. Only 67% respondents use ‘always/very often’ option for personal collection as source of information;
- v. Online resources are still far behind with only 34% respondents using them ‘always’ or ‘very often’.
- vi. Others like experts; TV, newspaper etc. are less used as a source of information.

### 7.6 Sources of needed information (B)

Table 6  
Sources of information.

	Always	Very often	Sometimes	Rarely	Never	Standard Deviation	Responses	Weighted Average	Score
Where can you find the information you need ?	210 (60%)	119 (34%)	21 (6%)	0 (0%)	0 (0%)	82.71	350	1.46 / 5	1239 (88%)
Which source best meets your needs ?	133 (38%)	180 (51%)	35 (10%)	2 (1%)	0 (0%)	73.24	350	1.73 / 5	1144 (82%)
Which source do you already have ?	115 (33%)	167 (48%)	68 (19%)	0 (0%)	0 (0%)	65.17	350	1.87 / 5	1097 (78%)
Where can you find those sources ?	129 (37%)	163 (47%)	47 (13%)	11 (3%)	0 (0%)	64.87	350	1.83 / 5	1110 (80%)
Do you need to help to find these sources ?	68 (19%)	130 (37%)	135 (39%)	12 (3%)	5 (1%)	55.53	350	2.3 / 5	944 (67%)
Total	655 (37%)	759 (43%)	306 (17%)	25 (1%)	5 (0.28%)		1750	1.84 / 5	5534
Score	2620	2277	612	25	0		5534		



- W here can you find the information you need ?
- Which source best meets your needs ?
- Which source do you already have ?
- W here can you find those sources ?
- Do you need to help to find these sources?

Figure 6: Sources of needed information

Table 6 shows respondents abilities of information literacy with the help of answers & questions

Do you know? The table has 5 point scale. Some observations of the table are as follows

- i. 60% respondents know where the needed information is available;
- ii. 38 % respondents know the best source which meet their information required;
- iii. 33 % respondents know the sources of information they already have;
- iv. 37 % respondents know where to find that source of information;
- v. 19 % respondents need help to find out their sources.

Thus from the above analysis, it can be concluded that only 1/3 respondents are able to find out their information for sure “always”. Others are not sure for it. Thus large number of doctors/faculty needs training in information literacy.

### 7.7 Telemedicine

Table 7  
Use of telemedicine

Table 7 and figure 7 reveals that use of telemedicine is almost absent. Most of the faculty members are not aware about telemedicine. Only few faculty members use telemedicine rarely or sometime.

	Always	Very Often	Sometime	Rarely	Never	Standard Deviation	Responses
All Data	0 (0%)	0 (0%)	12 (3%)	24 (7%)	314 (90%)	122.32	350

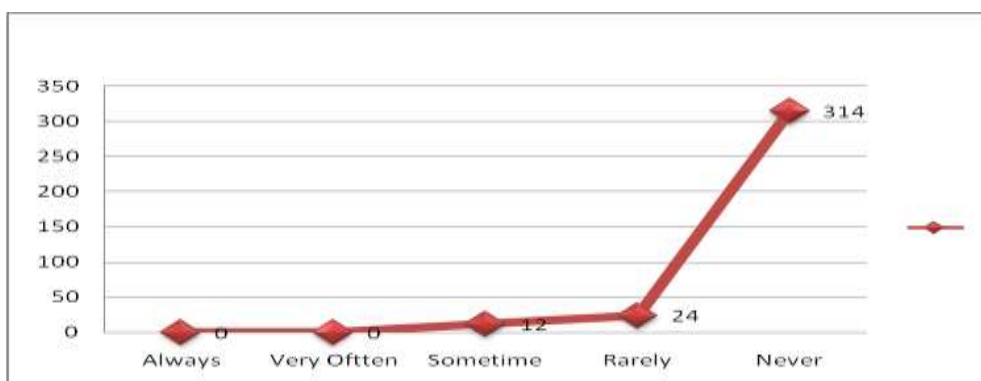


Figure 7: Use of telemedicine

Telemedicine is new area in medical field. Where specialist can be conducted online for diagnosis and treatment. This question was asked to assess respondent's present information literacy competencies. Telemedicine is used ICT in health care sector. This has been included in dream projects of India.

### 8. Test of hypothesis

Following hypothesis have been tested with the help of Kristopher J. Preacher's online calculator the values of chi square test have been concluded.

**a). There is no significant input of searching pattern of information**

The tabulated value of the chi square  $\chi^2$  for the 8 degree of freedom at 0.05 percent level of significance is 15.507, and the calculated value 184.103. Hence hypothesis is rejected.

(Table 4)

**b). There is no significant input of source of information.**

The tabulated value of the Chi square  $\chi^2$  for the 36 degree of freedom at 0.05 percent level of significance is 50.998, and the calculated value 1759.899. Hence hypothesis is rejected.

(Table 5)

**c). There is no significant input of source of needed information.**

The tabulated value of the chi square  $\chi^2$  for the 16 degree of freedom at 0.05 percent level of significance is 26.296, and the calculated value 277.226. Hence hypothesis is rejected.

(Table 6)

**d). Information literacy competencies are higher among faculty members in the medical college of Madhya Pradesh.**

According to Table 6, only 37% respondents use 'always' source as their information option and hence they are not aware of source of information hence hypothesis is rejected.

## 9. Conclusion

With the above discussion, it has been concluded that most medical college faculty members are competent to know the source of information. But most of them are not able to make use of online resources for their work. A large percentage is able to locate sources of their information. The use of telemedicine is almost absent in this survey. Search of information through manual searching is still popular among faculty members.

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