

Assessment of Information Literacy Skills of Postgraduate Students: Case of Rawalpindi Medical University, Rawalpindi

AMIR SHAHZAD¹, NAUSHAD SABZWARI², GHULAM FARID³, AMIR AFZAL⁴, MUHAMMAD KAMRAN⁵

¹Librarian, Rawalpindi Medical University Rawalpindi

²Associate Professor & Head of Department LIS, Minhaj University, Lahore

³Senior Librarian, Shalamar Medical & Dental College, Lahore

⁴Statistical Officer/ Data Analyst, Rawalpindi Medical University, Rawalpindi

⁵Assistant Librarian, Shalamar Medical & Dental College, Lahore

Correspondence to Ghulam Farid, Email: css_bcs@yahoo.com, ORCID: 0000-0002-3299-5220

ABSTRACT

Background: The study also highlights the major challenges to obtaining competences in IL in medical universities as well as hidden impediments. Aiming to raise medical postgraduate students' self-awareness on their IL skills Administrators, librarians, academics, and policymakers will find the findings interesting.

Aim: To advance understanding of how workplace-related aspects impact information literacy skills and to further develop a strategy for the emergence of IL mentality in the medical field workers and to more fully comprehend the benefits & drawbacks of present IL initiatives, an analysis with these factors would be beneficial.

Methods: A study was conducted at Rawalpindi Medical University (RMU) among postgraduate students. Respondents working in public hospitals were given questionnaires for the survey and DAIs under consideration between February and May 2022. The study examined medical students' attitudes, levels of awareness, and computer and internet usage skills. The research method was convenience sampling, as it was difficult to obtain a list of PGs from the university or hospitals due to privacy concerns and time and money constraints. A total sample of 577 doctors (88% response rate) filled out the entire form. The study aimed to assess the depth of postgraduate students' abilities to deal with information literacy and their attitudes and current practices.

Results: The research involved 323 postgraduate doctors who were undergoing four-year training at three public sector teaching hospitals in Pakistan. The majority of the participants were from the gynae, medicine, pediatrics, surgery, anesthesia, radiology, and ENT departments. The study also analyzed the average score of postgraduate trainees' information literacy skills with the distribution of their gender. There were no statistically significant differences between male and female participants, as most responses indicated "upto my requirement" or "somewhat=3." An independent sample t-test was used to compare the average score of postgraduate trainees' attitude towards their level of information literacy with the distribution of their gender.

Practical Implication: The study indicates that there are no appreciable variations in the information literacy abilities and attitudes of male and female participants in medical education, indicating that both sexes have equal access to resources and opportunities. Additionally, it implies that knowing the average information literacy proficiency of postgraduate trainees can be useful in pinpointing areas where training curricula need to be improved.

Conclusion: The study examined the information literacy attitudes and skills of 323 postgraduate doctors employed in Pakistan's public hospitals. Gender disparities may not be a serious issue if there are no obvious differences between them in terms of attitudes or skills. However, regardless of gender, training and resources for all trainees can be enhanced.

Keywords: Health care professionals, information literacy, health resources, knowledge about health resources, CAPS

INTRODUCTION

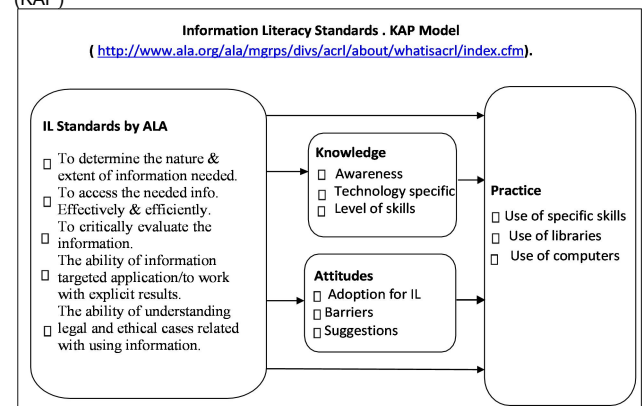
Information literacy is a crucial aspect of medical education, particularly in low- and middle-income countries¹. It involves identifying the need for health information, locating relevant sources, evaluating the accuracy and suitability of information, and using it to make informed health decisions. Medical professionals must stay updated with the latest treatments, theories, and medical techniques to ensure patient health². Digitally literate individuals possess knowledge, attitudes, and abilities for using technology, the internet, media comprehension, and information management. Improving digital literacy skills is essential for medical professionals to access, critically assess, and apply necessary facts efficiently³. Lifelong learning is a key component, and medical students can greatly benefit from this.

Studies on Information Literacy (IL) among medical students, faculty, and doctors have been undertaken all over the world⁴. The ability to think critically, access information, act on it, assimilate it, and discard useless data lasts forever and can be continually improved upon. It has become a necessity for survival in the modern era, to the point where someone lacking information literacy skills is viewed as handicapped. In Pakistan's health care system, postgraduate trainees are essential⁵. The Centralized Induction Policy is used to enroll Post-Graduate trainees (CIP)⁶.

In order to enhance e-learning and advance the research writing culture, the KAP models evaluation of the current state of

society's knowledge about the relevant group will provide new opportunities for social science researchers as well as a fresh perspective for aspiring researchers^{7,8}.

Fig. 1. The conceptualization of the knowledge, attitude and practice (KAP)^{12, 13}



Teaching, research, and patient care are the three main objectives of medical education^{9,10}. Since they are active medical postgraduates have been chosen for this investigation. CPSP is providing ICT training and research writing seminars that are required for all PG trainees (FCPS). Studies on information literacy among medical practitioners have been conducted¹¹, no research

Received on 10-09-2023

Accepted on 19-01-2024

has been done both in relation to the evaluation of their existing information literacy, both domestically and internationally, knowledge, attitudes, and practices (KAP). The current work would fill this gap.

The study also highlights the primary challenges to gaining proficiency in IL at medical universities and highlights hidden hurdles to doing so. It also paves the way for instructors and students to conduct in-depth research projects using the KAP study approach. The majority of employees in all public sector hospitals are postgraduate trainees and resident doctors¹⁴. In outpatient departments (OPDs) and operation theatres (OTs), they collaborate on patient care at the same time. Additionally, they take part in clinical education, teaching, and research. The study is expected to advance understanding of how workplace-related aspects impact information literacy skills¹⁵. To further develop a strategy for the emergence of IL mentality in the medical field workers and to more fully comprehend the benefits & drawbacks of present IL initiatives, an analysis with these factors would be beneficial. The study also highlights the major challenges to obtaining competences in IL in medical universities as well as hidden impediments. Aiming to raise medical postgraduate students' self-awareness on their IL skills Administrators, librarians, academics, and policymakers will find the findings interesting¹⁶.

Research Objective

To assess the existing level of information literacy skills among the students

To identify areas of strengths and weakness in information search techniques used by the students.

To elicit knowledge of modern communication tools related to Information Technology.

METHODOLOGY

The study conducted at Rawalpindi Medical University (RMU); Rawalpindi, which is an HEC-recognized medical university among post graduate students of RMU. Respondents working in public hospitals connected to the HEC-recognized medical university were given questionnaires for the survey and DAIs under consideration between February and May 2022. To gather the data, the researcher went to the wards, outdoor areas, operating rooms, and libraries of the affiliated hospitals. Before having them fill out the survey, the researcher explained the study's goals and contents to each respondent. Participant's names and contact information were kept confidential. The participants were given the questionnaire, which they completed and then gave back to the researcher. In total, 653 questionnaires were distributed and 590 responses were received. Before entering data into SPSS, received surveys were reviewed and excluded if they were incomplete. Only 577 doctors, (88% response rate), filled out the entire form.

Population: A population is any combined group of people being studied."any group of people or things that have at least one thing in common." The study's intended audience was the FCPS postgraduate students enrolled in the CPSP who were working with the public-sector HEC recognized medical universities of Punjab. (Until synopsis is approved on September 13, 2022) i.e. Rawalpindi Medical University, Rawalpindi

Technique and sample size: The full population record must be obtained, listed down, and participants must then be chosen using the probability sampling technique. When a research study's population is huge and it is challenging to reach individual participants, convenience sampling, a non-probability sampling strategy, is used. A descriptive and analytical investigation was conducted. Convenience sampling was chosen as it was not possible to obtain the list of PGs from the administration of the university or hospitals. Due to privacy concerns, they only gave their PG doctors' phone numbers. Along with the issues of time and money, it was discovered that PGs do a range of hospital tasks, including ward, outside, OT, and emergency activities,

making it exceedingly challenging to identify them. In an effort to examine the depth of postgraduate students' abilities to deal as well as their attitude and current practices a population's Perspective on IL of 654 students, a total sample of 577 was taken from the public sector medical university of Punjab with a confidence interval of 95% and a sampling error of 0.5 using the formula $n = p*(1-p)*(z/e)^2$.

Data analysis plan: SPSS Software (24.0) was used to access the participants' responses. Computing standard deviation, proportion, and frequency, descriptive statistics were used after entering the data into SPSS. Chi-square test was used to compare the outcomes with male and female PGs as well as for all students. Graphs and tables were used to interpret the data.

RESULTS

Gender distribution was 323(56%) females and 254(44%) males were part of the research. Maximum responders 147(25.5%) were among the respondents in the 4th year followed by the 1st year, 2nd year, and 3rd year as 144(25%), 144(25%), and 142(24.6%) respectively. The respondents were postgraduate doctors who were doing four-year training, which is the requirement of a fellowship degree (FCPS) in Pakistan. There were three public sector teaching hospitals namely Holy Family Hospital (HFH), Benazir Bhutto Hospital (BBH), and District Headquarters Hospital (DHQ) supervised by Rawalpindi Medical University (RMU) namely as RMU & Allied Hospitals. In our study, Majority of the post graduate trainees (participants) were from Holy Family Hospital 233(40.4%) and Benazir Bhutto Hospital 245(42.5%), following District Headquarters Hospital 99(17.2%) respectively. The majority of the participants were from gynae 83(14.4%), medicine 82(14.2%), pediatrics 64(11.1%), surgery 68(11.8%), followed by anesthesia 35(6.1%), radiology 23(4.0%) and ENT 30(5.2%). The distribution of respondents from following departments cardiology, dermatology, emergency medicine, eye, gastro, pathology, plastic surgery, and orthopedics were also analyzed and shown in Table.1

Table.1 Demographic information

Gender	n / %
Male	254 (44%)
Female	323 (56%)
Year of Study	
1 st Year	144 (25%)
2 nd Year	144 (25%)
3 rd Year	142 (24.5%)
4 th Year	147 (25.5%)
Hospitals	
Holy Family Hospital (HFH)	233 (40.4%)
Benazir Bhutto Hospital (BBH)	245 (42.5%)
District Head Quarter (DHQ/RTH)	99 (17.2%)
Name of Departments	
Anesthesia	35 (6.1%)
Cardiology	5 (0.9%)
Dermatology	2.1%)
Emergency Medicine	3 (0.5%)
ENT	30 (5.2%)
Eye	22 (3.8%)
Gastroenterology	5 (0.9%)
Gyane / Obs	83 (14.4%)
Medicine	82 (14.2%)
Nephrology	12 (2.1%)
Neurosurgery	26 (4.5%)
Orthopedics	36 (6.2%)
Pathology	11 (1.9%)
Pediatrics	64 (11.1%)
Plastic surgery	13 (2.3%)
Psychiatry	23(4.0%)
Pulmonology	5 (0.9%)
Radiology	23 (4.0%)
Surgery	68 (11.8%)
Urology	19 (3.3%)

Table.2 explained the analysis of comparison of average score of postgraduate trainees' information literacy skills with the distribution of their gender (male vs. female). There were no statistically significant differences between male and female participants in Table (4.4.1) as most of the responses indicated "upto my requirement=4" or "somewhat=3," and their p-value was non-significant (p-value > 0.05).

Table 3: An independent sample t-test was used to compare the average score of postgraduate trainees' attitude towards their level of information literacy with the distribution of their gender (male vs. female). There were 577 postgraduate trainees tested. There were no statistically significant variations between the responses from

male and female participants for the majority of the items, with respondents often responding "to some extent=2" or "satisfactory=3," respectively.

Table 4: There were 577 postgraduate trainees evaluated, and an independent sample t-test was used to compare the average score of postgraduate trainees' level of information literacy skills with their gender distribution (male vs. female). There were no statistically significant variations between the responses from male and female participants in (Table 4.4.3) for the majority of the items, where respondents indicated either "to some extent=2" or "satisfactory=3."

Table 2: Comparison of Average score of Level of IL of PGs with Gender distribution

	Gender	N	Mean±SD	p-value
What is your present level of Information Literacy Skills [I can determine my need for Information]	Male	254	4.22±0.63	0.182
	Female	323	4.15±0.70	
What is your present level of Information Literacy Skills [I have the skills to understand why information is needed]	Male	254	4.15±0.67	0.811
	Female	323	4.17±0.68	
What is your present level of Information Literacy Skills [I have the skills to understand what information is exactly needed]	Male	254	4.04±0.69	0.203
	Female	323	4.11±0.66	
What is your present level of Information Literacy Skills [I have the skills to identify the sources of need information]	Male	254	3.95±0.70	.0318
	Female	323	3.89±0.80	
What is your present level of Information Literacy Skills [I have the skills to access the sources to collect needed information]	Male	254	4.04±0.72	.0427
	Female	323	3.98±0.79	
What is your present level of Information Literacy Skills [I have the expertise to evaluate the importance of the information]	Male	254	3.82±0.83	0.121.
	Female	323	3.93±0.81	
What is your present level of Information Literacy Skills [I have the expertise to identify the main themes of the collected information]	Male	254	3.97±0.74	0.341
	Female	323	3.91±0.81	
What is your present level of Information Literacy Skills [I have the expertise to compare old knowledge with new research to understand the salient differences and similarities between the two]	Male	254	3.89±0.94	0.849
	Female	323	3.90±0.86	
What is your present level of Information Literacy Skills [I have the expertise to decide whether the collected information is right or not]	Male	254	3.90±0.80	0.892
	Female	323	3.91±0.85	
What is your present level of Information Literacy Skills [I have the expertise to manage key notes of my activities during research]	Male	254	3.72±0.89	0.536
	Female	323	3.76±0.82	
What is your present level of Information Literacy Skills [I have the expertise to use the information accurately to meet my academic needs]	Male	254	3.93±0.90	0.265
	Female	323	4.01±0.82	
What is your present level of Information Literacy Skills [I have the expertise to convey the outcomes created from the gathered information]	Male	254	3.89±0.76	0.542
	Female	323	3.85±0.88	

Independent sample-t test, *P≤0.05 was taken as level of significance.

Table 3: Comparison of Attitude score of level of Knowledge of IL of PGs with Gender distribution

	Gender	N	Mean±SD	p-value
What is the level of Knowledge about the Information Search Technique? [Boolean searching techniques (AND, OR, NOT, wildcard, truncation etc.)]	Male	254	2.65±1.20	0.059
	Female	323	2.84±1.19	
What is the level of Knowledge about the Information Search Technique? [Fuzzy search]	Male	254	2.93±1.14	*0.019
	female	323	3.15±1.09	
What is the level of Knowledge about the Information Search Technique? [Title Searching]	male	254	2.48±1.10	0.354
	female	323	2.57±1.21	
What is the level of Knowledge about the Information Search Technique? [Limiting search]	male	254	2.82±1.11	*0.013
	female	323	3.07±1.23	
What is the level of Knowledge about the Information Search Technique? [Range searching]	male	254	2.77±1.17	*0.015
	female	323	3.01±1.19	
What is the level of Knowledge about the Information Search Technique? [Truncation]	male	254	2.91±1.13	*0.003
	female	323	3.20±1.18	
What is the level of Knowledge about the Information Search Technique? [Wildcard searching]	male	254	2.91±1.28	0.075
	female	323	3.10±1.26	
What is the level of Knowledge about Information about searching from these Databases? [Thesis databases]	male	254	2.47±1.13	0.092
	female	323	2.63±1.12	
What is the level of Knowledge about Information about searching from these Databases? [Journal databases]	male	254	2.44±0.99	0.134
	female	323	2.57±1.01	
What is the level of Knowledge about Information about searching from these Databases? [Open access databases]	male	254	2.61±1.06	0.650
	female	323	2.65±1.08	
What is the level of Knowledge about Information about searching from these Databases? [Subscribed databases]	male	254	2.63±1.19	*0.005
	female	323	2.91±1.19	
What is the level of Knowledge about Information about searching from these Databases? [Research articles]	male	254	2.30±1.10	0.336
	female	323	2.39±1.13	
What is the level of Knowledge about Information about searching from these Databases? [E-Books databases]	male	254	2.39±1.16	*0.047
	female	323	2.59±1.18	
What is the level of Knowledge about Information about searching from these Databases? [HEC repository]	male	254	2.77±1.23	0.170
	female	323	2.90±1.14	

Independent sample-t test, *P≤0.05 was taken as level of significance.

Table.4 Comparison of Practices score of level of Awareness of IL of PGs with Gender distribution

	Gender	N	Meant±SD	p-value
What is the level of awareness regarding knowledge of modern communication.? [I have the skills to revise and refine the search query to thrash for the right information]	male	254	2.07±0.99	0.077
	female	323	2.22±1.02	
What is the level of awareness regarding knowledge of modern communication.? [I have the expertise to compare the sources of needed information]	male	254	2.21±0.90	*0.015
	female	323	2.40±0.92	
What is the level of awareness regarding knowledge of modern communication.? [I have the expertise to differentiate the best sources of needed information]	male	254	2.34±0.96	*0.020
	female	323	2.54±1.04	
What is the level of awareness regarding knowledge of modern communication.? [I have the expertise to judge the authenticity of the information gathered]	male	254	2.30±0.90	**0.000
	female	323	2.60±1.05	
What is the level of awareness regarding knowledge of modern communication.? [I have the expertise to judge the reliability of the collected information]	male	254	2.32±0.99	*0.003
	female	323	2.59±1.12	
What is the level of awareness regarding knowledge of modern communication.? [I am able to understand the ethical, legal, and socio-economic issues related to information and information technology]	male	254	2.23±0.90	*0.002
	female	323	2.48±1.04	
What is the level of awareness regarding knowledge of modern communication.? [I understand the rules, policies, SOPs (Standard Operating Procedures) of various institutions regarding the access and use of information]	male	254	2.26±0.94	*0.002
	female	323	2.54±1.16	
What is the level of awareness regarding knowledge of modern communication.? [I have expertise of the use of various tools (Endnote, Bibtex etc.) for managing my research and references]	male	254	2.46±1.15	*0.000
	female	323	2.86±1.22	
What is the level of awareness regarding knowledge of modern communication.? [I have the expertise to quote the references of the information gathered properly]	male	254	2.47±0.98	0.054
	female	323	2.63±1.06	
What is the level of awareness regarding knowledge of modern communication.? [I am aware of fair and unfair use of information (Direct Plagiarism, Self-Plagiarism, Accidental Plagiarism etc.)]	male	254	2.22±1.04	0.134
	female	323	2.36±1.14	
What is the level of awareness regarding knowledge of modern communication.? [I have the expertise to check plagiarism using Turnitin software]	male	254	2.49±1.09	0.055
	female	323	2.68±1.20	
What is the level of awareness regarding knowledge of modern communication.? [I have expertise to manage the needed hardware/software (CPU, monitor, printer, scanner, hard disk, USB/MS Office, Adobe Acrobat, Winzip, Endnote, SPSS, etc. to manage the co	male	254	2.54±1.15	*0.039
	female	323	2.75±1.20	

Independent sample-t test, *P<0.05 was taken as level of significance.

DISCUSSION

Our study findings showed that majority of post graduate trainees 188 (p-value 0.081) showed their interest "up to a great extent" when asked about "I can determine my need for information", whereas there were 183 postgraduate trainees (p-value 0.847) showed their interest "up to great extent" when asked about 'I am capable of comprehending the necessity for information' whereas there were post graduate trainees 260 (p-value 0.711) who showed their interest "up to my requirement" when asked about 'I have the expertise to compare old knowledge with new research to understand the salient differences and similarities between the two'. There were 326 post graduate trainees (p-value 0.307) who expressed "upto my requirement" when as asked about 'I am able to recognise exactly what information is required' whereas there only 5 post graduate trainees who replied "not at al" when asked about 'I have the skills to understand what information is exactly needed'. There were 309 post graduate trainees (p-value 0.669) who expressed "upto my requirement" when as asked about 'I am skilled in determining the major themes of the data gathered' whereas there only 28 post graduate trainees who replied "not at al" when asked about 'I have the expertise to evaluate the importance of the information'. The results of the "awareness regarding IL abilities" test indicated that medical professionals had some understanding of IL, but there is still need for enhancement of the workshop training materials.

The anti-plagiarism regulations were never explained to researchers, are supported by these data. These results raise questions regarding creating an ethical research culture that is characterized by integrity. Written policies and actual practice are obviously at odds with one another. According to about 70% of respondents there wasn't any cooperation between librarians and the study coordinator to assist this cohort in avoiding plagiarism.

This is consistent with the finding indicated professors tended not to request librarians to teach about this topic in their classes¹⁶. Despite the fact that the researchers concluded from the survey findings that the two libraries offer some education in IL skills, a sizable portion of respondents claimed that the library was not providing them with that instruction. Health librarians can revamp their IL programmes because, as was already said, many resident doctors are still unfamiliar with the library's IL programme¹⁷⁻²⁰. Particular attention must be paid to the key

components in this respect, particularly a consistent marketing strategy and regular revisions of the actions and contents of IL. The Library professionals working on the IL programmes can instruct the doctors on how to properly reference the original author and what kinds of anti-plagiarism software are currently available. Librarians may give the doctors' information-seeking abilities more thought while also instructing them on how to employ them morally and legally for future research initiatives¹⁸⁻¹⁹.

Respondents were asked to fill out the sample questionnaire for assessing the existing determine the students' degree of information literacy, the students' areas of strength & weakness in their information search strategies, students' usage of information technology-related communication tools. Respondents were asked 12 questions regarding present level of information literacy skills based on liker scale assessment (5: to a great extent, 4: up to my requirement, 3: somewhat, 2: very little, 1: not at all). There were fourteen questions regarding 'knowledge about information literacy skills' based on likert scale (5: excellent, 4: good, 3: satisfactory, 2: to some extent, 1:no). Moreover, there were twelve questions about the 'level of awareness regarding knowledge of modern communication' based on likert scale (5: excellent, 4: good, 3: satisfactory, 2: to some extent, 1:no). Our study showed there were 56% females and 44% male's respondents, majority 25.5% of the respondents were from 4th year followed by the 1st year, 2nd year and 3rd year as 25.0%, 25.0% and 24.6% respectively. The respondents were post graduate doctors who were doing four year training which is the requirement of fellowship degree (FCPS) in Pakistan. After completion of the trainee, an exam will conduct and then fellowship degree will be awarded by College of Physicians & Surgeons Pakistan (CPSP). In our study, Majority of the post graduate trainees (participants) were from Holy Family Hospital 233(40.4%) and Benazir Bhutto Hospital 245 (42.5%), following District Headquarter Hospital 99(17.2%) respectively. Among 577 respondents, majority of the participants were from gyane 14.4%, medicine 14.2%, pediatrics 11.1%, surgery 11.8%, and following by anesthesia 6.1%, there majority 53% of the respondent respondents who showed 'up to my requirement' when asked assessing the level of information skills. And female student have more positive response than male respondents across gender distribution. Knowledge of respondents regarding information skills were assessed in which was quiet less in proportion²⁰⁻²³, there will approximately 29% of the respondents who feel their knowledge

level "up to my requirement" whereas female respondents were more of the view than male respondents regarding knowledge about information literacy skills across gender distribution. Participants were also assessed when asked questions regarding level of awareness of skills, among 577 respondents, there were approximately 19% respondents who are showing their interest with regard to level of awareness of information skills, and female respondents are more than male respondents when asked about the level of awareness of information skills. According to survey findings, the majority of Pakistani medical libraries provide library orientation and basic information. Less responders offered guidance on investigation techniques fundamental programs are inadequate to foster resolving issues either analytical or innovative, or lifelong learning, all of which require more advanced skills, consequently, more thorough teaching Extracting data. The practices used in IL were discovered to be elementary^{24,28}.

The writers have noted that Pakistan's medical institutions have a fairly traditional educational structure, and faculty members publish at a relatively low rate due to Pakistan's lack of research culture. Similar IL practices have been documented in earlier investigations to exist in other underdeveloped nations. The availability of high-level information expertise and research-level abilities varied moderately across healthcare professionals, according to the findings functioning as a medical librarian in postgraduate medical institutes and health-related universities provided research-level abilities and enhanced information capacities. These findings were anticipated because medical colleges typically provide undergraduate medical education, which may not necessitate the use of "As opposed to healthcare institution, which offer postgraduate-level education, advanced IL" or "research- skills" Multiple subject areas were covered by medical librarians during IL teaching. The most often covered topics included an introduction to library resources, services policies, searching strategies, and usage of medical databases. Only a small number of responders said they dealt with issues like evidence-based medicine, copyright, and plagiarism. Given that the Association of College and Research Libraries The student must meet standards for information literacy, It is necessary to lay additional emphasis on the statement that the user "recognizes a number of the economic, legal, and social difficulties relating to the use of information and accesses and uses information in an ethical and lawful manner." within the table.

Medical librarians stated that they favored conventional face-to-face communication, education over online and web-based tutorials delivered in online environments, whether it be in a computer lab, lecture halls, or one-on-one instruction at a reference desk. This may be due to the medical institutions' lack of information technology (IT) resources, expertise, and infrastructure needed to provide such tutorials. The ability of these medical libraries to reach students who might never have access to in-person IL teaching would increase if they were given the resources necessary to create online lessons. The usage of online or web-based tutorials is flexible²⁸⁻³⁰.

Due to the fact that medical institutions typically placed their libraries in a single space, some responders also provided IL teaching in the library reading room. IL training is often only provided on demand or only 26% of medical information is available to new students and library patrons universities had noncredit IL education integrated into their curricula²⁹. The library cannot complete the task of integrating IL education into the curriculum by itself. Students, instructors, and administrators will need to assist medical librarians, which calls for persistence, compromise, and communication³⁰.

CONCLUSION

Their practices for meeting their information demands were concentrated, as were their attitudes for adopting and using IL skills. The results showed that PG trainees had a good attitude in developing their IL skills. It was shown that while survey

participants were knowledgeable of IL's components, they were not conversant with advanced search strategies such keyword searching or the usage of Boolean operators. In order to revise the training modules and improve their skills, post graduate trainees insisted that IL workshops should be scheduled often. They adopted IL with a mindset that indicated they saw it as a crucial instrument. The study examined the information literacy attitudes and skills of 323 postgraduate doctors employed in Pakistan's public hospitals. Gender disparities may not be a serious issue if there are no obvious differences between them in terms of attitudes or skills. However, regardless of gender, training and resources for all trainees can be enhanced. Future research ought to look at the factors influencing information literacy as well as workable solutions for improving medical education standards.

Recommendations: Priority should be placed on having adequate computer facilities, enough room, and qualified library staff. Universities ought to launch an initiative to collaborate with faculty librarians. Students' motivation should be supported by the medical faculty. In addition to their regular responsibilities, the department heads should motivate the PG trainees to take part in these learning initiatives.

Authorship and contribution declaration: Each author of this article fulfilled following Criteria of Authorship:

1. Conception and design of or acquisition of data or analysis and interpretation of data.
2. Drafting the manuscript or revising it critically for important intellectual content.
3. Final approval of the version for publication.

All authors agree to be responsible for all aspects of their research work.

Funding: None

Conflict of interest: The author declare no conflict of interest in this study.

REFERENCES

1. Barteit S, Guzek D, Jahn A, Bärnighausen T, Jorge MM, Neuhann F. Evaluation of e-learning for medical education in low-and middle-income countries: A systematic review. *Computers & education*. 2020 Feb 1;145:103726.
2. Jnr BA. Use of telemedicine and virtual care for remote treatment in response to COVID-19 pandemic. *Journal of medical systems*. 2020 Jul;44(7):132.
3. Karnoe A, Furstrand D, Christensen KB, Norgaard O, Kayser L. Assessing competencies needed to engage with digital health services: development of the eHealth literacy assessment toolkit. *Journal of Medical Internet Research*. 2018 May 10;20(5):e178.
4. Ullah M, Ameen K. Teaching information literacy skills to medical students: perceptions of health sciences librarians. *Health Information & Libraries Journal*. 2019 Dec;36(4):357-66.
5. Mahmood S, Khaliq T, Raza A. POST GRADUATE MEDICAL TRAINING IN PAKISTAN: Post Graduate Training. *Pakistan Armed Forces Medical Journal*. 2018 Aug 31;68(4):807-11.
6. Nadeem M, Khalid H, Nazir A, Yaqoob HN, Kalyar GA, ulMomina A, Qureshi AU. Perception about central induction policy among postgraduate trainees of Punjab-a mixed method qualitative study. *Journal of Fatima Jinnah Medical University*. 2020;14(4):145-51.
7. Beugelsdijk S, van Witteloostuijn A, Meyer KE. A new approach to data access and research transparency (DART). *Journal of International Business Studies*. 2020 Aug;51:887-905.
8. Santos JM, Horta H, Amâncio L. Research agendas of female and male academics: a new perspective on gender disparities in academia. *Gender and Education*. 2021 Jul 4;33(5):625-43.
9. Harden RM, Laidlaw JM. Essential skills for a medical teacher: an introduction to teaching and learning in medicine. *Elsevier Health Sciences*; 2020 Jun 11.
10. Kaufman DM. Teaching and learning in medical education: how theory can inform practice. *Understanding medical education: evidence, theory, and practice*. 2018 Dec 3:37-69.
11. Chen X, Hay JL, Waters EA, Kiviniemi MT, Biddle C, Schofield E, Li Y, Kaphingst K, Orom H. Health literacy and use and trust in health information. *Journal of health communication*. 2018 Aug 3;23(8):724-34.
12. Che Ibrahim CK, Belayutham S. A knowledge, attitude and practices (KAP) study on prevention through design: a dynamic insight into civil

- and structural engineers in Malaysia. *Architectural Engineering and Design Management*. 2020 Mar 3;16(2):131-49.
13. Liao X, Nguyen TP, Sasaki N. Use of the knowledge, attitude, and practice (KAP) model to examine sustainable agriculture in Thailand. *Regional Sustainability*. 2022 Mar 1;3(1):41-52.
 14. Khalid A, Rathore K. Mediating Effect Of Work-Life Balance On Work Motivation Of Post-Graduate Trainee Doctors In Public Sector Hospitals. *Pakistan Economic and Social Review*. 2018 Jul 1;56(1):93-119.
 15. Swart M. *A workplace literacy perspective on unlocking employability of Technical and Vocational Education and Training College graduates* (Doctoral dissertation, Stellenbosch: Stellenbosch University).
 16. Hashmi, FS., Naeem, O., Farid, G., Ali, A., & Kamran, M. (2023). Exploring the Credibility and Trustworthiness of Web 2.0 Tools during Covid-19 from the Eyes of Information Providers. *Pakistan Journal of Medical & Health Sciences*, 17(10), 27-31. <https://doi.org/10.53350/pjmhs2023171027>. [HEC-Y category].
 17. Naeem O, Hashmi FS, Farid G. Information Professionals' Use of Social Networking Sites in the time of Medical Emergency. *Pakistan Journal of Medical & Health Sciences*. 2023;17(08):8-.
 18. Jabeen M, Shahjahan M, Farid G. Information Dissemination during COVID-19 Pandemic among Postgraduate Allied Health Sciences Students in Pakistan. *Pakistan Journal of Medical & Health Sciences*. 2022;16(11):366-.
 19. Rahman MM, Tabash MI, Salamzadeh A, Abdul S, Rahaman MS. Sampling techniques (probability) for quantitative social science researchers: a conceptual guidelines with examples. *Seeu Review*. 2022 Jun;17(1):42-51.
 20. Joshua ES, Bhattacharyya D, Rao NT. Managing information security risk and Internet of Things (IoT) impact on challenges of medicinal problems with complex settings: a complete systematic approach. In *Multi-chaos, fractal and multi-fractional artificial intelligence of different complex systems* 2022 Jan 1 (pp. 291-310). Academic Press.
 21. Morgan GA, Barrett KC, Leech NL, Gloeckner GW. *IBM SPSS for introductory statistics: Use and interpretation*. Routledge; 2019 Jul 15.
 22. Tang YM, Chen PC, Law KM, Wu CH, Lau YY, Guan J, He D, Ho GT. Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector. *Computers & education*. 2021 Jul 1;168:104211.
 23. Khan A, Richardson J, Izhar M. Awareness about plagiarism and the effectiveness of library literacy programme towards its deterrence: a perspective of postgraduate resident doctors. *Global Knowledge, Memory and Communication*. 2021 Nov 16;70(8/9):731-55.
 24. Ugbede EO, Ikani V, Attah AH, El-Kalash KI. Appraisal of availability and utilization of anti-plagiarism software by academic staff among the public colleges of education in NORTH-CENTRAL NIGERIA.
 25. Javaeed A, Chaudhry Z, Hina S, Maik MN, Yaseen M. Perception and Prevalence of Plagiarism among Postgraduate Medical Students in Twin Cities of Pakistan. *South Asian Journal of Emergency Medicine*. 2020 Apr 2;2(1):18-.
 26. Möhring W, Frick A, Newcombe NS. Spatial scaling, proportional thinking, and numerical understanding in 5-to 7-year-old children. *Cognitive Development*. 2018 Jan 1;45:57-67.
 27. Ullah M, Ameen K. Teaching information literacy skills to medical students: perceptions of health sciences librarians. *Health Information & Libraries Journal*. 2019 Dec;36(4):357-66.
 28. Haider MS, Ya C. Assessment of information literacy skills and information-seeking behavior of medical students in the age of technology: a study of Pakistan. *Information Discovery and Delivery*. 2021 Feb 18;49(1):84-94.
 29. Davids Z, Omar Y. Implementing a Certificate of Information Literacy programme and engaging with faculty: a case study of the Cape Peninsula University of Technology. *South African Journal of Libraries and Information Science*. 2018 Sep 1;84(1):1-0.
 30. Ullah M, Ameen K. Teaching information literacy skills to medical students: perceptions of health sciences librarians. *Health Information & Libraries Journal*. 2019 Dec;36(4):357-66.

This article may be cited as: Shahzad A, Sabzwari N, Farid G, Afzal a, Kamran M: Assessment of Information Literacy Skills of Postgraduate Students: Case of Rawalpindi Medical University, Rawalpindi. *Pak J Med Health Sci*, 2024;18(2):9-14.