



Students' information literacy level at health faculty of Tehran University of Medical Sciences: A cross sectional study

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Abstract

Information literacy has been defined as a person's skill in identifying his/her information need and capability in organizing, evaluating and using information effectively. Information literacy provides a basis for lifelong learning and it is essential for all academic levels and all learning environments. This was a descriptive-analytical study that its data was collected via cross-sectional method. Validity of the questionnaire was confirmed using content analysis. The research population consisted of 179 students studying at the Faculty of Health of Tehran Medical Sciences University. Descriptive statistics and non-parametric statistical tests were used for data analysis in SPSS statistical software. Information literacy of the studied population was estimated as "relatively good". The general information literacy score of students under 25 years old estimated significantly lower mean than the other two groups ($p \leq 0.04$). The "identifying information" component showed the highest (3.88 ± 0.48) and "information management" component showed the lowest (3.62 ± 0.7) mean score. Proper use of information resources in the health sector requires that the students of medical sciences fields master the information literacy skills due to the rapid development of knowledge in health and medical sciences fields. The scope of learning goes beyond the educational environment via information literacy skills. Equipping students with information literacy has a positive effect on the educational and research structure and, consequently, on the executive and management body of the country.

Keywords: Information literacy; Students; Medical Sciences University

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1. Introduction

The importance of information and its role in various occasions of daily life has been raised more than ever by entering into the age of information and knowledge [1]. The need for information is not a new phenomenon, but recently none can avoid it and seems that its growth and increasing will never stop. Due to immersion in the information field it's snowballing, achieving the most useful and effective information is difficult for today's human beings [2]. Considering the link between information and various aspects of social life and ever-increasing size of available information, being equipped with some tool that individuals can pass the individual and social development stages is an undeniable necessity [1, 3].

The educational success of the younger people is also a critical matter and it is well thought-out by authorities of educational systems and all those who are interested in the growth and prosperity of society [4]. The goal of each educational program is to improve literacy; however, the definition of literacy has changed over time. Literacy refers to the ability to recognize, interpret, create, communicate, and aggregate written or printed materials [5]. After developing information societies, the concept of literacy has expanded from its traditional point of view to information literacy that is merged with computer literacy and much beyond that, and it has been recognized as a basic basis for those who need to be involved in the educational groups of these societies [6]. This era is the era of scientific progress and it is based on scientific education and research. In such an era in which the massive amount of produced information has eliminated the opportunity to study all of them, information literacy plays a crucial role [7].

Information literacy is a set of skills that enables persons to identify their information need. They develop the search method in data resources and, then evaluate the obtained information and establish the necessary link between the new information and previous knowledge in order to generate new information by means of available information resources [8-10]. People with information literacy can use different types of media, resources and information channels in their private, professional and public life. Information literacy skills are not intrinsic, but they need to be taught systematically in the groups, classrooms, libraries, and every research center [10, 11].

Information literacy is a common aspect of all majors; it is appropriate to all learning environments and at all educational levels that enable individuals to critically interact with self-development and research [12, 13]. The purpose of any educational institution is to teach learners how to develop mental capabilities, reasoning and critical thinking [14]. The conjunction between

information literacy and learning is undeniable and it must be part of the individual experience of each student [15]. Therefore, increasing information literacy will be a factor in motivating and improving high academic achievement [16-18].

Information literacy skills are the most important tool for equipping students to continue their studies as well as convert them into lifelong learners [19]. Lifelong learning is an information literacy outcome which boosts talented and students not only in education periods, but also in all periods of life, applying the principles of information searching skills helps them to meet their individual and social needs. [20, 21].

Acceleration in production of medical information and knowledge as well as rapid technological advances has led to a rapidly evolving health care system [22]. Therefore, universities and affiliated research centers which share findings and innovations in the field of medical sciences are creating a favorable field for encouraging the talented and interested individuals, especially the students, in developing information literacy [23].

Some evidences indicate that many students, despite having completed their university courses, have only a limited knowledge of information retrieval and search. Some obstacles such as lack of knowledge in accurate locating and evaluating information are main reasons for limited access to needed information [14, 24]. After all, the need of information literacy skills is considered vital for students, who are supposed to play a role in community's future executive, educational and research posts [23].

Estimating the level of information literacy in health students may help a great deal in setting an effective program in order to develop medical and health students' information literacy properly. Therefore, determining the level of information literacy for this group is a good start point for initiating information literacy training. Thus, this study aimed to determine the level of information literacy among students of the Faculty of Health of Tehran University of Medical Sciences.

2. Method

This cross-sectional research was a descriptive-analytic study. The research population consisted of 179 students studying at the Faculty of Health of Tehran University of Medical Sciences. Inclusion criteria were being a student of mentioned faculty for at least two semesters. Sample size calculated 181 using Morgan table. Sampling method was stratified and randomized with proportional distribution among educational departments. The number of these students included 25 bachelor degree students, 101 master students and 53 doctorate candidates filled questionnaire.

The data collection tool was a researcher-made questionnaire based on SCONUL seven pillars model [25]. Face and content validity of this questionnaire was confirmed by university professors. This questionnaire consisted of two parts. The first part contained the demographic information of the respondents, and the second part contained 50 items about the information literacy skills based on the SCONUL seven pillar model that the way of answering was designed to questions based on the Likert scale. In the questionnaire, seven items were considered for "Identifying information", 5 items for "Information estimating (Scope)", 6 items for "information planning", 9 items for "information gathering", 8 items for "information evaluating", 6 items for "Information management" and 9 items for "presenting information". A five option Likert scale was used for questionnaire score setting. Scores between minus 2 and 2 were considered for answers I totally disagree, disagree, I have no idea, agree, and totally agree answer options, respectively. Information literacy skills estimated very low to very good based on mean scores. Independent t, ANOVA tests and LSD post hoc test in SPSS 19 software were used to analyze data.

3. Findings

179 students responded to the questionnaire. Response rate was more than 98% and most of respondents were male. The demographic and educational characteristics of respondents have been shown in Table 1.

Table1. Demographic and educational characteristics of respondents

variable	groups	number	percent
Age (year)	<25	57	31.8
	25≤29	73	40.8
	30≤	49	27.4
gender	male	103	57.5
	female	76	42.5
program	Bachelor	25	14.0
	M.Sc.	101	56.4
	PhD	53	29.6
Studied years in current degree	1	47	26.3
	2	75	41.9
	3	35	19.6
	4≤	22	12.2
Total		179	100

Table 1 demonstrates majority of respondents were between 25 and 29. Most of the respondents were master science students. The mean and standard deviation of information literacy scores of respondents are shown in Table 2.

Table 2. Mean scores and standard deviations for seven pillars of information literacy

SCONUL Pillars	Mean	S.D.	Max	Min
Identifying	3.88	0.48	5.00	2.71
Scope	3.77	0.56	5.00	2.20
Planning	3.76	0.59	5.00	2.33
Gathering	3.85	0.52	5.00	2.44
Evaluation	3.66	0.55	5.00	2.13
Management	3.62	0.70	5.00	1.50
Presentation	3.82	0.54	5.00	1.89
total	3.77	0.43	5.00	2.21

As Table 2 shows "identifying information" component demonstrated the highest mean score and "information management" component revealed the lowest mean score among studied components. Table 3 shows the mean scores of information literacy based on the different age classification of respondents.

Table3. Mean and standard deviations scores for different age groups

SCONUL Pillars	Age groups			p value
	<25	25≤29	30≤	
Identifying	3.80±0.45	3.89±0.46	3.94±0.52	0.28
Scope	3.62±0.48	3.82±0.51	3.84±0.76	0.091
Planning*	3.69±0.48	3.71±0.57	3.94±0.50	0.026
Gathering	3.79±0.51	3.89±0.50	3.87±0.56	0.541
Evaluation*	3.50±0.53	3.75±0.48	3.71±0.61	0.028
Management	3.47±0.67	3.71±0.69	3.67±0.73	0.135
Presentation*	3.68±0.49	3.88±0.54	3.91±0.57	0.047
Total*	3.65±0.36	3.81±0.44	3.84±0.46	0.045

The LSD post hoc test showed that in the overall score of information literacy among students under than 25 years old, the mean score was lower than the other two groups ($p \leq 0.04$). Students in the age group under 25 years old obtained significantly lower score in "evaluating information" and "presenting information" than other two groups ($p = 0.044$). Students in the age group of $30 \leq$ had a significant difference in terms of "information planning" with two $25 \leq 29$ ($p = 0.16$) and ($p = 0.17$) <25 groups.

Table 4 shows the mean of information literacy scores according to the different educational levels of respondents.

Table 4. Mean scores for different degrees

SCONUL Pillars	Studying degree			p value
	Bachelor	Master	PhD	
Identifying	3.960±0.36	3.81±0.49	3.96±0.48	0.24
Scope	3.72±0.51	3.70±0.66	3.88±0.45	0.22
Planning	3.74±0.61	3.69±0.49	3.90±0.56	0.13
Gathering	3.86±0.48	3.82±0.49	3.91±0.55	0.64
Evaluation	3.77±0.60	3.57±0.51	3.79±0.54	0.10
Management*	3.27±0.67	3.59±0.68	3.86±0.68	0.008
Presentation*	3.57±0.62	3.79±0.50	3.90±0.46	0.013
Total	3.70±0.37	3.71±0.42	3.77±0.43	0.078

Although the overall scores of information literacy do not show any significant difference ($p = 0.078$), the LSD post hoc score showed that PhD candidates in “information management” had significant difference with two undergraduate degree ($p=0.001$) and master group ($p=0.025$). In addition PhD candidates had a significantly higher score than undergraduate students ($p = 0.002$) and master students ($p = 0.041$), in the mean of score of “presenting information”.

4. Discussion and Conclusion

This study was conducted to determine the level of information literacy among students of Tehran University of Medical Sciences. The mean score of the “information literacy” skills of the studied population was estimated as “relatively good”, which matched with the results of the researches of Bostanpira *et al.* [16], Sharif Moghadam *et al.* [26], Esmail Pounaki *et al.* [27], Keshavarz *et al.* [1], Mahmoudi and Taheri [8], Miri and Cheshmeh Sohrabi [6], Zahed Babelan and Rajabi [22], Pandpazir and Cheshmeh Sohrabi [23]. However, did not match with the results of the Bazbin *et al.* [28]. In their study titled the relationship between information literacy and evidence-based librarian, the mean score of information literacy and its components reported as average level among the librarians of Kermanshah University. The results of the present study are not consistent with the obtained results of researches of Rezaiee and Pourbairamian [29], Momeni *et al.* [14] and also Taraghikhah Deylamati and Sadeghi [30]. Their research showed that information literacy skills were very low among students of Ardabil University of Medical Sciences, Semnan and Payame Noor University of Semrom, Shahreza and Esfahan, respectively.

A significant difference was seen between different age groups in the scores of information literacy; it indicates that students that had higher age had higher information literacy than those in other educational levels at a lower age. This result was as the same as Yazdani's research [31]. These results also showed that students that have had the age more than 30 and were studying at postgraduate level had a higher level of information literacy than younger students. This result was not consistent with the results of research conducted by Ashrafi Rizi *et al.* [11]. Their findings did not show any significant relationship between gender and age with information literacy. In the academic society, given their position in a knowledge and information centered environment, it is obvious that people with higher age might have higher levels of information literacy. Therefore, students who had higher age and were seeking a position in academic society via post graduate degrees showed that higher levels of information literacy.

The mean score “identifying information” component in the study population estimated as “relatively good”, Which is consistent with the results of Sharif Moghadam *et al.* [26], Mahmoudi and Taheri [8], Mahmoudi and Yari Firuzabad [2], Bhrami and Jafari Harandi [21] and Pandpazir and Cheshmeh Sohrabi [23]. In their review, students' information literacy level has been reported to be higher than average and at desirable rate in the “recognition of information needs” and “correct understanding of information need”. The results of this study were not consistent with the results of Miri and Cheshmeh Sohrabi [6]. Their results indicated that students were estimated lower than the average in “identifying information needs”. In the same way, in the research of Esmail Pounaki *et al.* [27] students showed weak skills in the recognition of manipulated information, the accuracy of information, the comparison of information retrieved from different sources and using these information in writing their own assignments.

The “information evaluating” component score was estimated as “relatively good” in studied population. This result is consistent with the results of the research by Bostanpira *et al.* [16] and Esmail Pounaki *et al.* [27]. In their study, the research population's skill has been reported higher than average level in “ability to determine the extent of information”. The results of this study are not consistent with the results of researches conducted by Keshavarz *et al.* [1], Momeni *et al.* [14], Taraghikhah Deylamani and Sadeghi [30] and Feast [32]. In their research, student's information literacy was not optimum in “retrieving, determining and identifying the nature of information”.

The mean results of information literacy skills in the component of “information planning” was obtained “relatively good”, which is consistent with the results of Keshavarz *et al.* [1] and Mahmoudi and Yari Firuzabad [2]. In their results, students' skills in the “purposeful information use” component and “organizing of information resources and information” were also estimated as desirable. In the research of Bazbin *et al.* [28], “purposeful information use” component was estimated as average which differs with the results of the present study.

The “Information gathering” component mean score estimated as “relatively good” that matched with results of the research by Keshavarz *et al.* [1], Mahmoudi and Yari Firuzabad [2], Zahed Babelan and Rajabi [22], Miri and Cheshmeh Sohrabi [6]. These studies reported capability of effective and efficient access to the required information higher than average. On the other hand, the results of our study were not consistent with the results of Rezaiee and Pourbairamian [29] and Taraghikhah

Deylamani and Sadeghi [30]. Their results indicated that the students were not able to access relevant and effective information. It might be not overstatement if we said this difference refers to studied universities ranks and the numbers of post graduate students in this study and two others. Faculty of Health in Tehran University was one of the first faculties in Iran in which post graduate courses took place.

The mean score of information literacy skills in the "evaluating information" component estimated as "relatively good" in this study which was consistent with the research results of Keshavarz *et al.* [1], Zahed Babelan and Rajabi [22] and Talebi *et al.* [33]. In their research, the level of information literacy of students in the critical evaluation of information and its sources and the combination of selected information with the knowledge base and individual value system has been reported higher than the mean level. The results of Sedghi *et al.* [34] also showed that their research community is moderate in evaluating information. They consider the role of information specialists to be effective in advancing the students research process. The results of this component were not consistent with the results of research conducted by Rezaiee and Pourbairamian [29] and Bazbin *et al.* [28]. In their study, the mean results of information literacy and the component of "evaluation of information" was less than average level.

The "information management" component was estimated as "relatively good" that was consistence with researches conducted by Bostanpira *et al.* [16], Esmail Pounaki *et al.* [27], and Miri and Cheshmeh Sohrabi [6]. In their research, there was a positive and significant association between the skills of information literacy with the "ability to use information" component, academic motivations and academic achievements of students.

The "presenting information" component was estimated "relatively good" in this study and it is consistent with the results of research conducted by Baillie and Curzio [35]. They showed students who attended at least in one information literacy workshop revealed better academic performance and self-esteem in doing their homeworks. However, these results were not consistent with the results of the research conducted by Pandpazir and Cheshmeh Sohrabi [23]. They estimated the skill of the majority of the students in the compilation of new mean data in their study. Also, Kinengyere [36] showed that researchers from Ugandan research and academic institutions did not have the desired skills to use information resources, which it can be referred to the basic information literacy at academic levels.

In this research, PhD candidates were estimated significantly higher than undergraduate and master science students in the "information management"

and "presentation of contents" components. Talebi *et al.* [33] showed that the higher education level has a positive effect on the increase of information literacy capabilities. The research of Ashrafi Rizi *et al.* [11] showed that the mean difference was significant in three undergraduate, postgraduate and doctoral levels, and students with higher education level have had higher levels of media and information literacy. The development and advancement of various information technologies has been led each person encounter a lot of information at home, at work, and in everyday life [37]. The existence of information cannot lead people to a positive use of data, unless people gain the needed ability to use information effectively [2]. It is therefore clear that the university to be both a dominant and continuing the information literacy education [1].

1. The findings of this study and studied research show that for the effective and efficient use of information at universities, they should be equipped with some means; universities need to focus on retaining of information literacy. Students will be independent and lifelong learners, if the skills of accessing and using effective information be taught to them. This subject will be more crucial given the development of new technology in the production of information as well as the means for accessing more information. Given the importance of information literacy in learning in the modern environment of information technology, equipping students with information literacy has a positive effects on the educational and research structure and, consequently, on the executive and management body of modern society.

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Conflict of interest

The authors declare that they have no competing interests.

References

1. Keshavarz, M., Farajollahi, M., Sarmadi, M.R., & Zandi, B. 2015. Students' information literacy level in a distance educational system, A case study. *Bimonthly of Education strategies in medical sciences*, 8(4): 231-237.
2. Mahmoudi, A., & Yari Firuzabad, H. 2012. Survey on the level of information literacy of different educational groups of Zone 5 of Islamic Azad University. *Journal of Knowledge Studies*, 5 (18): 109-126.
3. Soliman, F., & Youssef, M. 2003. The role of critical information in enterprise knowledge

- management. *Industrial Management & Data Systems*, 103 (7): 484-490.
4. Talebi, S., Mahmoudian, H., Rastegar, A., & Seif, M.H. 2015. Predicting Academic Achievement with an Emphasis on Effective Variables in E-Learning and Academic Engagement. *Teaching and learning technology*, 1(2): 117-138.
 5. Tuominen, K., Savalainen, R., & Talja, S. 2005. Information literacy as a sociotechnical practice. *Library Quarterly*, 75 (3): 329-345.
 6. Miri, A., & Cheshmeh Sohrabi, M. 2011. A survey on Information Literacy of the bachelor senior students in Arak University of science and technology in digital environment (during 2008-2009). *Journal of Knowledge Studies*, 4 (13): 65-76.
 7. Pournaghi, R., & Abazari, Z. 2008. The survey of information literacy between university librarians. *Journal of health administration*, 11 (31): 55-79.
 8. Mahmoudi, H., & Taheri, A. 2015. Relation between information literacy and health literacy of students in Ferdowsi University of Mashhad. *Human Information Interaction*, 2 (2): 31-41.
 9. Liew, J., McTigue, E., Barrois, L., & Hughes, J. 2008. Adaptive and Effortful Control and Academic Self-efficacy Beliefs on Achievement: A Longitudinal Study of 1 through 3 Graders. *Early Childhood Research Quarterly*, 23(4): 515-526.
 10. Loveless, A. 2003. *The role of ICT*. London: Continnum.
 11. Ashrafi Rizi, H., Ramezani, A., Aghajani, H., & Kazepour, Z. 2013. The amount of media and information literacy among Isfahan University of Medical Sciences' students. *Journal of information systems and services*, 2 (2): 17-34.
 12. Ward, D. 2006. Revisioning information literacy for lifelong meaning. *The Journal of Academic Librarianship*, 32 (4): 396-402.
 13. Bundy, A. 2004. Australian & New Zealand information literacy network: principles, standards & practice, Australia ANZIL.
 14. Momeni, M., Valizadeh, S., & Ghorbani, R. 2014. A survey on the information literacy of final year students studying at Semnan University of medical sciences (2012). *Koomesh*, 15 (4): 502-510.
 15. Bawden, D. 2001. Information and digital literacies: A review of concepts. *Journal of Documentation*, 57(2): 218-259. <https://doi.org/10.1108/EUM0000000007083>
 16. Bostanpira, Z., Nastiezaie, N., & Shahrakipur, H. 2017. Relationship of information literacy with motivation and academic achievement of agriculture and natural resources students with other graduate students at the University of Sistan and Baluchestan. *Journal of agricultural education administration research*, 39: 110-121.
 17. Eamon, T. 2015. A Decade of Critical Information Literacy. *Communications in Information Literacy*, 9(1): 24-43.
 18. Seamans, N.H. 2002. Student perceptions of information literacy: insights for librarians. *Reference Services Review*, 30 (2): 112-123.
 19. Arenas, J.L. 2004. Information literacy: Implications for Mexican and Spanish university students. *Library Review*, 53 (9): 451-460.
 20. Humes, B. 1999. Understanding information literacy. From <https://files.eric.ed.gov/fulltext/ED430577.pdf>
 21. Bahrami, S., & Jafari Harandi, R. 2020. Information literacy, knowledge sharing and entrepreneurial capabilities of Qom University students. *Sciences and Techniques of Information Management*, 6(3): 17-36.
 22. Zahed Babelan, A., & Rajabi, S. 2011. Evaluation of Information Literacy in University Students. *Journal of Technology of Education*, 5 (4): 309-317.
 23. Pandpazir, M., & Cheshmeh- Sohrabi, M. 2010. A survey on information literacy of higher education students in Kermanshah University of medical sciences based upon Eisenberg and Berkowits' six big skills. *Research on Information Science and Public Libraries*, 16 (2): 115-137.
 24. Katz, I.R. 2007. Testing information literacy in digital environments: ETS's Skills assessment. *Information technology and libraries*, 26(3): 4-13.
 25. SCONUL Seven pillars of information literacy: core model for Higher Education. SCONUL, 2011. http://www.sconul.ac.uk/groups/information_literacy/publications/coremodel.pdf
 26. Sharif Moghadam, H., Salami, M., Narimani, M.R., & Razmkhah, M. 2016. The Rate of Information Literacy of Faculty Members and PhD students of Faculty of Nursing and Midwifery based on Successful Evidence Healthcare. *Journal of Nursing Education*, 5 (4): 59-66.
 27. Esmaeil Pounaki, E., Esmaili Givi, M.R., & Fahimnia, F. 2016. Investigating the relation between media literacy and information literacy of students of communication science and knowledge and information science. *Iranian Journal of Information Processing and Management*, 32 (2): 581-604.
 28. Bazbin, M., Cheshmeh Sohrabi, M., & Moradi, M. 2013. A study of the relationship between information literacy and evidence based librarianship: A case study of librarians of academic library of Kermanshah. *Library and Information Research Journal*, 3(2): 133-152.
 29. Rezaiee, R., & Pourbairamian, G. 2016. Relationship between Critical Thinking and Information Literacy in Students of Ardabil University of Medical Sciences. *Journal of Health*, 7 (3): 365-376.

30. Taraghikhah Deylamni, N., & Sadeghi, M. 2014. Evaluation of Information Literacy among Payam Noor University Students in Semirrom, Shahreza and Isfahan Based on Information Literacy Standards for Higher Education Students. *Journal of Knowledge Studies*, 8 (31): 1-18.
31. Yazdani, F. 2012. Designing an Instrument for Assessing the Students' Information Literacy at Payam-e Noor University, *journal of information and communication technology in educational sciences*, 2 (4): 29-52.
32. Feast, V. 2003. Integration of information literacy skills into business courses. *Reference Services Review*, 31 (1): 81-95.
33. Talebi, B., Moradi, S., Pakdel-Bonab, M., & Zemestani, G. 2011. Presenting informational literacy skills in higher education curriculum. *Journal of Educational Sciences*, 4 (14): 127-150.
34. Sedghi Sh, Abdi F, & Panahi S. 2018. Measuring the Information Literacy Level of Postgraduate Students of the Faculty of Rehabilitation Sciences of Iran University of Medical Sciences based on the Eisenberg Model. *Journal of Modern Medical Information Sciences*. 4(1):30-38.
35. Baillie, L., & Curzio, J. 2009. A Survey of First Year Student Nurses' Experiences of Learning blood pressure measurement. *Nurse Education in Practice*, 9(1): 61-71.
36. Kinengyere, A. 2007. The effect of information literacy on the utilization of electronic information resources in selected academic and research intuitions in Uganda. *The Electronic library*, 25 (3): 328-341.
37. Zamani, A. 2004. Information literacy standards, *Journal of information sciences*, 19 (1 & 2): 34-41.