

Survey of E-Health Literacy among Employees of State-Owned Banks in Tehran During 2020

ABSTRACT

Background and Objective: Developing new Information and Communication technologies has had a significant effect on all of science and knowledge area, including health science. Due to the large number of Electronic resources that product Health content, having health literacy for all of people in society is necessary and useful. This study aimed to identity E-health literacy among employees of state-owned Banks in Tehran in spring and summer of 2020.

Materials and Methods: This is descriptive-analytical cross-sectional study. Statistical populations include 348 employees of 7 state-owned Banks in Tehran who were selected using sample size formula of Cochran and with a confidence level of 95%. Electronic Health Literacy Questionnaire used to collect data. The reliability and validity of the Persian translation of e-Health Literacy Questionnaire has been reviewed by Bazm et al .We also used Mean, Standard Subdivision, Mann-Whitney U, Kruskal-Wallis test and SPSS software (version 21) to analysis them.

Results: Findings show that E-health literacy of examined employees was more than average level and close to good place (30.61). "Level of Knowledge and cognition to Health resources available on the Internet" by the average of 4.07 was identified as the highest Indicator and "Level of Knowledge and cognition to way of searching and seeking health information resources in the Internet" were identified as the lowest indicator effect to E-health literacy of examined employees. Also findings show that there are significant different between E-health literacy and some Demographic characteristics like "Sex", "Degree", "Level of English Language Knowledge", and also "Level of Computer Knowledge" among examined employees ($P < 0.05$).

Conclusion: Although the E-health literacy level of the examined community is in a good condition; but Since the new health information and communication technologies in the web, internet and social networks increasingly are going to expanding, development of staff training knowledge and science with Learning information retrieval and information behavior skills by them, Caused to upgrade and improve of their E-health literacy knowledge and consequently Increasing their personal and social health will follow.

Paper Type: Research Article

Keywords: Health Literacy, E- Health Literacy, Electronic health, Bank Employees, Banking Network

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Aref Riahi

* Department Library and Information Science, Tehran University, Tehran, Iran. (Corresponding Author) Ariaahi@ut.ac.ir

Afshin Mousavi Chelak

Associated Professor, Department of Library and Information Science, Payame Noor University, Tehran, Iran

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Introduction

The term of E-health refers to information and health-oriented services that are transmitted and disseminated through the Internet and other information technologies (1). The most important reason for the tendency to use the Internet for providing health services has been the increase in direct and indirect health costs in the traditional way. Hence, e-health influenced several sectors with several key objectives, including patient health records, online health interventions, training and learning, mobile technologies, and research (2-4). This scientific and technological phenomenon has numerous advantages, including the possibility of establishing wider relationships and more geographical coverage, faster diagnosis of diseases, treatment and prevention of diseases, increasing physician-patient interaction, faster response to treatment, creating a healthy competitive environment between health agents and stakeholders, providing more appropriate health services and establishing a logical relationship between professionals and citizens without spatial and temporal constraints (4-6). Also, factors such as the advent of smart phones and the ability to search for information online facilitate diagnose the disease and use self-care by patients. In addition, the Internet has a great potential for disseminating health information and is a public tool that can be used by low-income classes of society to find appropriate health information, which in turn will promote social justice (7-8).

In addition, it should be noted that prominent examples of electronic technology in the field of health are health information websites, web-based health groups, mobile applications, and interactions that have been provided and developed in response to users' need for access to health information (9). In this regard, the Internet has been considered as one of the important

dimensions of searching health information on the web and an effective tool to improve provision of health care and has been recognized as an important tool in the process of transmission and access to health information (10). The Internet, as a fast and easy medium and communication channel, makes transmission of health information possible to a large number of health information users with no time and space restrictions. Although it is difficult to make decisions about quality of information provided on the Internet, various users, including citizens, students, employees, and those with chronic diseases, routinely use the Internet to search for information and make health-based decisions (11-12). Meanwhile, the ability to find, evaluate and use health information on the web is affected by e-health literacy. In general, health information users on the Internet seek health information in a specific subject field, information prescriptions, receiving information on readiness for surgery and rapid recovery after surgery, obtaining information and guidance from other patients about the symptoms of the disease, benefiting from emotional support and facing desired and positive conditions in bad situations are through health information available on the Internet (13-14). In addition, it should be noted that in spite of many advantages of using the Internet in providing health services, it still does not have a full effect on Iranian society and a significant number of physicians, nurses, health professionals and members of the community use traditional methods of disease diagnosis and medicine introduction. The reason for such a tendency can be considered in the inability to use information technology to maintain health, which requires the ability to read, use the computer, search for information, as well as understand health information and its application (15-16).

According to the above, it should be noted that

e-health literacy has many advantages, including the direct effect on improving the quality of patient training for using e-health tools and reducing the direct and indirect costs of treatment. Also, not paying attention to e-health literacy will lead to inadequacy of individuals in using e-health services, which will be a waste of budget, energy and time (17). Therefore, it seems necessary to pay attention to e-health literacy skills in today's society, which is increasingly leading to the use of electronic tools. Meanwhile, evaluating health literacy of employees of the country's banking network, who are among the most important and main actors in the country's economic system and have a special place in the country's economic prosperity, seems very important and necessary and trying to investigate and evaluate it as accurately as possible will bring many advantages for the banking and economic system of the country. In fact, it should be noted that one of the most important factors that affect occupational efficiency and professional level of employees and human resources is physical and mental health of the workforce. The organizations will be able to move dynamically to reach higher levels of productivity if mental and physical health of employees is ensured. Therefore, one of the factors that are closely related to health outcomes such as health status, suffering from chronic diseases, and etc. is health literacy of these individuals. As a result, it can be concluded that if information needs in the field of health of employees of the bank will properly identified, their access to health information will be more easily and quickly, barriers and challenges facing them in accessing health information will be identified and resolved and, in general, their level of health literacy increases, not only providing grounds for increasing health and improving the health level of employees in the organization, but also the process and positive effect on improving

organizational performance and consequently occupational efficiency of leading employees in the banking system of the country. Therefore, recognizing health literacy and e-health literacy of bank employees in order to resolve barriers and problems facing them and help improve their access to information they need has been very important and is one of the important issues in the field of information behavior and data recovery, especially in health. According to the mentioned introduction, the purpose of this study is to investigate e-health literacy of employees of the network of government banks in Tehran. The present study is a new and unique work in this field, since no study has been conducted to investigate e-health literacy of bank employees (especially government banks and pioneers in the economic sector and financial system).

Materials and Methods

The present research in terms of purpose is applied using descriptive cross-sectional survey method (Spring and Summer of 2020). The study population of the present study consists of all employees working in government banks in Tehran, including employees of the central banks of the Islamic Republic of Iran, Melli, Maskan, Keshavarzi, Sepah, Tose e Tavon, and Sanat o Madan. Upon inquiry from the Human Resources Department of the Central Bank of the Islamic Republic of Iran and 6 other banks, it was found that more than 47,000 individuals are currently working in these banks formally, officially on a trial and contract basis (according to the contract). According to the sample size and based on Cochran volume determination Table, 384 employees were selected as the study population. The criteria for entering the study were the person employed at the time of study and their willingness to participate in the study. Data were collected using available sampling method. 8-item Norman et al. questionnaire was used for

data collection on e-health literacy evaluation. E-Health Literacy Questionnaire is a self-report based on knowledge and understanding of what health information resources are available on the Internet, where one can access these resources, how to use the Internet to answer health-related questions, the ability to evaluate online health information, and distinguish poor quality resources from quality resources on the Internet. It should be noted, however, that this questionnaire does not evaluate individuals' actual knowledge, but rather their perceptual knowledge. Banking network employees can comment on the items of the questionnaire based on 5-option Likert scale from Totally Disagree (1) to Totally Agree (5). As a result, the final score of each employee will be varied from 8 to 40, and a score of 32 and above indicates high e-health literacy. The reliability and validity of the Persian translation of e-Health Literacy Questionnaire has been reviewed by Bazm et al (18) who reported the acceptable value of factor load of the items from 0.723 to 0.862. This study results showed that the translated version of the questionnaire was equivalent to the original version and showed good validity and reliability. The internal consistency of the scale was sufficient ($\alpha = 0.88$, $P < 0.001$) and the test-retest coefficients for the items were reliable ($r = 0.96$, $P < 0.001$). For data collection, the questionnaire was randomly distributed among the study population and 348 individuals (90.6%) who answered the questionnaire questions completely and appropriately were selected and other questionnaires were discarded. The descriptive and inferential statistical tests were used to analyze the data using SPSS software version 21.

Results

In the present study, the mean age of participants ($n = 348$) was $34.3 \pm 2/06$ years and ranged from 25 to 59 years. Table 1 show demographic and background information of surveyed respondents.

Table1. Demographic and background information of surveyed respondents

Demographic indicator		Number	Percentage
Gender	male	252	72.4%
	female	96	25.6%
Marital status	married	255	73.3%
	single	93	26.7%
Bank Status	Central Bank	54	15.5%
	Melli	58	16.7%
	Maskan	46	13.2%
	Keshavarzi	50	14.4%
	Sepah	39	11.2%
	Tosee Taavon	45	12.9%
	Sanat o Madan	56	16.1%
Place of Services	branches	203	58.3%
	headquarters	145	41.7%
Years of service	up to 10 years	159	45.7%
	11 to 20 years	115	33%
	21 to 30 years	74	21.3%
degree	Diploma	39	11.2%
	postgraduates	47	13.5%
	bachelor	80	23%
	master	165	47.4%
	PhD	17	4.9%
Job position	up to the rank of 5	110	31.6%
	6 to 10	108	31%
	11 to 15	72	20.7%
	above 16	58	16.7%
Employment status	employed	235	67.5%
	not employed	81	23.3%
	contracted	32	9.2%
Computer skills	very good	159	45.7%
	good	111	31.9%
	mean levels	47	13.5%
	low	22	6.3%
	very low	9	2.6%
English language skills	very good	57	16.4%
	good	72	20.7%
	mean levels	124	35.6%
	low	54	15.5%
	very low	41	11.8%
Internet Usage	several times a day	109	31.3%
	daily	141	40.5%
	several days a week and weekly	68	19.5%
	several times a month and monthly	30	8.6%
	I did not use	0	0%

Table 2 shows mean e-health literacy of each of their demographic information. respondents to the questionnaire based on

Table2. The level of e-health literacy of employees of government banks in Tehran in each of the items

Components of e-Health Literacy	Very High	High	Mediate	Low	Very Low	Mean & SD
Familiarity with the types of health resources available on the Internet	163 (%46.8)	79 (%22.7)	84 (%24.1)	12 (%3.5)	10 (%2.9)	4.07 ±5.13
Familiarity with health resources available on the Internet	137 (%39.4)	123 (%35.3)	44 (%12.6)	35 (%10.1)	9 (%2.6)	3.99 ±4.89
Familiarity with how to search for useful health resources on the Internet	108 (%31)	101 (%29)	47 (%13.50)	64 (%18.40)	28 (%8.10)	3.57 ±5.38
Familiarity with how to use the Internet to answer health questions	123 (%35.30)	84 (%24.1)	64 (%18.40)	45 (%12.90)	32 (%9.20)	36.30 ±5.66
Familiarity with how to use health resources and information recovered from the Internet	152 (%43.70)	88 (%25.30)	78 (%22.40)	21 (%6)	9 (%260)	4.01 ±5/06
Familiarity with the skills needed to evaluate health resources recovered from the Internet	99 (%28.40)	98 (%28.20)	100 (%28.70)	40 (%11.50)	11 (%3.20)	3.67 ±4.20
Ability to distinguish quality health resources from other sources	130 (%37.40)	89 (%25.60)	84 (%24.10)	32 (%9.20)	13 (%3.70)	3.84 ±6.27
Reliability of health information available on the Internet	114 (%32.80)	92 (%26.40)	97 (%27.90)	25 (%7.20)	20 (%5.70)	3.73 ±5.26

The results have shown that mean e-health literacy of employees of selected banks in Tehran is 30.61 (standard deviation of 8.14), which is above mean and close to good and acceptable. The results also showed that "familiarity with the types of health resources available on the Internet" with a mean of 4.07 (highest) and "familiarity with how to search for useful health resources on the Internet" with a mean of 3.57 (lowest) were related to e-health capability and literacy of the studied employees. Table 3 shows e-health literacy of the studied employees.

Table3. The level of e-health literacy of employees of government banks in Tehran

Level	Number	Percentage
Very High	123	%35.3
High	96	%27.6
Medium	79	%22.7
Low	33	%9.5
Very Low	17	%4.9

The results of the present study showed that

the highest level of e-health literacy of the studied employees was 40 and the lowest was 21. Also, more than 85% of the respondents to e-health literacy questionnaire were above mean and only 15% of them had "poor" and "very poor" e-health literacy.

The results of Mann-Whitney U and Kruskal-Wallis tests showed that a significant difference was between "e-health literacy" of the studied employees and their "gender", "degree", "English language familiarity" as well as "computer literacy" (P <0.05). These results show that e-health literacy was higher for women than men. Also, having a higher degree has led to higher e-health literacy. In addition, having more knowledge and familiarity with English and computer and using it has increased e-health literacy of the studied employees. The results also showed that a positive and significant correlation was between e-health literacy of the studied employees and their familiarity with English language and computer skills and ability. On

Table4. E-health literacy of respondents to the questionnaire based on contextual information

Demographic characteristics		E-health Literacy		
		Mean	SD	P
Gender	Male	29.67	±5.64	0.033*
	Female	32.84	±5.12	
Marital status	Single	30.28	±5.33	0.097
	Married	31.51	±4.88	
Employment history	0-10	31.28	±5.74	0.195
	11-20	30.19	±5.47	
	21-30	29.81	±4.99	
Education	Diploma	28.77	±7.28	0.001*
	Associate Degree	29.68	±6.19	
	Bachelor	30.47	±4.93	
	Master	30.77	±6.11	
	PhD	36.49	±5.70	
Employment Status	Contractual	30.44	±5.29	0.115
	Official Experimental	30.87	±5.46	
	formal	30.66	±5.81	
Bank	Central Bank	31.39	±4.89	0.243
	Melli	30.19	±6.07	
	Maskan	30.23	±5.28	
	Keshavarzi	30.14	±5.81	
	Sepah	30.55	±6.32	
	Tosee Taavon	30.91	±5.01	
	Sanat o Madan	30.82	±5.53	
Knowledge of English Language	Very good	32.08	±4.76	0.05*
	Good	31.97	±5.81	
	Medium	30.52	±6.66	
	Weak	29.19	±6.94	
	Very Weak	28.32	±6.81	
Knowledge of Computer Science	Very good	31.33	±5.26	0.05*
	Good	30.66	±5.72	
	Medium	29.75	±6.19	
	Weak	28.40	±7.08	
	Very Weak	27.17	±6.59	
Internet usage rate	Monthly	30.34	±6.38	0.264
	Weekly	30.33	±5.10	
	Daily	30.68	±6.94	
	Several Times a day	30.77	±5.83	
Service location	Non-branch	30.80	±5.41	0.295
	Branch	30.47	±5.73	
Job position	Up to rank 5	30.44	±5.10	0.323
	Rank 6 to 10	30.72	±5.73	
	Rank 11 to 15	31.07	±5.03	
	Rank 16 and more	30.16	±5.68	

the other hand, the results showed that this difference was observed in their "job position", "place of work", "internet usage", "service bank", "employment status", "employment history" and "marital status".

Discussion

The results of the present study showed that among components of e-health literacy, employees of the studied banks rated "familiarity with types of health resources available on the Internet" with a mean of 4.07 as the highest and "familiarity with how to search for useful health resources on the Internet" with a mean of 3.57 as the lowest e-health literacy item. The results show that the study population is relatively familiar with the types of health and e-health resources such as books, magazines, websites and newsletters, as well as social networks. In fact, it should be noted that cyberspace, especially mobile social networks, are important tools for obtaining news and information in the field of health, and accurate control and prevention of information pollution, as well as sending reliable and valid resources to this group of employees can bring more fruitful and desired results in the field of e-health literacy. In addition, paying attention to channels of receiving information in the field of health for individuals and trying to improve quality of e-health literacy will improve health status of individuals. On the other hand, it should be noted that trying to familiarize this group of individuals in society with how to search for useful and healthy resources on the Internet is considered necessary and should be considered in the planning and macro-policies of banks.

In fact, it should be noted that the Internet and social networks are the most important channels for employees to access health information. The use of new communication and information technologies such as; World Wide Web, the

Internet and social networks as useful and appropriate tools to promote health information can be accessible to individuals with no time and space restrictions. The investment of the government and public and private organizations in the field of technology for development of World Wide Web and increasing the level of public access to cheap internet can provide conditions for promotion of obtaining health information. The development of new information technology tools in the health sector, such as the Internet, social networks, and etc., and its use by the studied employees will lead to flourishing of their awareness in the field of health and will help access to needed information in the field of medicine in the modern information age (along with other developed and industrial societies) (19-20).

The study results also showed that the studied employees had relatively good e-health literacy (30.61) and were in an acceptable position. These promising results show that bank employees have high and desired e-health literacy due to their special working conditions and extensive relationships with members of the society, and unlike some studies that have mentioned moderate e-health literacy (21-22). The present study group was aware of its importance and necessity and had relatively good health literacy.

The study results also showed that e-health literacy of the studied employees based on their demographic information showed significant differences. These results showed that women have higher health literacy than men. This may be due to the pattern of more health concerns of women compared to men. The study results of Tennant et al. (2015), Blackstock et al. (2016) and Park et al. (2016) have also shown that in general, the role of women in maintaining their health and that of their families (along with searching for health information) is greater than

men and one of the reasons for the results of the present study can be considered consistent with this view. Also, some other related studies have shown that women seek health information more than men and pursue access to health information with higher accuracy and quality (23-25). The study results of Mitsutake et al. (2016) as well as Villadsen et al. (2020) have shown that women have higher health literacy and e-health literacy than men and are consistent with the results of the present study (26-27).

In addition, the results showed that more familiarity with English language also has an effect on promoting and increasing health literacy of the studied employees. In fact, it should be noted that in the present age and world, a significant part of international scientific productions are prepared and published in English, and English should be considered as the language of science in today's world (28-29). Since most reputable databases and information resources in the field of health are prepared and produced in English, fluency of users and employees of the banking system in English can lead to identification of valid scientific sources through an accurate search process. Previous studies in this field have also shown that familiarity with the language of health information resources in the field of data recovery, search for information and the use of those resources is very effective (30). The results obtained from studies by Bazm et al. (2016), Reisi et al. (2012) and Dashti et al. (2017) also emphasized non-use of health information resources by employees and different classes of society due to low level of familiarity and ability in English (and consequently lower health literacy and e-health literacy) and are consistent with the study results (31-33).

The results of the present study also showed that familiarity with how to search for health information sources and the low level of computer

knowledge of employees have been effective on their low level of electronic literacy. In fact, it should be noted that the Internet and web-based information resources have been developed significantly in recent decades in all aspects, and scientific information resources, especially in the field of health, have been stored in various formats and the ability to search and retrieve information has been provided (34). The knowledge of accurate data recovery, which is the knowledge and skills needed to access the best information in the field of health, requires careful considerations and scientific strategies based on computer knowledge that if individuals do not know to use what systems and methods to use databases, they make mistakes in accessing relevant information sources. The study results also showed that e-health literacy of the studied employees was commensurate with their computer knowledge and literacy consistent with many of the results of previous studies that emphasized correlation between e-health literacy and computer skills and data recovery (information search) (35-37). In this regard, it is recommended that departments related to training of the studied banks periodically investigate and evaluate the level of computer capabilities and skills of employees in order to provide e-health literacy to these employees so the higher the capabilities, the higher e-health literacy of employees. State the limitations of your study.

Incomplete questionnaires, inaccurate answers to the questions and self-reporting questionnaires were the most important limitations of the present study. Also, the sampling method in this study was none-probability method and the number of women was lower than the men under study, also there are some demographic different which may affect the results obtained, so it is suggested that in future studies, sampling should be done

randomly and with a more appropriate sample size of employee's statuses.

Conclusion

Finally, it can be concluded that although the level of e-health literacy of the study population is in a desired and appropriate situation; since health technologies and information are increasingly developing, e-health literacy is considered as an important component of health literacy so empowering individuals and providing useful information about recovery (search strategies and techniques) and search should not be ignored. The study results also showed that quantitative and qualitative development of electronic and Internet information resources have been able to be somewhat effective on meeting information needs of health of the studied employees. In addition, knowledge of needs and search for health information by employees under different living and working conditions, providing appropriate information as well as trying to remove barriers and challenges to access health information (using health promotion programs) can be crucial and effective. Also, paying attention to channels and sources of obtaining and receiving health information will increase the quantitative and qualitative level of e-health literacy, and consequently, we will see improvement of personal and occupational health status of employees. Promotion of e-health literacy of employees of the banking and economic network of the country, due to its great role in their individual and collective life, is very important that first increases the quality of life and physical and mental conditions for them and second, it will lead to development of health and then economic and social development of the country. In addition, it should be noted that identifying and evaluating the level of e-health literacy of employees is the first necessary

step in developing strategies to improve their health literacy. In societies such as Iran, where the use of the Internet is rapidly developing, further research related to the study subject is recommended to identify factors related to e-health literacy.

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