Original Research Article

A comparative study on students' health literacy in two faculties of Ardabil university of medical sciences in Iran, 2020

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ABSTRACT

Background: Health literacy is a multidimensional concept to promote and maintain of health in the community. Students of the medical sciences are considered as a promoter of health in the society and the evidence regarding health literacy in these students is limited, so the purpose of this study was to determine and compare the students' health literacy in two faculties of Ardabil university of medical sciences in Iran.
Methods: This is a descriptive cross-sectional study. A total of 280 students of the Pardis and health schools were randomly sampled and examined. Data collection tool was a native standard questionnaire (HELIA). Data analysis was performed using descriptive statistics. The data was examined using statistical software (SPSS version 20).
Results: The results of this study showed that the level of health literacy in Pardis students was significantly higher than students of the health faculty (p=0.000). There was a significant increase in the level of students' health literacy with the increase of academic years in the fields of medicine, dentistry and pharmacy (p=0.009). There was no significant relationship between health literacy levels with field of study, gender, marital status and family income in both groups.
Conclusions: The findings of this study indicate that the Pardis students (in medicine, dentistry and pharmacy fields) had sufficient health literacy and had a higher average than health students. In contrast, the health literacy of health students was assessed as insufficient. Given that medical students are the providers of future health care, it is recommended that the authorities do more to promote their health literacy.

Keywords: Health literacy, Student, University of medical sciences, Ardabil, Iran

INTRODUCTION

World health organization (WHO) defines health literacy as the cognitive, social, and ability of individuals to access, understand, and use the information available to promote and maintain good health.[1] Health literacy is dependent on literacy and includes the knowledge, motivation and capacity of individuals to access, understand, evaluate and use health information to make daily judgments and decisions about health care, disease prevention and health promotion to maintain or improve the quality of life.[2] In the last decade, health literacy has played a pivotal role in health education and health promotion and has received increasing attention as a means to improve health outcomes and reduce health inequality.[3] Health literacy is a social determinants of health.[4] Also, the lack of health literacy means limited understanding of written and spoken information provided by health professionals and bewilderment in deciphering basic medical instructions and forms. This can compromise the efficiency of practice and inflict higher medical expenses, cause poorer health status, create more hospital admissions, encourage the use of more emergency services, and trigger less preventative care.[5] A study by the WHO shows that health literacy is an effective indicator for predicting population health status, which is highly associated with disease, mortality, health status, average life expectancy and quality of life.

Thus, WHO has promoted public health literacy as an important strategy and action plan to improve public health worldwide. The first step in most situations is to measure health literacy itself.[6]

In a large-scale national survey conducted in Iran in 2015, the rate of limited health literacy was estimated as 44%, which means that almost one in two Iranians had limited health literacy.[7]

Low health literacy is associated with poor quality of life, which can be due to reduced accessibility and less use of medical care, heightened stress due to more daily life challenges, poor self-management of the disease, and reduced self-efficacy, i.e., "ability to exert control over life and the environment."[8] Demographic characteristics such as; age, gender, income, university and place of residence were directly related to health literacy. In this respect, social and individual factors can play important roles in improving health literacy. An individual's capacity, which includes innate potential and individual skills, is an essential component of health literacy.[9]

Social factors include education system, indigenous language, health system and socio-cultural variables and socio-economic status, gender and race, as well as mass media and increasing application of electronic health literacy.[10] In addition to the factors affecting health literacy mentioned above, factors such as economic development, ethnicity, social services improvement, and family affect how people interact with health systems.[11]

The student course is not only an important step in acquiring knowledge but also a key step in developing behavioral habits.[12,13] The results of a study showed that the level of health literacy in students was insufficient in more than one-third of participating students (37.1%). Also, the borderline and the average score of health literacy in students was 70.35.[14] As shown the previous study, more than 70% of students had inadequate and borderline health literacy.[15] Another study on graduate students, showed that students' information literacy levels were above average, and the most students obtained health information through the Internet and interacting with friends.[16]

On the other hand, medical students are the providers of future health care who need comprehensive capacities to improve their self-care capabilities and strengthen patients' independence, participation and self-management abilities.[17]

Given the role of health literacy in the quality of life, it is necessary to choose an educational approach to promote health literacy and quality of life by considering the level of their abilities and skills. The inclusion of health literacy as a school subject or university course can help achieve the goals of sustainable development in communities.[18] In this study, students were selected as the study population because of age and educability, as well

as being a good model for a healthy lifestyle in society, especially medical students who are considered promoters of public health. So, the purpose of this study was to determine and compare the students' health literacy in two faculties of Ardabil university of medical Sciences in Iran.

METHODS

This study was a cross-sectional descriptive study. The population consisted of students of the international Pardis of the university including the departments of medicine, dentistry and pharmacy and students of the faculty of health including the disciplines of environmental health, occupational health and public health. At the time of the study, based on information collected from the faculties, a total of about 900 students were studying in these two faculties.

In the first stage, based on previous studies, the standard deviation of health literacy in the community was 25 and the minimum error was 3.[15] To determine the sample size, the formula of the average of a population with 95% confidence was used. Therefore, according to the sample size formula, it was required to include at least 267 participants in the present study. Nevertheless, considering a possible 10% attrition, 290 people were selected as the sample size of the study.

Stratified random sampling was employed in the present study. In this way, at first, a list of students from Faculties of health and Pardis was prepared and then stratified randomly from each level according to the number of students randomly selected. Considering the pandemic and the need to implement health protocols, a digital version of the questionnaire was designed and provided to the students. Finally, after removing incomplete questionnaires, 280 people entered the final stage of analysis, including 140 Pardis students (medicine, dentistry, pharmacy) and 140 students of the faculty of health (environmental health, occupational health and public health).

For data collection, for measuring the health literacy of adults aged 18 to 65 years in Iran, (HELIA) was used which is a localized version. This questionnaire consists of two parts: demographic information containing 6 items, and the specific part containing 33 items in 5 areas including access (6 items), reading skills (4 items), comprehension (7 items) and evaluation and decision making (12 items). The raw score of each person in the sub-measurements is obtained from the algebraic sum of the scores (Table 1); then, the following formula is used to convert this score to a range of zero to 100:

$$X = \frac{\text{Raw score obtained} - \text{Minimum raw score}}{\text{Maximum points possible} - \text{Minimum points possible}} \times 100$$

To calculate the total score, the scores of the sub-assessments (based on the range from zero to 100) are added and divided by the number of sub-assessments.

$$n = \frac{1.96^2(25)^2}{3^2} \cong 267$$

Table 1: Raw points.

Subscales	Number of items	Min. points possible	Max. points possible
Reading	4	4	20
Access to information	6	6	30
Understanding	7	7	35
Appraisal	4	4	20
Decision making/ behavioral intention	12	12	60
Total	33	33	165

The advantages of this questionnaire version are conciseness (which increases people's participation), ease of implementation, covering all aspects of health literacy and generality, i.e., this tool does not belong to any specific class, occupation, education, age group or any range and can be applied to different population groups. Furthermore, it can assess the level of health literacy with acceptable accuracy.[19]

Inclusion criteria included student satisfaction, being 18 to 65 years old, and studying in one of the majors at the faculties of health or Pardis. Exclusion criteria were unwillingness to continue cooperation at any stage of the study and incomplete completion of the questionnaire.

Descriptive statistics included frequency, mean and standard deviation. To compare the mean of the two groups studied, independent t test, to compare qualitative data in the groups, the chi-square test and, to compare the mean scores in cases with more than two groups, analysis of variance (ANOVA) were used. These calculations were performed by SPSS21 software.

RESULTS

A total of 280 students studying in the two faculties of international Pardis and health of Ardabil university of medical sciences were studied. Out of 140 students of the Pardis, 53 (37.85%) were studying medicine, 43 (30.72%) dentistry and 44 (31.42%) pharmacies. There were 140 students in the faculty of health, of which 35 (25%) were in environmental health, 37 (26.43%) were in occupational health, and 68 (48.57%) were in public health. The demographic characteristics of the students are given in Table 3.

Table 2: Ranking of health literacy level.

Level of health literacy	Score range for subscales	
	Minimum	Maximum
Low	0	50
Insufficient	50.1	66
Sufficient	66.1	84
High	84.1	100

Table 3: Comparison of frequency distribution of demographic characteristics of students of the faculty of health and the international Pardis of Ardabil university of medical sciences.

Demographic characteristics	Pardis faculty, N (%)	Health faculty, N (%)	P value
Age (years)			
18-20	48 (30.7)	93 (66.4)	
21-23	65 (46.4)	44 (31.4)	--
≤24	27 (19.3)	3 (7.5)	
Gender			
Female	54 (38.6)	90 (64.3)	
Male	86 (61.4)	50 (35.7)	--
Academic years			
1	22 (15.7)	35 (25)	
2	21 (15)	35 (25)	
3	23 (16.4)	39 (27.8)	
4	24 (17.1)	31 (22.1)	--
5	25 (17.8)	-	
6	25 (17.8)	-	
Marital status			
Single	119 (85)	136 (97.1)	
Married	21 (15)	4 (2.8)	--
Family income			
Low	-	6 (4.3)	
Moderate	3 (2.1)	38 (27.1)	
Good	32 (22.8)	45 (32.1)	--
High	105 (75)	51 (3.6)	

The study of health literacy status among students of Pardis and health faculties showed that there was no significant relationship between health literacy level with field of study, gender, marital status and family income. According to the results, health literacy status had a significant relationship with the age group of Pardis students, but such a relationship was not established in the health school (p=0.014 and 0.564, respectively).

Also, the results of this study showed that there was a direct and significant relationship between students' academic seniority and health literacy among Pardis students, so that in higher education levels in medicine, dentistry and pharmacy, students' health literacy was enhanced significantly, but such a correlation was not established in the students of the health faculty (p=0.009 and 0.092, respectively).

According to Table 4, the two faculties had a significant difference in the average health literacy, and most Pardis students (62.8%) had adequate health literacy, but the majority of health students (55%) had insufficient health literacy (p=0.000).

Finally, as shown in Table 5, among Pardis students, there was inadequate access to health information lower than other aspects of health. Among Health students, there were not enough access and evaluation, while other aspects were assessed as sufficient.

Table 4: Comparison of students' health literacy status in the faculties of Pardis and health.

Faculties	Health literacy status				P value
	Low, N (%)	Insufficient, N (%)	Sufficient, N (%)	High, N (%)	
Pardis	1 (0.7)	36 (25.7)	88 (62.8)	15 (10.7)	<0.001
Health	10 (7.1)	35 (25)	77 (55)	18 (12.8)	<0.001

Table 5: Comparison of average dimensions of health literacy of students of the faculty of health and the international Pardis of Ardabil university of medical sciences, n=140.

Factors	Pardis faculty, mean±SD	Health faculty, mean±SD	P value
Reading	68.23±13.35	67.53±12.38	
Access to information	60.22±12.2	58.22±15.22	
Understanding	71.1±15.33	63.02±12.16	<0.001
Appraisal	69.02±10.16	51.45±17.1	
Decision making/ behavioral intention	75.43±11.11	74.21±12.1	
Total	72.10±13.23	62.74±15.01	

DISCUSSION

The results of this study, comparing the health literacy status of campus and health students, indicate that the health literacy of campus students (sufficiently) had a higher average than health students (not enough). Ziapour et al reported the level of health literacy of medical students as good.[18] However, in other studies conducted by Rad, Nekouei Moghadam and Ghanbari, 73%, 74% and 75.4% of the participants had borderline and inadequate health literacy, respectively, which is in line with the results of the present study.[20-22] The results reflect the importance and necessity of paying attention to students' health literacy as an effective and necessary factor to promote community health. Also, there was a direct and significant relationship between age and students' academic seniority with the level of health literacy among Pardis students, so that at higher ages and education levels in medicine, dentistry and pharmacy, students' health literacy were enhanced significantly. However, there was no such a relationship among health students. Unlike the present study, in the study of Mollakhalili et al younger people had higher health literacy.[9] However, the results of Ziapour study are in line with the results of the present study, so that the highest health literacy was in the age group over 28 years and the lowest amount of health literacy was in the age group of 24-27 years.[18] Mao et al concluded that a higher level of education was associated with higher health literacy, which was in line with the findings of the present study.[12] Sharif Moghadam also reported that post-basic sciences students had higher health literacy than pre-basic sciences students.[23] The reason is probably studying more in the fields of health, after the Basic sciences and obtaining more information. Therefore, academic seniority is an effective factor in students' health literacy.

According to the results of this study, there was no significant relationship between health literacy level with the field of study, gender, marital status and family income. However, in Afshari's study, the use of health information was higher in women than men.[24] And in Mahmoudi's study, the level of health literacy of women was higher than men.[16] Women in Hassan et al study were more likely to search online health information and had higher levels of health literacy.[25]

Regarding marital status, the results of Sharif-Moghadam's study showed that married students had higher averages than single students in every aspect of health literacy.[23] This is probably due to having married life and being responsible for the health of family members. In the present study, the reason for the insignificance of marital status is probably the small number of married people.

In a study by Tochi et al in a population of adult men and women in a Southeastern European country, the results showed that there was significantly higher health literacy among young participants and higher education, and in terms of gender, employment status or marital status there was no significant difference between the respondents, which is in line with the results of the present study.[26]

Regarding the aspects of health literacy, the results of this study showed that among Pardis students, access was in a "not enough" state and was lower than other aspects of health. However, among health students, the aspects of access and evaluation were "not enough" and other aspects of health were "sufficient".

In the study of Ziapour et al with the aim of predicting the aspects of health literacy of students of Kermanshah university of medical sciences, the highest mean scores of health aspects were related to comprehension and the lowest value was related to reading skills. The highest level of health literacy was among medical students and the lowest among paramedical students.[18] In this study, the level of health literacy of the Pardis school was significantly different from the health school. In the study of Ziapour et al a similar questionnaire was used and this can justify the reason for the similarity of the results.

In the study of Mohammadi et al among the aspects of health, the aspects of comprehension and interpretation obtained the highest and lowest mean, respectively. However, in this study, among Pardis students, the access aspect had the lowest mean and the decision aspect had the highest mean. Among the health students, the evaluation aspect had the lowest mean and the decision aspect had the highest score. Therefore, these two studies are not aligned.[27]

Sharif-Moghadam et al found that medical students have higher average scores than dental students in terms of health literacy. In the study of health literacy aspects, the highest mean in both disciplines was related to the "decision-making and behavior" aspect, and the lowest mean in dentistry was related to the "evaluation" aspect. Also, in medicine the lowest mean was related to the "reading" aspect.[23]

CONCLUSIONS

The findings of this study indicate that the Pardis students (medicine, dentistry and pharmacy students) had a higher average in terms of health literacy than health students (environmental health, occupational health and public health) had sufficient health literacy. In contrast, the health literacy of health students was assessed as insufficient. Students of the medical university as the future health providers are considered reliable sources of health information. Therefore, it seems that in the way of obtaining health information by medical students and teaching them the necessary skills for providing health information to patients, fundamental changes should be made and the authorities should take steps to promote the health literacy of medical students.

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