Media and Information Literacy Among Postgraduate Students

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Abstract

Aim: To determine the MIL level among postgraduate students of Zahedan University of Medical Sciences.
Method: This descriptive-analytical research was conducted among 490 postgraduate students in 2020 at a medical sciences university. The data collection tool was a questionnaire that was used before in previous studies. The link of the web-based questionnaire was placed in the student's groups on WhatsApp social media, and was asked to complete it to collect the data. Finally, 227 questionnaires were completed and collected. Data analysis was performed using SPSS statistical software. Descriptive and analytical statistics were used to analyze the data.
Results: The mean score of MIL was moderate. Among the factors related to MIL, the "use" factor obtained the highest means score (3.80±0.50), and the "evaluation" factor obtained the lowest mean score (2.54±0.84). There was a significant relationship between the MIL of students and their gender, age, school, and level of family income. "Learn new content," "earn a good grade, pass a course or upgrade your academic rank,"; and "writing in a way that leads to new knowledge" obtained the highest mean scores among the options. The lowest mean scores were related to "pay attention to the author's reputation (for example, his work experience, degree or place of work)"; "paying attention to the reputation of a publisher or media producer," and "Pay attention to which organization supervises the distribution and dissemination of the intended media and what are the rules about it?"
Conclusion: Since the students were studying at the postgraduate level, it requires special attention to improve their literacy level. University officials should hold classes and workshops, and even conferences on topics related to the evaluation of media and information, including critical thinking, problem-solving, questioning, and identifying credible media resources to improve the level of MIL of students.

Keywords: Media; Information literacy; Students; University; Technology

Today, information technology (IT) has a significant role in human life. There is a growing trend of informatization in all areas of our lives, including education. The considerable amount of information we obtain through the different media gives more importance to information and media literacy (MIL) subject (1).

Media literacy means the ability to understand the concepts contained in the media (including radio, television, magazines, newspapers, cyberspace, etc.), the techniques used by the media to convey concepts, and the ability to analyze them (2).

Thus, people with media literacy protect their identities from the stunning invasion of media messages and do not allow the media messages to control them (3). Media literacy has successfully prevented the negative impact of media messages on health-related topics such as substance abuse, prescribing drugs, violence, and eating behaviors (4-7). In addition to media literacy, which is considered a fundamental human right and its education is necessary for the present era, another skill that is very important today is information literacy (8). The ability to discover and access the required information, evaluate and interpret it, which aims to improve people's understanding of information and information space (9) and includes all types of information and contents (10, 11).

UNESCO defines media and information literacy (MIL) as "a composite set of knowledge, skills, attitudes, competencies, and practices that allow one to effectively access, analysis, critically evaluate, interpret, use, create and disseminate information and media products with the use of existing means and tools on a creative, legal, and ethical basis" (12). In other words, MIL refers to the essential competencies of citizens to interact effectively with the media and other information providers. The goal of MIL is to develop critical thinking and lifelong learning skills to socialize and have active citizens (3). Zardoshtian et al., in their study, showed that media literacy based on information literacy has a positive effect on students' entrepreneurship capabilities (13).

UNESCO experts consider the lack of knowledge and skills to analyze the information as a hidden threat to the security and stability of society (1). MIL skills are not inherent and require training given in groups in the classroom, library, or any place where research is conducted (14). People with MIL skills can apply them to their personal lives by properly understanding the media and information concepts contained in media and databases and ensuring the accuracy and validity of those concepts. MIL helps people to lead their digital lives and reduce the disadvantages of being in digital and information spaces (15).

Academic institutions, media, and trade unions have an effective role in increasing the MIL of society. Universities are one of the largest academic institutions for promoting and teaching new and innovative ideas. This group is more effective at the national level because of its breadths and hierarchical structure. The first step in teaching MIL can be to strengthen the elements influencing media literacy education, in which professors and graduate students will play a more important role (16). In the studies conducted to determine the level of MIL in Isfahan and Hormozgan universities of medical sciences, the average MIL of students was higher than average and relatively desirable (14, 17).

MIL is a new issue in Iran, and UNESCO has a special view on this issue in developing countries. Researchers emphasize MIL education in different groups of society, and one of these groups that have an effective role in the future education of the country are postgraduate students. Limited studies were conducted on determining the level of MIL, especially in this group of students. Thus, this study aimed to determine the level of MIL of postgraduate students of Zahedan University of Medical Sciences (ZAUMS) to identify their strengths and weaknesses and to suggest solutions to strengthen strengths and eliminate weaknesses.

Method

This research was applied in terms of purpose and descriptive-analytical in terms of method and was conducted in Zahedan, Iran, in 2021. The study population consisted of 490 postgraduate students. Because the population was limited, sampling was not performed.

The data collection tool was a questionnaire. This questionnaire was related to a similar study designed by Ashrafi Rizi et al. and used in the study of Kamalipour et al. as well. The family income level in this questionnaire was updated, and the validity and reliability of this questionnaire were confirmed. Three health information management faculties approved the questionnaire content validity, and its reliability was tested using Cronbach's alpha coefficient (0.86). The questionnaire consisted of two main parts; the first part related to demographic information (gender, age, level of education, school and family income level), the second part with a total of 42 questions related to three factors of media and information literacy (Access with 12 questions, evaluation with 16 questions and use with 14 questions).

The questionnaire was designed as a web-based through porsline.ir. The link of the questionnaire was placed in the student's groups on WhatsApp social media, and they were asked to complete the questionnaire to collect the data. Three reminders were given to complete the questionnaires every seven days. Finally, 227 questionnaires were completed and collected.

Data analysis was performed using Statistical Package for the Social Sciences (SPSS) (version 22). Scores of one to five were given to very low, low, somewhat, much, and very much options. The mean scores of each question and factor were calculated and compared. Items and factors whose mean scores were between 1-2.49, 2.5-3.49, and 3.5-5 were considered undesirable, moderate, and desirable. Descriptive statistics (frequency, percentage, mean score, and standard deviation) were used to report the data. Also, T-test, ANOVA, and Tukey tests were performed to examine the relationship between demographic information with media and information literacy and each of its factors (access, evaluation, and use). The level of significance was fixed at $P \leq 0.05$.

Results

In this study, out of 490 postgraduate students, 227 participated in the study, of which 145 were master students (63.9%), 48 were medical assistants (21.1%), and 34 were Ph.D. students (15%) studying in medical, dentistry, health, nursing, and midwifery schools of ZAUMS. Most of the participants in the study (65.6%) were female, and most of them (61.2%) were aged 26-33 years, and only 0.9% of the participants were over 50 years old. The level of families' income in most of the participants (34.8%) was 5 to 7 million Tomans (Table 1).

The mean score of MIL was 3.12±0.40. The mean scores of "Use", “Access,” and “Evaluation” factors were 3.80 ± 0.50, 3.02 ± 0.47, and 2.54 ± 0.84, respectively.

Table 2 demonstrates the MIL levels of students by the "Access" factor. Most participants believed that "research is difficult to start" (3.52±0.77), and the lowest mean score (2.34±0.89) was related to the option "Using Boolean operators (Not, OR, AND) are difficult in the search."

Table 1: Participants' demographic information

Demographic variable			Frequency	Percentage
Sex	Male		78	34.4
	Female		149	65.6
Age	18-25		36	15.9
	26-33		139	61.2
	34-41		38	16.7
	42-49		12	5.3
	50 and more		2	0.9
Degree	Master		145	63.9
	Doctoral	Ph.D.	34	15
		professional	48	21.1
School	Medical		71	31.3
	Dentistry		8	3.5
	Health		41	18.1
	Nursing and midwifery		107	47.1
Family income level (Tomans)	Less than 3 million		23	10.1
	3-5 million		84	37
	5-7 million		79	34.8
	7-9 million		22	9.7
	More than 9 million		19	8.4

Table 2: The MIL level of participants by "Access" factor

Options	Agree		Neutral		Disagree		Mean ± SD
	F*	P*	F	P	F	P	
It is difficult to start research.	98	43.1	122	53.7	7	3.1	3.52 ± 0.77
Defining a topic is difficult to research.	98	43.2	122	53.7	7	3.1	3.50 ± 0.75
It is difficult to limit the subject of research.	49	21.6	148	65.2	30	13.2	3.12 ± 0.70
It is difficult to build search keywords.	53	23.3	100	44.1	74	32.6	2.90 ± 0.89
It is difficult to find articles in research databases on library websites (such as ProQuest, Elsevier, EBSCO).	108	47.6	92	40.5	27	11.9	3.41 ± 0.86
It is difficult to find the desired resources through websites (such as Google, Wikipedia).	20	8.8	96	42.3	111	48.9	2.56 ± 0.82
Determining whether a website is valid or not is difficult.	53	23.3	131	57.7	43	19	3.08 ± 0.81
It is difficult to understand resources are found in what parts of the university or college.	44	19.4	146	64.3	37	16.3	3.07 ± 0.76
It is difficult to find up-to-date resources.	36	15.9	124	54.6	67	29.5	2.89 ± 0.80
It is difficult to sort search results according to research needs.	46	20.2	136	59.9	45	19.9	3.05 ± 0.77
Using Boolean operators (not, or, and) in search is difficult.	20	8.8	61	26.8	146	64.4	2.34 ± 0.89
It is difficult to understand the thematic areas of the media.	25	11	132	58.1	70	30.9	2.81 ± 0.74
Total							3.02 ± 0.47

F: Frequency, P: Percentage

Table 3: The MIL level of participants by "Evaluation" factor

Options	Agree		Neutral		Disagree		Mean ± SD
	F*	P*	F	P	F	P	
Pay attention to the author's reputation (for example, his work experience, degree or place of work)	28	12.3	53	23.3	146	64.3	2.03 ± 1.21
Paying attention to the reputation of a publisher or media producer	35	15.4	34	15	158	69.6	2.03 ± 1.24
Pay attention to the release date and update of the intended media	54	23.8	38	16.7	135	59.5	2.42 ± 1.41
Pay attention to which organization supervises the distribution and dissemination of the intended media and what are the rules about it?	37	16.3	48	21.1	142	62.6	2.26 ± 1.20
Pay attention to the amount of media citations to other sources (for example, the footnotes)	36	15.9	50	22	141	62.1	2.43 ± 1.04
Considering how much the media covers different perspectives (Not biased) or it just has a certain attitude towards issues.	42	18.5	66	29.1	119	52.4	2.64 ± 0.99
Paying attention to the language used by the media (writing style, type of photos, etc.) to convey the concepts.	42	18.5	57	25.1	128	56.4	2.62 ± 1.00
Paying attention to the target audience and group of the media (considering that the intended media takes into account a certain age, gender and social class).	40	17.6	68	30	119	52.4	2.69± 0.97
Pay attention to what image the intended media presents of a particular social group or topic.	39	17.2	57	25.1	131	57.7	2.52 ± 1.05
Consider why the image presented in some media looks more realistic than others.	34	14.9	71	31.3	122	53.8	2.59 ± 0.93
Use the help of others such as librarians, classmates, friends, family, professors, and subject matter experts to evaluate the intended medium.	42	18.5	80	35.2	105	46.3	2.75 ± 0.98
When you visit a new website, you usually check the information on other websites as well.	39	17.2	87	38.3	101	44.5	2.70 ± 0.89
When you notice a difference in the information presented in the media, you compare the information with the information of other media (books, encyclopedias, television networks, newspapers, etc.).	38	16.7	129	56.8	60	26.5	2.94 ± 0.77
When receiving information, pay attention to taking notes and summarizing them.	44	19.4	50	22	133	58.6	2.54 ± 1.06
Considering have you already been aware of or used the intended media?	29	12.8	84	37	114	50.2	2.60 ± 0.86
Considering whether the diagrams, tables, and images used in the intended media contain important and necessary information (i.e., they are not just attractive and beautiful)	51	22.5	100	44.1	76	33.4	2.95 ± 0.95
Total							2.54 ± 0.84

F: Frequency, P: Percentage

Table 3 demonstrates the MIL levels of students by the "Evaluation" factor. The highest mean score (2.95±0.95) is related to the option "Pay attention to whether the charts, tables and images used in the intended media contain important and necessary information (i.e., they do not have only the aspect of attractiveness and beauty)" and the lowest mean score (2.03±1.21 and 2.03±1.24) for the options "Pay attention to the author's reputation (for example, work experience, scientific degree or place of work) and Paying

attention to the reputation of the publisher or producer of the intended media," respectively.

Table 4 demonstrates the MIL levels of students by the "Use" factor. The highest mean score (4.03±0.81) is related to the option "Learning new content," and the lowest mean score (3.43±0.83) is related to the option "impressing faculties with their intellectual abilities."

Table 4: The MIL level of participants by "Use" factor

Options	Agree		Neutral		Disagree		Mean ± SD
	F*	P*	F	F	F	P	
Pass the course and finish writing the article	159	70	58	25.6	10	4.4	3.83 ± 0.81
Considering the length, the structure of the article, and the number of citations	147	64.7	63	27.8	17	7.5	3.74 ± 0.86
Conduct a comprehensive review of the research topic	162	71.4	53	23.3	12	5.3	3.81 ± 0.75
Improving writing, research, and analytical skills	139	61.3	77	33.9	11	4.8	3.71 ± 0.79
Learn new content	183	80.7	33	14.5	11	4.8	4.03 ± 0.81
Impress faculty members with their intellectual abilities	101	44.5	102	44.9	24	10.6	3.43 ± 0.83
Earn a good grade, pass a course or upgrade your academic rank	173	76.2	43	18.9	11	4.9	3.96 ± 0.79
Trying to make creativity and more innovation in research	173	76.2	46	20.3	8	3.5	3.87 ± 0.70
Attention to the application of research results in personal and social life	139	61.2	76	33.5	12	5.3	3.67 ± 0.79
Trustworthiness in quoting the content of others	157	69.2	62	27.3	8	3.5	3.81 ± 0.73
Respect the scientific products of others	168	74.1	52	22.9	7	3	3.84 ± 0.71
Making information available to others in a variety of formats (print or electronic)	163	71.8	56	24.7	8	3.5	3.79 ± 0.69
Do not be upset by others' criticism of my scientific works	148	65.2	64	28.2	15	6.6	3.70 ± 0.80
Writing in a way that leads to new knowledge.	178	78.4	38	16.7	11	4.9	3.96 ± 0.79
Total							3.80 ± 0.50

F: Frequency, P: Percentage

Table 5: The relationship between the MIL level of participants and their demographic characteristics

Demographic characteristics MIL factors	Gender (P- Value)	Age group (P- Value)	Degree (P- Value)	School (P- Value)	Level of family income (P- Value)
Access	0.398	0.813	0.932	0.302	0.004
Evaluation	0.239	0.000	0.125	0.000	0.000
Use	0.004	0.019	0.193	0.241	0.053
Total (Media and Information Literacy)	0.024	0.017	0.797	0.008	0.000

Table 5 demonstrates the tests' results to examine the relationship between students' demographic characteristics and their MIL level. There was a significant relationship between the MIL level of students with gender, age group, school, and the level of family income.

Discussion

The findings of this study showed that the mean score of MIL was moderate, which is not consistent with the results of similar studies conducted in Isfahan, Hormozgan, and Ardebil Universities of Medical Sciences, which their

mean score was above moderate and relatively desirable (14, 17, 18). A study conducted by Shojaei et al. In North Khorasan showed that students' information literacy was moderate, which is consistent with the results of this study (19). Therefore, considering that the population of this study was postgraduate students and most of them will become faculty members in the future, and considering the effectiveness of education in promoting the level of media and information literacy that has been confirmed in various studies (1, 4, 20, 21), It seems necessary to hold workshops and training classes for this group of students.

In this study, among the factors related to MIL, the "use" factor obtained the highest mean score and the "evaluation" factor obtained the lowest mean score. The "use" and "access" factors obtained the highest and lowest mean scores respectively in Ashrafirizi, Kamalipour, and Banihashem studies (14, 17, 18), which is somewhat consistent with the results of this study. Since students need to use new information and communication technologies to find the information, they need to do their educational and research activities in the new era. It seems reasonable to have a high mean score of the "use" factor.

The low mean score of the "evaluation" factor compared to other factors of MIL in this study indicates that, unfortunately, postgraduate students have not acquired the skills of critical thinking, creative thinking, problem-solving, questioning, distinguishing right from wrong, and comparing different information and media sources with each other. In general, they have not acquired the skills of evaluating media and information, which is one of the most fundamental and difficult steps for teaching MIL to any individual.

Therefore, it is better to hold training courses on the mentioned skills for both faculty members and students so that they can acquire the skills to evaluate different types of MIL and make correct judgments about them. Of course, this skill is better to be taught to children from childhood and through the educational system (22), which requires policy-making and planning by decision-makers in the country.

In this study, "learn new content," "earn a good grade, pass a course or upgrade your academic rank,"; and "writing in a way that leads to new knowledge" obtained the highest mean scores among the options, which were somewhat similar to the results obtained in other similar studies (14, 17, 18). The lowest mean scores in this study were related to the following options: "pay attention to the author's reputation (for example, his work experience, degree or place of work)"; "paying attention to the reputation of a publisher or media producer", and "Pay attention to which organization supervises the distribution and dissemination of the intended media and what are the rules about it?", While the lowest mean score in other studies were difficulties in; starting the research, defining a research topic, restricting a research topic, searching for and accessing resources through websites, determining the credibility of a reputable website, and not being upset by others' criticism of scientific works which is not consistent with the result of this study. The reason for this discrepancy can be different research communities and differences in research time.

In this study, there was a significant relationship between the MIL level of students with their gender, age, school, and level of family income. In other studies, there was a significant relationship between MIL with gender (17, 23), level of education (14, 18, 23, 24), college (14, 19), and income level (14, 17, 19, 23). But there was not a significant relationship between the MIL and the level of education in this study, which could be due to the research community that were postgraduate students and due to the need to do more research and scientific activities, they need to

use up-to-date scientific information and various media, and because of this, all of them have acquired this skill. There is no significant difference between them.

Designing a web-based questionnaire and data collection through social media were the strengths of this study, which eliminated the need to visit the participants in person during the COVID-19 disease and increased the speed of response. On the other hand, the limited research community can be considered a weakness of this study, and it is suggested that further studies be conducted at the region or country level.

Conclusion

The results of this study showed that the average MIL of students was moderate. Because the students were studying at the postgraduate level, it requires special attention to improve their literacy level. Since the evaluation factor obtained the lowest average among the MIL factors, university officials should hold classes and workshops, and even conferences on topics related to the evaluation and analysis of media and information, including critical thinking, problem-solving, questioning and identifying credible media resources to improve the MIL levels of students.

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References

1. Krylova-Grek Y. Advanced Information Technology Tools for Media and Information Literacy Training. In: Proceedings of the 15th International Conference on ICT in Education, Research and Industrial Applications. Integration, Harmonization and Knowledge Transfer. 2019; 2 (2393): 229-40.
2. Grizzle A. Media and information literacy. Curriculum for teachers: UNESCO; 2011.
3. Sharifee M, Namivandi SK. The Study of the Dimensions of Media and Information Literacy in the Formal and Public Education System of the Country. Religion & Communication. 2019;25(2): 111-40.
4. Corbin BD, Colditz JB, Sidani JE, Klatt PM, Schaffer T, Primack BA. The SMARxT Media Literacy Program: Improving Evidence-Based Prescribing among Medical Students. Journal of Media Literacy Education. 2018;10(3):1-18.
5. American Academy of Pediatrics. Policy statement-Media violence. Pediatrics. 2009; 124 (5): 1495-503.
6. Pinkleton BE, Weintraub Austin E, Cohen M, Miller A, Fitzgerald E. A statewide evaluation of the effectiveness of media literacy training to prevent tobacco use among adolescents. Health communication. 2007;21(1): 23-34.
7. Wade TD, Davidson S, O'Dea JA. A preliminary controlled evaluation of a school-based media literacy program and selfesteem program for reducing eating disorder risk factors. International Journal of Eating Disorders. 2003;33(4): 371-83.
8. Saleh I. Media and information literacy in South Africa: goals and tools. Comunicar Media Education Research Journal. 2012;20(2).
9. Head AJ, DeFrain E, Fister B, MacMillan M. Across the Great Divide: How Today's College Students Engage with News. Online Submission. 2019;24(8).
10. Grizzle A, Moore P, Dezuanni M, Asthana S, Wilson C, Banda F, et al. Media and information literacy: policy and strategy guidelines: Unesco; 2014.
11. Moeller S, Joseph A, Lau J, Carbo T, editors. Towards media and information literacy indicators. Background document of the UNESCO Expert Meeting (Bangkok, Thailand, 4-6 November 2010); 2011.
12. Media and Information Literacy. [cited 2021]; Available from: https://iite.unesco.org/mil/.
13. Zardoshtian S, Abbasi H, Khanmoradi S. The Effect of Media Literacy on Entrepreneurship Capabilities with the Mediator Role of Information Literacy in Students of Sport Sciences. Communication Management in Sport Media. 2018;5(2):41-54.

14. Ashrafi Rizi H, Ramezani A, Aghajani H, Kazempoor Z. The amount of media and information literacy among Isfahan University of Medical Sciences' students. Journal of Information Systems and Services. 2013;2(2):17-34.
15. Turner KH, Jolls T, Hagerman MS, O'Byrne W, Hicks T, Eisenstock B, et al. Developing digital and media literacies in children and adolescents. Pediatrics. 2017;140 (Supplement 2):S122-S6.
16. Karami Namivandi S, Sharifi SM, Janavi E. Identifuing Soloutions for Increasing Media and Information Literacy among Faculty Members and Students of Iranian Universities. Journal of Communication Research. 2017;24(92):99-124.
17. Kamalipour M, Azad M, Ashkani N, Esmaeilzadeh Z. Students' Media Literacy and Information Literacy in Para Medicine, Nursing and Midwifery Faculties of Bandar Abbas University. J Mod Med Info Sci. 2017;3(1):37-43.
18. Banihashem SK, Noshadi S, Soltanizadeh H, Aliabadi Kh. Comparison and study of media literacy and information literacy among male and female students. Media Studies. 2018;12(3): 115-26.
19. Shojaee M, Amirpour M. A survey of media literacy among students in the information society in north khorasan. Sociological Studies of Youth. 2012;3(7):43-56.
20. Parirokh M, Arastoopoor S, Naderi MR. Efficiency of Information Iiteracy Workshops for Post-Graduate Students: A Research Based on in-Context Approach. Library and Information Science Research. 2011;1(2):201-24.
21. Parirokh M. Effectiveness of information literacy workshops: an experimental study. Studies in education & psychology. 2004;5(2):78-103.
22. Amiri j, Zabolizada A, Karami S. Solutions for Increasing Teachers' Media and Information Literacy. Media Studies. 2019;14(46):7-22.
23. Choi JR, Straubhaar J, Skouras M, Park S, Santillana M, Strover S. Techno-capital: Theorizing media and information literacy through information technology capabilities. New media & Society. 2020:1461444820925800.
24. Bazrafkan L, Hayat AA, Abbasi K, Bazrafkan A, Rohalamini A, Fardid M. Evaluation of information literacy status among medical students at Shiraz University of Medical Sciences. Journal of Advances in Medical Education & Professionalism. 2017; 5(1):42.