Assessment of health literacy of municipal employees in Shemiranat, Iran

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Abstract

Background: Health literacy is one of the major determinants of health promotion among individuals and within society.

Objective: The present study is aimed to determine the health literacy status of office employees in Shemiranat using the native instruments of health literacy for Iranian adults (HELIA).

Methods: The present descriptive-analytical cross-sectional study was done in 2016-17. It was conducted on 360 office employees in Shemiranat. The samples were selected using a multi-stage simple random sampling method. Data collection tools in this study included HELIA questionnaire. The data were imported into SPSS v.18 software and then analyzed using descriptive statistical indices (mean, SD, number, and percentage) and inferential statistics (Chi-square, Pearson's correlation coefficient, Spearman's correlation coefficient, and Kruskal-Wallis test). Written informed consent was obtained from the employees participating in the study and they were assured about confidentiality. Also, they were informed that participation was voluntary.

Results: The mean and standard deviation of the total health literacy score among the studied individuals was 125.99 ± 16.01. The mean score of health literacy in the areas of reading (15.36 ± 2.89) and evaluation (5.01 ± 2.8) among the studied individuals was lower than other dimensions of health literacy. Based on the Chi-square test, there was a statistically significant relationship between health literacy and education level, occupational rank, work place, and work experience ($p=0.0001$ in all the cases). The individuals with medium and good levels of health literacy acquired most of their health-related information through the Internet, friends, relatives, physicians, and health staff.

Conclusion: Health literacy status was not sufficient among the studied staff. Thus, it is recommended to perform promotional interventions in order to improve the health literacy status and its dimensions among these staff.

Keywords: Health literacy, Employees, Questionnaire

1. Introduction

Health literacy is one of the essential concepts in the issue of health (1). According to the WHO's definition, health literacy refers to an individual's socio-cognitive skill for accessing, understanding, and applying health information in order to prevent and promote health (1). Furthermore, health literacy determines the individual's capability and motivation for accessing, understanding, comprehending, and applying the information for a health-promoting behavior (1) predictors of health behaviors and situations as well as other health outcomes (2, 3). The findings of Rodford et al. on women with a family history of breast cancer indicated a relationship between low-risk perception and insufficient health literacy (4). Insufficient health literacy can indeed be defined as a silent epidemic affecting the population health care system in many parts of the world, which can result in many unpleasant consequences for

health. In the 5th Conference on Health Promotion in Mexico, the WHO announced that health literacy can be considered not only as a personal characteristic, but also as a key determinant of health promotion at population level (1). Insufficient health literacy would result in considerable costs for hospitalization as well as increased use of treatment services (5). Health literacy refers to any individual's capacity to acquire, interpret, and understand the basic information on health and health services, which is required to make appropriate decisions (6). Regarding various aspects of literacy, each person requires five types of competency: 1) access, which refers to the ability to understand accessible health information, 2) reading health information, which means reading health-training materials, medical forms, guidelines (instruction manuals), pre-test preparation sheets, and specific written instructions provided by the health care staff for different diseases, 3) understanding ability, which refers to the ability to understand health information, 4) evaluating, which means the ability to interpret, filter, judge, and evaluate health information, and 5) applying and decision-making, refers to the ability to establish a relationship and apply the information to make decisions leading to health promotion (7, 8). Various instruments have been designed and used throughout the world to measure health literacy (9-13). In Iran, a native instrument has been designed and psychometrically evaluated by Montazeri et al. to measure the health literacy of the urban population (18-65 years old). This instrument is named Health Literacy for Iranian Adults (HELIA) which includes 5 areas (access, reading, understanding, evaluation, and decision-making) and 33 items (14). The low number of questions, ease of implementation, covering all aspects of health literacy (access, reading, understanding, evaluation, decision), and public nature are among the features of this instrument so that it is not for a specific job, education level, or age group, and can be used for different demographic groups. Moreover, this instrument is capable of measuring the health literacy level with acceptable accuracy (14, 15). Worldwide, at least one in 10 adults lacks level 1 health literacy. Nearly half of European adults have "inadequate" or "problematic" health literacy, and only 12% of US adults possess a "proficient" standard (16). In a national study in Iran, about 44% of the population had limited health literacy (7). In other study, the health literacy level in 79.6% of the elderly was very poor (1). With respect to the necessity of using this psychometrically evaluated instrument (HELIA) for different groups of adults, the present study is aimed to determine the health literacy status of the office employees in Shemiranat using the native valid and reliable instrument (HELIA). The researchers were native to Shemiranat and office employees in Shemiranat were available groups. These were the reasons for conducting the study. Results of this study can be the use of the Iranian health literacy tool in different groups and it can be used for designing promotional interventions in order to improve the health status and health literacy of these employees.

2. Material and Methods
2.1. Study design
This is a descriptive-analytical cross-sectional study which was conducted from October 2016 through March 2017 in Shemiranat, Iran. The population of which included the staff of the Municipal Offices in Shemiranat, Iran. The inclusion criteria included being an employee in one of the offices of Shemiranat County and an education level of above high school diploma. The exclusion criteria included the lack of consent for cooperation and incomplete questionnaires.

2.2. Subjects and sampling
The sample size was calculated as equal to 360 individuals, using Cochran's sample size formula with a certain population (4000 people) and considering the confidence level of 95%, initial error of 0.05, health literacy ratio of 0.5 was obtained by Montazeri et al. on health literacy of Iranian adults living in cities, q=1-0.5, accuracy of 0.05, and possible loss of 10% (7). Written informed consent was obtained from the employees participating in the study and they were assured about confidentiality. Also, they were informed that participation was voluntary. Sampling was performed using a multi-stage simple random sampling method, among the offices in Shemiranat. There were 15 offices in Shemiranat, 5 offices were randomly selected to provide the estimated number of samples. These offices included Municipality of Area 5 in District 1, Research Center of Municipality, two branches of Shahr Bank, and Municipality of Area 1 in Shemiranat. District 1 has 10 areas which have no discernible differences with each other. Then, in each office, out of the list of employees, a number of employees were selected through simple random sampling. The participants from these offices included 48 individuals from the Municipality of Area 5, 92 individuals from the Research Center of Municipality, 60 individuals from the two branches of Shahr Bank, and 160 individuals from the staff of the Municipality of District 1 in Shemiranat County.

2.3. Instrument
Data collection was performed using HELIA, which has been designed and psychometrically evaluated by Montazeri et al. (2014) to measure health literacy of adults in an urban population. This questionnaire includes 7

questions on demographic characteristics of the respondents and 33 main items in five areas of access (6 items), reading skill (4 items), understanding (7 items), evaluation (4 items), decision-making and applying health information (12 items). The scale of responding to the items was a 5-point Likert scale, including always, often, sometimes, rarely, and never (7, 15), so that the minimum and maximum points in this questionnaire were 33 and 165, respectively. The questionnaire was used and validated by Montazeri et al. in 2014. The time for completing the questionnaire is 10 min. The scores obtained from this questionnaire were classified using mean ± SD criterion so that the score below 110, 110-142, and above 140.1 indicated poor, medium, and good health literacy, respectively. The questionnaires were anonymous and the samples were ensured of the confidentiality of their information. The questionnaires were completed by the researchers and two trained questioners in the samples' work places.

2.4. Statistical Analysis
Data were imported in SPSS version 18 software and, then, their normality was specified using Kolmogorov-Smirnov test. Afterwards, data analysis was performed using descriptive statistical indices (mean, SD, number, and percentage) and Inferential statistics (Chi-square, Pearson's correlation coefficient, Spearman's correlation coefficient, and Kruskal-Wallis test).

3. Results
The mean and standard deviation of the participants' age was 32.46±7.03. Furthermore, 41.1% and 58.6% of them were female and male, respectively. Among the participants, 35.6% had Bachelor's degree, 44.1% worked in the Municipality of District 1, and 68.1% had a work experience of less than 10 years. According to Chi-square test, there was a statistically significant relationship between health literacy and education level, occupational rank, work place, and work experience (p=0.0001 in all the cases) so that the participants with MSc degrees and the occupational ranking of experts had good health literacy. The health literacy status among the samples working in the Research Centre of Municipality and those with a work experience of less than 10 years, was medium and good, respectively (Table 1). Moreover, findings of the present study, in terms of health information sources, showed that the participants acquired most of their information through the Internet. Based on the Chi-square test, there was a significant difference between the health literacy levels acquired through different information sources, including the Internet (p=0.015), friends (p=0.0001), and physicians and health staff (p=0.0001), so that the participants with medium and good health literacy obtained the health-related information mostly through the Internet, friends, family, physicians, and health staff, respectively (Table 2). The mean health literacy score of the participants was 125.99 ± 16.01. The health literacy status was good, medium, and poor among 15.8%, 70.6%, and 13.6% of the participants, respectively. The mean health literacy score in the dimensions of reading and evaluation was lower than other dimensions among the participants (Table 3). Pearson's correlation coefficient test and its nonparametric counterpart, namely Spearman's correlation coefficient, indicated significantly positive correlation between the health literacy scores and age (r=0.19, p=0.0001), access (r=0.57, p=0.0001), reading (r=0.617, p=0.0001), understanding (r=0.78, p=0.0001), evaluation (r=0.70, p=0.0001), application and decision-making (r=0.84, p=0.0001). Also, performing a Kruskal-Wallis test revealed a significant relationship between age and health literacy so that the participants with the age of above 46 years old had a better health literacy status (p=0.0001). Moreover, a significant relationship was found between age and dimensions of reading (p=0.019), understanding (p=0.004), and decision-making and application (p=0.0001) so that the participants with the age of above 46 years old had a better health literacy status. Also, based on ANOVA and its non-parametric counterpart, namely Kruskal-Wallis test, it was shown that there was a statistically significant relationship between health literacy and dimensions of access (p=0.0001), reading (p=0.0001), understanding (p=0.0001), evaluation (p=0.0001), and decision-making (p=0.0001) so that the higher the score of heath literacy dimensions, the better the score of health literacy would be. Chi-square test revealed significant relationships between the dimension of access and education level (p=0.0001), occupational rank (p=0.0001), work experience (p=0.005), between dimension of reading and education level (p=0.0001), occupational rank (p=0.0001), work experience (p=0.005), between dimension of understanding and sex (p=0.019), education level (p=0.0001), occupational rank (p=0.0001), work place (p=0.031), between dimension of evaluation and sex (p=0.02), education level (p=0.0001), occupational rank (p=0.0001), work place (p=0.0001), and between dimensions of decision-making and education level (p=0.0001), occupational rank (p=0.0001), work place (p=0. 0001), and work experience (p=0.01).

Table1. Health literacy level based on population variable

Demographic characteristics		n	%	Poor health literacy; n (%)	Medium health literacy; n (%)	Good health literacy; n (%)	p-value (Chi-square)
Sex	Female	149	41.4	21 (45.7)	109 (42.1)	19 (35.4)	0.48
	Male	211	58.6	25 (54.3)	150 (57.9)	36 (65.5)	
Education level	High school diploma	71	19.7	95 (32.6)	52 (20.1)	4 (7.3)	0.0001*
	Associate degree	39	10.8	12 (26.1)	26 (10.0)	1 (1.8)	
	BSc	128	35.6	10 (21.7)	97 (37.5)	21 (38.2)	
	M.Sc. and higher	122	33.9	9 (19.6)	84 (32.4)	29 (59.7)	
Occupational ranking	Head	1	0.3	0 (0)	0 (0)	1 (1.8)	0.0001*
	Manager	28	7.8	0 (0)	16 (6.2)	12 (21.8)	
	Senior expert	19	5.3	1 (2.2)	10 (3.9)	8 (14.5)	
	Expert	202	56.1	17 (37)	156 (60.2)	29 (52.7)	
	Normal	110	30.6	28 (60.9)	77 (29.7)	5 (9.1)	
Work place	Municipality	48	13.3	2 (4.3)	37 (14.3)	9 (416)	0.0001*
	Research center	92	25.6	13 (28.3)	72 (27.8)	7 (12.7)	
	City bank	60	16.7	5 (10.9)	33 (12.7)	22 (40)	
	Municipality of Region 1	160	44.4	26 (56.5)	117 (45.2)	17 (30.9)	
Work experience (year)	<10	245	68.1	42 (91.3)	168 (64.9)	35 (63.6)	0.0001*
	≥10	115	31.9	4 (8.7)	91 (32.1)	20 (36.4)	

Table 2. Levels of health literacy based on information source

Health Literacy Status	Information source; n (%)						
	Physicians and health staff	Internet	IVR	Radio and television	Newspapers, journals, magazines	Friends, family	Booklets and brochures
Good	35 (63.6)	37 (67.3)	0 (0)	22 (40)	14 (25.5)	11 (20)	13 (23.6)
Medium	84 (32.4)	175 67.6)	5 (1.9)	121 (46.7)	58 (22.4)	99 (38.2)	42 (16.2)
Poor	4 (8.7)	21 (45.7)	1 (2.2)	28 (60.9)	6 (13)	30 (65.2)	43 (93.5)
Total	123 (34.2)	233 (64.7)	6 (1.7)	171 (47.5)	78 (21.7)	140 (38.9)	302 (83.9)
p-value (Chi-square)	0.0001	0.015	0.77	0.1	0.27	0.0001	0.066

Table 3. Mean health literacy score based on the health literacy dimensions

Dimensions	Health literacy score			
	Mean ± SD	Poor; n (%)	Medium; n (%)	Good; n (%)
Access	21.37±2.91	59 (16.4)	239 (66.4)	62 (17.2)
Reading	15.36±2.89	48 (13.3)	258 (71.7)	54 (15)
Understanding	28.33±3.8	53 (14.7)	245 (68.1)	62 (17.2)
Health literacy evaluation	15.01±2.8	72 (20)	216 (60)	72 (20)
Decision-making	44.20±7.79	52 (14.4)	242 (67.2)	66 (18.3)
Total health literacy	125.99±16.01	49 (13.6)	254 (70.6)	57 (15.8)

4. Discussion

The overall health literacy status was at a medium level among most of the participants. The mean health literacy score in the dimensions of reading and evaluation was lower than other dimensions among the participants and the internet was the significant source for health information. According to the study by Pirdehghan et al., 75.2% of the participants had a poor health literacy level using S-TOFLA (6). In a work by Von Wagner et al., only 11.4% of the participants had poor health literacy (16). In the study conducted by Sharifirad et al., the health literacy level of the elderly was very poor (1). Findings of this study emphasized the necessity of designing the promotional interventions to improve the health literacy of the staff.

In the present study, there was a statistically significant relationship between health literacy and age, education level, and information source, so that the participants with the age of above 46 years old and education level of MSc and above, had higher health literacy levels. A similar study by Zareban et al. also showed the relationship between health literacy level and age, education level, and information source (15). Based on the findings of this study, planning the educational interventions is a priority for improving the health literacy status of the employees with lower educational level and lower age. Findings of this study indicated a statistically significant relationship between the health literacy dimensions of access, understanding, and evaluation and sex so that the scores of these dimensions were higher among men. In the study by Javadzade et al., poor health literacy was reported among women. However, in the study by Montazeri et al., the health literacy status was 67.6% and 69.02% for men and women, respectively (7). Such a difference could be due to the difference of the studied samples and research time. Based on this finding, it is necessary to perform educational interventions for female employees in order to improve the access, understanding, and evaluation dimensions of health literacy. In the present study, there was a statistically significant relationship between the health literacy dimensions and health literacy level so that the employees with higher scores in each of the health literacy dimensions had better total health literacy scores. In terms of the correlation between the health literacy components, a similar study was conducted by Peyman et al. on investigating the health literacy status of the nurse assistants based on TOFLA questionnaire (17). Accordingly, it is necessary to plan a program for promoting the status of each of the health literacy dimensions in order to improve the overall health literacy among them. Results of this study showed a statistically significant relationship between the dimensions of access, understanding, reading, evaluation, and decision-making with occupational rank and work experience so that the scores of the health literacy dimensions were higher among the participants with occupational ranking of expert and work experience of above 10 years. The reason was that most of the participants had an educational level of BSc and work experience of less than 10 years. With respect to this finding, it is necessary to focus on the staff with other occupational rankings and work experience of above 10 years in planning for promoting the health literacy status of these employees. In this study the mean scores of access, understanding and decision-making dimensions were more than other dimensions. This finding is consistent with Pratt, Searles and Edwards's studies (18, 19). Findings of the study showed the mean score of reading and evaluation dimensions were less than other dimensions. Similar research had been reported by Mirand (20). Therefore, using visual aids for increasing reading skills and increasing communications and evaluation skills could lead to health literacy promotion. The study on the office employees in Shemiranat County, self-reporting, and quantitative method were the limitations of the present study. It is proposed to conduct similar studies on the employees in other offices, other regions, and other residents of this county and to use the interview method.

5. Conclusions

The health literacy status among the studied employees was at medium level, which is not sufficient. It is recommended to perform promotional interventions in order to improve health literacy status and its dimensions among these employees through planning educational programs to hold workshops, and preparing and distributing booklets and health training software in offices, with the cooperation of the experts of Department of Health Education and Health Promotion at universities of medical sciences.

Conflict of Interest:
There is no conflict of interest to be declared.

Authors' contributions:
MS designed the study. HJ performed the study. MS and HJ drafted the manuscript. MS and HJ performed statistical analysis and interpretation of data. Both authors read and approved the final manuscript.

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