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Information Literacy among Ophthalmologists: A Study

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Abstract

Background: Information literacy enables Ophthalmologists – Eye Doctors to achieve a wide variety of academic, work related and personal goals. The study aims to examine the information literacy skills among ophthalmologists. **Methodology:** The study design is cross-sectional and convenience sampling method is adopted. A structured questionnaire was used to collect data. SPSS 18 PASW Statistical package was used for statistical analysis. Frequencies, percentages, Mann Whitney U test, Kruskal-Wallis test, chi-square were used in the study. **Findings:** Around 633 ophthalmologists working in 47 academic eye hospitals from 16 states of India were included in the study. The results revealed that majority of the ophthalmologists were able to find the information within a few hours and there doesn't any association with ophthalmologists' individual and institutional characteristics. Majority of the ophthalmologists were confident on the literacy skill "When I recognize an information need, I determine what topic I have to search". The statistical test results showed that there exist a significant difference between ophthalmologists' information literacy skills and designation, experience. **Conclusion:** The ophthalmic librarians, ophthalmic institutions, ophthalmic training institutions, and ophthalmic community should provide literacy programs to improve the information literacy skills of ophthalmologists.

Keywords: Information Literacy, Information Sources Ophthalmologists, Information Seeking Behaviour, Orientation Programs, User Education

1. Introduction

Ophthalmologists working in academic eye hospitals seek information to provide the best eye care to the patients, educate students, and advance the field ophthalmology through research. The information age offers abundant eye care knowledge as well as challenges to ophthalmologists. Information literacy enables ophthalmologists to face the challenges in information access and use. Information literacy encompasses the capability of recognizing an information need and the ability to locate evaluate and use the needed information. Information literacy forms the basis for lifelong learning. An information literate ophthalmologist will be:

- Able to determine the information needed and its scope,
- Familiar with the information sources and how they are organized,
- Able to employ appropriate search / research techniques,
- Access the needed information effectively and efficiently,
- Evaluate information and its sources critically, and
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

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In today's world, Information Communication Technology (ICT) literacy is an important component of information literacy. ICT proficiency is the ability to use digital technology, communication tools and networks for information use. The information literacy combined with ICT literacy enable ophthalmologists to use ICT devices, software applications, databases and other technologies to achieve a wide variety of academic, work related and personal goals.

The purpose of this study is to examine the information literacy skills among ophthalmologists. The outcome of the study will be helpful to the ophthalmic librarians, ophthalmic institutions, ophthalmic training institutions and ophthalmic community. Survey method is used to assess the information literacy skills of ophthalmologists. 633 ophthalmologists working in 47 academic eye hospitals from 16 states of India were included in the study. This study is a part of larger study, "Information Needs and Seeking Behaviour of Ophthalmologists in Academic Eye Hospitals in India".

2. Review of Literature

Harms (2015) conducted a study to identify the role of information search in creative problem-solving. A computer program was developed to track the participants' information seeking behaviour during a complex problem solving. The results revealed that the ways in which people frame problems influence information search.

Farokhzadian et. al. (2015) studied about the information seeking and retrieval of nurses in Iran. The cross-sectional study was conducted in four teaching hospitals in Iran. Around 182 nurses were included in the study. Majority of the nurses were not aware of Boolean and proximity operators. The nurses use the quick basic search feature more often than advanced search, index browsing and MeSH term search.

Sunaga (2016) conducted a study to assess information literacy among students and teachers in Japan. The survey was conducted with two groups of school teachers and two groups of university students. The study results revealed that they were willing to acquire skills to identify their task, to read information, and to present the result of task. But they were not unwilling to acquire skills to evaluate the information that they have found.

Ali Hassan et. al. (2016) conducted a survey to profile the distance learning students in Wawasan Open University based on their information seeking behaviour. A total of 435 students were included in the study. Majority of the students responded that they were unable to determine the appropriateness of the information. Majority of the students were not sure how to integrate the information into assignments and research work.

Verma and Laltlanmawii (2016) conducted a study to investigate the information Seeking Behaviour of Faculties and Research Scholars in School of Physical Sciences, Mizoram University. A total of 53 faculty members and research scholars were enrolled in the study. Every respondent had computer knowledge and was using computer to search the information.

Solomon (2016) conducted a study to investigate the information seeking behaviour of medical doctors in IRRUA specialist teaching hospital. A total of 121 medical doctors were enrolled in the study. Most of the medical doctors scarcely use the Boolean operators, because most of them do not know how to use the Boolean operators.

3. Objectives of the Study

- To examine the information literacy skills of ophthalmologists, and
- To investigate the time required to find information by the ophthalmologists.

4. Hypotheses of the Study

1. The time required to find information by the ophthalmologists differ by gender,
2. The time required to find information by the ophthalmologists differ by age group,
3. The time required to find information by the ophthalmologists differ by designation,
4. The time required to find information by the ophthalmologists differ by experience,
5. The time required to find information by the ophthalmologists differ by institution type,
6. Information literacy skills of ophthalmologists differ by gender,
7. Information literacy skills of ophthalmologists differ by age group,
8. Information literacy skills of ophthalmologists differ by designation,
9. Information literacy skills of ophthalmologists differ by experience, and
10. Information literacy skills of ophthalmologists differ by institution type.

5. Methodology

The main purpose of the study was to find out the information literacy skills among ophthalmologists. The research design adopted for this study was cross-sectional. Convenience sampling method was found appropriate to enrol the wide-spread ophthalmologist population and the same was followed in the study. A structured questionnaire was used as a data collection tool to identify ophthalmologists' information literacy skills. A total of 633 ophthalmologists from 47 academic eye hospitals in 16 states of India were included in the study. The collected data were entered into data-entry software, purposefully developed for the study. The software was developed in Microsoft Visual Basic 6.0 with backend SQL Server 2000. For further analysis, the data stored in SQL Server 2000 was extracted into Ms-Excel 2007 spread sheets. MS-Excel 2017 was used to organize and tabulate the data. SPSS 18 PASW Statistical package was used for statistical analysis. Frequency counts and Ranks were used to find out the most common attitude of ophthalmologists. The Mann Whitney U test was used to examine ophthalmologists' preferences with gender. The Kruskal-Wallis test was used to examine the ophthalmologists' preferences with age, designation, experience, and institution type.

6. Analysis

The ophthalmologists were asked how much time they required to find information. The time required variable is measured with 6 values namely, within a few hours, within a day, within a week, within a few minutes, within a month, more than a month. The time required variable was analysed in total and with gender, age, designation, experience, and institutions. The results were presented in Table 1. The Chi-square test and Fishers Exact test were used to examine the statistical association between time required to find information with gender, age, designation, experience, and institutions.

Table 1. Time required find information by the ophthalmologists

Sl. No.	Description	Within a few hours	Within a day	Within a week	Within few minutes	Within a month	More than a month	
	Gender							**0.607**
1.	Male	47	109	71	61	5	1	
2.	Female	57	136	87	54	3	2	
	Age Group							**0.005**
1.	Less than or equal to 30	31	87	53	39	6	1	
2.	31 to 40	51	116	78	51	1	1	
3.	41 to 50	15	34	22	18	0	0	
4.	51 to 60	6	5	4	5	1	0	
5.	61 and above	1	3	1	2	0	1	
	Designation Category							**0.181**
1.	Medical Officers	33	99	72	43	5	2	
2.	Fellows	66	143	84	68	3	1	
3.	Senior Residents	5	3	2	4	0	0	
	Working Experience							**0.218**
1.	Less than or equal to 5	65	152	103	82	7	2	

2.	6 to 10	8	14	7	11	0	0	
3.	11 to 15	5	13	7	5	0	0	
4.	16 to 20	5	12	5	7	1	1	
5.	21 and above	21	54	36	10	0	0	
	Institution type							**0.869**
1.	Government	6	18	7	10	0	0	
2.	Not for Profit Organization	82	196	135	92	7	3	
3.	Corporate	16	31	16	13	1	0	
	Total	**245**	**158**	**115**	**104**	**8**	**3**	
	Percentage	**38.70%**	**24.96%**	**18.17%**	**16.43%**	**1.26%**	**0.47%**	

** - (P value <0.05 and test result is significant); # - Fishers Exact test is used

Most of the ophthalmologists mentioned that they will find the needed information within hours which is about 38.70%. 24.96% of the ophthalmologists mentioned that they will find the needed information within a day. 18.17% of the ophthalmologists mentioned that they will find the needed information within a week. The chi-square test results revealed that there doesn't any association between time required to find information by the ophthalmologists and gender, age, designation, experience, and institution type.

Information literacy skills among Ophthalmologists had been ascertained based on eleven variables on a five point scale; "1-Not confident", "2-Somewhat confident", "3-Seldom", "4-Confident", "5-Very Confident". The internal consistency of the variables were measured by Cronbach's alpha (Alpha >0.70 is considered as acceptable). The alpha coefficient for the variables is 0.9138 which indicates that the variables have relatively high internal consistency. Number of responses, percentage, mean, standard deviation, median, and rank were shown in Table 2. Ranks were assigned based on mean and standard deviation.

Table 2. Information literacy skills – summary

Sl. No.	Description	Not confident (%)	Somewhat confident (%)	Seldom (%)	Confident (%)	Very Confident (%)	Mean (SD)	Median	Rank
1.	When I recognize an information need, I determine what topic I have to search	3 (0.5%)	73 (11.5%)	83 (13.1%)	390 (61.6%)	84 (13.3%)	3.76 (0.84)	Confident	1
2.	I build an appropriate search to retrieve information	8 (1.3%)	67 (10.6%)	135 (21.3%)	348 (55%)	75 (11.8%)	3.66 (0.87)	Confident	2
3.	I know the ethical, legal, social issues surrounding the use of information	64 (10.1%)	109 (17.2%)	220 (34.8%)	197 (31.1%)	43 (6.8%)	3.07 (1.08)	Seldom	9
4.	I can access and use information ethically & legally	36 (5.7%)	81 (12.8%)	172 (27.2%)	269 (42.5%)	75 (11.8%)	3.42 (1.04)	Confident	5

5.	I am aware about library collections & how to access it	32 (5.1%)	82 (13%)	147 (23.2%)	303 (47.9%)	69 (10.9%)	3.47 (1.02)	Confident	4
6.	I know how to access and use the e-resources	26 (4.1%)	61 (9.6%)	135 (21.3%)	309 (48.8%)	102 (16.1%)	3.63 (1)	Confident	3
7.	I know what is MeSH / keyword / tag word and how to use it	107 (16.9%)	103 (16.3%)	174 (27.5%)	179 (28.3%)	70 (11.1%)	3 (1.25)	Seldom	10
8.	I use Boolean operators (AND, OR, NOT) in search techniques	210 (33.2%)	76 (12%)	187 (29.5%)	115 (18.2%)	45 (7.1%)	2.54 (1.31)	Seldom	11
9.	I know how to record or cite all my sources	66 (10.4%)	129 (20.4%)	157 (24.8%)	203 (32.1%)	78 (12.3%)	3.15 (1.19)	Seldom	8
10.	I know how to evaluate the information and sources effectively	43 (6.8%)	104 (16.4%)	175 (27.6%)	245 (38.7%)	66 (10.4%)	3.3 (1.07)	Seldom	7
11.	I am able to synthesis the retrieved information	40 (6.3%)	98 (15.5%)	173 (27.3%)	249 (39.3%)	73 (11.5%)	3.34 (1.07)	Confident	6

It can be seen from the Table 2 that most of the ophthalmologists are confident on the skill - "When I recognize an information need, I determine what topic I have to search". It is followed by "I build an appropriate search to retrieve information" and "I know how to access and use the e-resources" which were their second and third preferences. They were least confident with the skill - "I use Boolean operators (AND, OR, NOT) in search techniques". The mean value of the responses ranges between 2.54 and 3.76. The standard deviation of the responses ranges between 0.84 and 1.31.

The information literacy skills of both female and male ophthalmologists were analysed further and ranks were assigned based on mean and standard deviation. The mean, standard deviation, rank and Mann Whitney U test results were shown in Table 3.

Table 3. Information literacy skills vs gender

Sl.No.	Description	Female		Male	
		Mean (SD)	Rank	Mean (SD)	Rank
1.	When I recognize an information need, I determine what topic I have to search	3.71 (0.9)	1	3.8 (0.79)	1
2.	I build an appropriate search to retrieve information	3.63 (0.89)	2	3.68 (0.84)	2
3.	I know the ethical, legal, social issues surrounding the use of information	3.02 (1.08)	9	3.12 (1.07)	9
4.	I can access and use information ethically & legally	3.39 (1.03)	5	3.45 (1.05)	5

5.	I am aware about library collections & how to access it	3.41 (1.04)	4	3.51 (0.99)	4
6.	I know how to access and use the e-resources	3.63 (0.98)	3	3.64 (1.02)	3
7.	I know what is MeSH / keyword / tag word and how to use it	2.93 (1.24)	10	3.07 (1.26)	10
8.	I use Boolean operators (AND, OR, NOT) in search techniques	2.47 (1.29)	11	2.6 (1.31)	11
9.	I know how to record or cite all my sources	3.14 (1.16)	8	3.17 (1.21)	8
10.	I know how to evaluate the information and sources effectively	3.22 (1.06)	7	3.36 (1.08)	7
11.	I am able to synthesis the retrieved information	3.26 (1.08)	6	3.42 (1.06)	6

Rank is derived for each gender group based on the mean and standard deviation of ophthalmologists' responses. The ranks show that most of the female and male ophthalmologists are confident on "When I recognize an information need, I determine what topic I have to search".

A Mann Whitney U test was conducted to determine whether there is any difference between ophthalmologists' skills and gender. The mean rank for male ophthalmologists was 326.51. The mean rank for female ophthalmologists was 306.03. The test showed that there doesn't exist a significant difference between ophthalmologists information literacy skills and gender (P-value=0.160)

The information skills of ophthalmologists in different age groups were analyzed further and ranks were assigned based on mean and standard deviation. The mean, standard deviation, rank and Kruskal-Wallis test results were shown in Table 4.

Table 4. Information literacy skills vs age group

Sl. No.	Description	Less than or equal to 30		31 to 40		41 to 50		51 to 60		61 and above	
		Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank
1.	When I recognize an information need, I determine what topic I have to search	3.69 (0.87)	1	3.72 (0.82)	1	4.02 (0.77)	1	3.71 (1.1)	1	4 (0.76)	1
2.	I build an appropriate search terms to retrieve information	3.67 (0.84)	2	3.58 (0.89)	3	3.89 (0.82)	2	3.71 (1.01)	1	3.38 (0.52)	5
3.	I know the ethical, legal, social issues surrounding the use xxxof information	2.86 (1.13)	10	3.08 (1.03)	9	3.52 (0.93)	8	3.14 (1.11)	7	3.5 (1.07)	3
4.	I can access and use information ethically & legally	3.27 (1.05)	6	3.39 (1.02)	5	3.81 (0.92)	3	3.52 (1.17)	3	3.88 (1.36)	2
5.	I am aware about library collections & how to access it	3.43 (1.04)	4	3.43 (1.02)	4	3.66 (0.94)	5	3.43 (1.16)	4	3.5 (0.53)	3
6.	I know how to access and use the e-resources	3.58 (0.97)	3	3.68 (0.98)	2	3.76 (0.99)	4	3.1 (1.37)	9	3.13 (0.99)	9

7.	I know what is MeSH / keyword / tag word and how to use it	2.97 (1.29)	9	3.04 (1.19)	10	3.07 (1.31)	10	2.71 (1.38)	10	2.5 (1.41)	10
8.	I use Boolean operators (AND, OR, NOT) in search techniques	2.55 (1.28)	11	2.53 (1.31)	11	2.58 (1.37)	11	2.52 (1.33)	11	2.13 (0.99)	11
9.	I know how to record or cite all my sources	3.17 (1.17)	8	3.09 (1.18)	8	3.35 (1.24)	9	3.1 (1.37)	8	3.25 (0.71)	7
10.	I know how to evaluate the information and sources effectively	3.23 (1.08)	7	3.24 (1.06)	7	3.61 (1.07)	7	3.38 (1.2)	5	3.25 (0.71)	7
11.	I am able to synthesis the retrieved information	3.3 (1.06)	5	3.29 (1.06)	6	3.65 (1.09)	6	3.29 (1.23)	6	3.25 (0.71)	6

Rank is derived for each age group based on the mean and standard deviation of ophthalmologists' responses. The ranks show that most of the ophthalmologists in all the age groups were confident with the skill "When I recognize an information need, I determine what topic I have to search".

A Kruskal-Wallis H test was conducted to determine if ophthalmologists' skills differ with age groups. The mean ranks for the age groups were Less than or equal to 30 (303.72), 31 to 40 (311.98), 41 to 50 (369.94), 51 to 60 (310.00), 61 and above (293.69) respectively. The test showed that there doesn't exist a significant difference between ophthalmologists information literacy skills and age groups ($\chi 2(2) = 9.002$, P-value=0.061).

The information literacy skills of ophthalmologists in different designation groups were analyzed further and ranks were assigned based on mean and standard deviation. The mean, standard deviation, rank and Kruskal-Wallis test results were shown in Table 5.

Table 5. Information literacy skills vs designation

Sl. No.	Description	Medical Officer		Fellows		Senior Residents	
		Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank
1.	When I recognize an information need, I determine what topic I have to search	3.84 (0.82)	1	3.64 (0.87)	1	3.86 (0.77)	2
2.	I build an appropriate search terms to retrieve information	3.68 (0.86)	2	3.61 (0.89)	2	3.93 (0.47)	1
3.	I know the ethical, legal, social issues surrounding the use of information	3.24 (1.06)	8	2.84 (1.06)	10	2.93 (1.14)	10
4.	I can access and use information ethically & legally	3.56 (1.03)	4	3.22 (1.01)	7	3.29 (1.2)	6
5.	I am aware about library collections & how to access it	3.51 (1.03)	5	3.43 (0.97)	4	3.14 (1.41)	8
6.	I know how to access and use the e-resources	3.66 (1.01)	3	3.6 (0.98)	3	3.43 (1.09)	3
7.	I know what is MeSH / keyword / tag word and how to use it	3.08 (1.23)	10	2.89 (1.27)	9	3.21 (1.42)	7
8.	I use Boolean operators (AND, OR, NOT) in search techniques	2.65 (1.3)	11	2.38 (1.29)	11	2.57 (1.45)	11

9.	I know how to record or cite all my sources	3.19 (1.18)	9	3.11 (1.21)	8	3 (1.11)	9
10.	I know how to evaluate the information and sources effectively	3.33 (1.09)	7	3.24 (1.05)	5	3.36 (1.34)	5
11.	I am able to synthesis the retrieved information	3.41 (1.06)	6	3.24 (1.06)	6	3.43 (1.4)	4

Rank is derived for each designation group based on the mean and standard deviation of ophthalmologists' responses. The ranks show that most of the ophthalmologists in the designations "Medical Officers", "Fellows" were confident with the skill - "When I recognize information need, I determine what topic I have to search". Most of the ophthalmologists in the designation "Senior Resident" were confident with the skill – "I build an appropriate search terms to retrieve information".

A Kruskal-Wallis H test was conducted to determine if ophthalmologists' skills differ with designation groups. The mean ranks for the designation groups were Medical Officer (334.93), Fellows (291.53), and Senior Residents (311.64) respectively. The test showed that there exist a significant difference between ophthalmologists information literacy skills and designation groups ($\chi 2(2) = 0.464$, P-value=0.015).

The information literacy skills of ophthalmologists with differences in their length of experience were analyzed further and ranks were assigned based on mean and standard deviation. The mean, standard deviation, rank and Kruskal-Wallis test results were shown in Table 6.

Table 6. Information literacy skills vs experience

Sl. No.	Description	Less than or equal to 5 years		6 to 10 years		11 to 15 years		16 to 20 years		21 and above years	
		Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank
1.	When I recognize an information need, I determine what topic I have to search	3.69 (0.88)	1	3.9 (0.71)	1	4.03 (0.85)	1	3.9 (0.83)	1	3.84 (0.74)	1
2.	I build an appropriate search terms to retrieve information	3.61 (0.9)	2	3.75 (0.87)	2	3.93 (0.74)	2	3.71 (0.82)	3	3.7 (0.79)	3
3.	I know the ethical, legal, social issues surrounding the use of information	2.93 (1.08)	9	3.28 (0.96)	7	3.6 (0.97)	7	3.35 (0.98)	5	3.27 (1.06)	9
4.	I can access and use information ethically & legally	3.31 (1.03)	5	3.58 (0.98)	3	3.7 (1.06)	5	3.77 (1.02)	2	3.6 (1.04)	5
5.	I am aware about library collections & how to access it	3.42 (1.06)	4	3.4 (0.96)	5	3.6 (0.97)	7	3.39 (0.92)	4	3.64 (0.9)	4
6.	I know how to access and use the e-resources	3.6 (0.98)	3	3.58 (1.06)	4	3.9 (0.99)	3	3.1 (1.22)	8	3.82 (0.92)	2
7.	I know what is MeSH / keyword / tag word and how to use it	2.93 (1.27)	10	3.23 (1.14)	9	3.03 (1.33)	10	2.65 (1.31)	10	3.26 (1.17)	10

8.	I use Boolean operators (AND, OR, NOT) in search techniques	2.49 (1.29)	11	2.53 (1.24)	11	2.5 (1.36)	11	2.26 (1.24)	11	2.79 (1.35)	11
9.	I know how to record or cite all my sources	3.1 (1.22)	8	3.05 (1.13)	10	3.33 (1.3)	9	3.03 (1.11)	9	3.36 (1.07)	8
10.	I know how to evaluate the information and sources effectively	3.21 (1.11)	7	3.25 (1.21)	8	3.67 (0.92)	6	3.32 (0.94)	6	3.49 (0.92)	7
11.	I am able to synthesis the retrieved information	3.26 (1.09)	6	3.38 (1.05)	6	3.73 (0.94)	4	3.23 (0.99)	7	3.54 (1.03)	6

Rank is derived for each experience group based on the mean and standard deviation of ophthalmologists' responses. The ranks show that most of the ophthalmologists in all the experience groups were confident with the skill - "When I recognize an information need, I determine what topic I have to search".

A Kruskal-Wallis H test was conducted to determine if ophthalmologists' skills differ with experience groups. The mean ranks for the experience groups were Less than or equal to 5 years (300.95), 6 to 10 years (327.35), 11 to 15 years (377.82), 16 to 20 years (300.50), 21 and above years (357.23) respectively. The test showed that there exists a significant difference between ophthalmologists information literacy skills and experience groups ($\chi 2(2) = 12.737$, P-value=0.013).

The information literacy skills of ophthalmologists working in different institution types were analyzed further and ranks were assigned based on mean and standard deviation. The mean, standard deviation, rank and Kruskal-Wallis test results were shown in Table 7.

Table 7. Information literacy skills vs institution types

Sl. No.	Description	Government		NGO		Corporate	
		Mean (SD)	Rank	Mean (SD)	Rank	Mean (SD)	Rank
1.	When I recognize an information need, I determine what topic I have to search	3.9 (0.83)	1	3.73 (0.85)	1	3.88 (0.78)	1
2.	I build an appropriate search terms to retrieve information	3.76 (0.94)	2	3.61 (0.88)	3	3.88 (0.69)	1
3.	I know the ethical, legal, social issues surrounding the use of information	3.2 (1.19)	8	3.06 (1.07)	9	3.1 (1.03)	10
4.	I can access and use information ethically & legally	3.51 (1.1)	5	3.39 (1.05)	5	3.55 (0.95)	4
5.	I am aware about library collections & how to access it	3.15 (1.46)	9	3.51 (0.95)	4	3.35 (1.12)	7
6.	I know how to access and use the e-resources	3.54 (1.25)	3	3.61 (0.99)	2	3.81 (0.89)	3
7.	I know what is MeSH / keyword / tag word and how to use it	3.22 (1.39)	7	2.97 (1.24)	10	3.12 (1.22)	9
8.	I use Boolean operators (AND, OR, NOT) in search techniques	2.63 (1.53)	11	2.51 (1.29)	11	2.69 (1.26)	11
9.	I know how to record or cite all my sources	3 (1.3)	10	3.15 (1.2)	8	3.3 (1.08)	8

10.	I know how to evaluate the information and sources effectively	3.32 (1.33)	6	3.26 (1.06)	7	3.51 (1.02)	6
11.	I am able to synthesis the retrieved information	3.54 (1.16)	4	3.3 (1.08)	6	3.55 (0.93)	5

Rank is derived for each institution type group based on the mean and standard deviation of ophthalmologists' responses. The ranks show that most of the ophthalmologists working in all the institution types were confident with "When I recognize an information need, I determine what topic I have to search".

A Kruskal-Wallis H test was conducted to determine if ophthalmologists' skills differ with institution types. The mean ranks for the institution types were Government (312.44), NGO (313.23), and Corporate (344.66). The test showed that there doesn't exist any significant difference between ophthalmologists' information literacy skills and institution types ($\chi 2(2) = 2.010$, P-value=0.366).

7. Conclusion

Around 633 ophthalmologists working in 47 academic eye hospitals from 16 states of India were included in the study to examine the information literacy skills among ophthalmologists. The study results revealed that majority were able to find the information within a few hours and there is no association between this ability and ophthalmologists' individual and institutional characteristics. Majority of the ophthalmologists were confident that: "When I recognize an information need, I determine what topic I have to search". The statistical test results showed up that there exist a significant difference between ophthalmologists' information literacy skills and designation, experience.

The study results reveal that the ophthalmologists were good in determining the topic and scope of information to search. They need training to effectively use Boolean operators. The information skills vary among different designation groups and also with different working experience. So the training should be targeted to the right ophthalmologists' group.

ALIA (2006) states that, as a matter of priority, and at all levels, library and information services professionals should embrace the responsibility to promote and facilitate the development of information literacy of all their users. The ophthalmic librarians should develop and fine tune their information literacy programs. The ophthalmic institutions should provide support to the ophthalmologists to sharpen their literacy skills. The ophthalmic training institutions should emphasize information literacy skills in their course curriculum itself. The ophthalmic community associations should create and provide enough opportunities for ophthalmologists to enhance their information literacy skills.

8. References

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