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Research Article

Health literacy in the population covered by family physicians in Askarieh rural health center-2016

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Abstract

Background: Health literacy is today viewed as a global issue. Health literacy is the capacity of each individual to obtain, process, and understand basic health information and health services required to make appropriate decisions. Regarding the importance of health literacy in the population covered by family physicians and the limited number of studies in this regard in Iran, this study aimed to determine the status of health literacy in the population covered by family physicians in Askarieh rural health center in 2016.

Methods: This cross-sectional, analytical study was conducted in 2016 on 260 clients who were referred to Askarieh rural health centers. A valid and reliable, 49-item, researcher-made questionnaire on health literacy was completed via interview. Data was analyzed in SPSS16 software using t-test, Pearson correlation, one-way ANOVA and multivariate analysis of variance tests. The significance level was considered less than 0.05.

Results: The mean age of participants was 31.78±10.66 years, 73.5% were female, and 86.9% married. From among them, 61.5% held secondary and high school diploma degrees and 59.6% had a moderate family income. The results showed that 26.9% had adequate health literacy. Also, women enjoyed a higher health literacy than men (P=0.03) and individuals with higher levels of education had higher health literacy (P=0.008).

Conclusions: A higher level of health literacy reduces the cost of treatment on the government and people. Given the importance of health literacy, it is recommended that healthcare authorities design educational interventions to improve health literacy, particularly among men and individuals with low literacy levels.

Keywords: Health Literacy; Family Physician; Health Promotion; Health Center

1. Introduction

One of the challenges for health service providers has always been to ensure safe, inexpensive and accessible health services. On the other hand, population growth and aging (1), the subsequent increase in chronic diseases, (2) and increased healthcare costs (3) have led to a raise in referrals to hospitals and clinics (4) thereby affecting the quality of healthcare. Hence, addressing health literacy can be a potential strategy to reduce referrals to hospitals (5).

Health literacy is today viewed as a global issue, and the World Health Organization has introduced it as a great determinant of health, recommending countries across the world to establish a community of all people affected by this in order to monitor and coordinate strategic activities for the promotion of health literacy in different countries (6). In the 21st century, if individuals want to have appropriate functioning, they should have awide range of abilities, skills and competencies and in fact several forms of "literacy"; these forms of "literacy" are diverse, dynamic and flexible and may range from the capability of reading a newspaper to understanding the information that a health worker provides (7).

Health literacy is a newly highlighted and yet old concept. It has been used in health-related scientific

literature since around 1970 (8, 9). Health literacy is the ability to read, understand and act on the basis of health and well-being recommendations. It is the ability of each individual to obtain, process, and understand basic health information required to make appropriate decisions (10). According to the World Health Organization and the glossary of health promotion, health literacy is defined as social cognitive skills that determine an individual's motivation and ability to access, understand and use information in a way that contributes to maintaining and improving his/her health. Therefore, health literacy is a concept beyond a person's individualistic abilities in reading and writing (11). Assessment of health literacy can be useful for improving clinical services, community participation in health, health service planning and health education (12). In this regard, higher health literacy levels reinforce the relationship between self-efficacy and health behaviors (13).

According to the US Center for Health Care Strategies, people with lower health literacy are less probable to understand the oral and written information presented by health experts and to follow their instructions. Such people also incur higher medical costs; have poorer health conditions, higher rates of hospitalization and requirement to emergency services, and lesser preventive care (14). According to studies in the U.S., the prevalence of inadequate health literacy was 48 percent in the U.S. and only 11 percent had adequate health literacy (15). A study in Sweden showed that people with high health literacy scores have significantly more physical activity, less drinking, and less smoking (16).

In a study conducted in five provinces in Iran, only 28.1 percent of the participants had adequate health literacy, 15.3 percent had border line health literacy, and 56.6 percent had inadequate health literacy. Lower education level, old age, and poor financial situation were related to inadequate health literacy. It was reported in this study that health literacy levels in women were higher than men in the modified regression model (17). A qualitative study of the African-American adolescents revealed a low health literacy level in 60% of the subjects (18).

The key role of health literacy in benefiting from health care services and improving its outcomes is now well recognized. Various researches have revealed that inadequate health literacy leads to delayed diagnosis of diseases, poor self-care skills, increased use of emergency services, increased hospitalization rates, increased incidence of various diseases, and eventually increased mortality (19, 20). People with inadequate health literacy have poorer health status and less ability in dealing with chronic diseases and using healthcare services (21). According to what was described, inadequate health literacy is today considered as a global threat. Despite the critical importance of health literacy, little attention has been paid to it. Moreover, the few studies conducted reveal a low level of health literacy in Iran. Considering the importance of health literacy in the population covered by family physicians and the limited number of studies in this regard in Iran, the present study aimed to determine the status of health literacy in the population covered by family physicians in Askarieh rural health center. The results of this study can be utilized in designing training programs to suit the needs of the population covered by family physicians.

2. Methods

This cross-sectional analytical descriptive study was conducted in 2016 on people referring to Askarieh rural health center (including the main public health center and its 6 affiliated health houses). The sample size was calculated as 260 subjects using the sample size calculation formula $n = \frac{p}{}$ and based on the results of the study by Nekouei moghadam et al. (22). Before data collection, the research objectives were explained to the sample and after obtaining their consent, they were included in the study. The inclusion criteria were age above 12 years and provision of informed consent. The exclusion criteria were people with mental and cognitive disorders, and those who were not able to answer the questions.

The tools for assessing health literacy consist of mainly abilities of test results reading, comprehension and calculation, excluding several of the issues in modern definitions of health literacy (23). Hence, data collection tools included a researcher-made questionnaire in two parts. The first part contained 14 demographic items (age, sex, education, spouse's education, employment, spouse's employment, number of children, income level, insurance status, history and type of a particular disease, living facilities, accommodation condition), and the second part contained 49 multiple-choice items to assess health literacy, which were all designed by the researchers. The first 23 items were multiple-choice, where a correct answer was

scored 1 while a wrong answer was scored 0. Items 24 to 37 evaluated the probability of doing some activity on the basis of the 5-item Likert Scale, ranging from"highly improbable"to "highly probable" (1to 5 scores); items 38 to 47 evaluated the individual's confidence to perform some health related activities on the basis of the 5-item Likert Scale, ranging from "not confident at all "to "completely confident" (1 to 5 scores); items 48 and 49 evaluated the individual's feeling (pleasant or unpleasant) about exposure to certain situations on the basis of the Likert Scale, ranging from"uncomfortable" to "very comfortable" (1 to 5 scores). In total, a minimum of 26 and a maximum of 153 health literacy scores were calculated. Based on the scores, people who obtained less than 50% of the scores were considered as having poor health literacy, between 50 and 75% as moderate, and over 75% as good health literacy.

This health literacy questionnaire was developed by the researchers and its validity and reliability were confirmed. In order to determine the content and face validity, the content validity index (CVI) and content validity ratio (CVR) were used. To this end, the questionnaire was evaluated by 10 experts in the fields of health education, health promotion, epidemiology and nursing and then their comments were studied and applied. The mean CVI was 83.5% and the mean CVR equaled 87%. After confirmation by the experts, the reliability was assessed using Cronbach's alpha coefficient. For this purpose, the questionnaire was completed by 20 persons referring to the health center and its Cronbach's alpha was obtained as 0.86.After validity and reliability of the questionnaire was confirmed, it was completed via interview.

The collected data was analyzed in SPSS16 software (Version16, SPSS Inc, Chicago, IL) by using descriptive statistics tests (mean, standard deviation, frequency) and analytical statistics Pearson correlation, t-test , one-way analysis of variance (ANOVA) and multivariate analysis of variance. The significance level was less than 0.05.

3. Results

The mean age of participants was 31.78±10.66 years; 73.5% were female; 86.9% were married; 45.4% had one or two children; 63.1% were households; 58.9% earned between 501 thousands to one million tomans monthly; 74.6% were under rural insurance coverage; 61.5% held secondary and high school diploma degrees; 59.5% of the participants' spouses held secondary and high school diploma degrees; 59.6% had a moderate family income; 88.1% had no disease history, and 73.1%were owners of their houses. Table 1 indicates the frequency distribution of participants in details according to demographic variables.

Table 1: Frequency distribution of demographic characteristics in participants

Variable		N (%)
Marital status	With spouse	226 (86.9)
	Without spouse	34 (13.1)
Employment	Self-employed	31 (11.9)
	Employee	2 (5.8)
	Worker	40 (15.4)
	Housewife	164 (63.1)
	Unemployed	10 (3.8)
Number of children	0	33 (12.7)
	1 or 2	118 (45.4)
	3 or 4	59 (22.7)
	5 or more	50 (19.2)
Income (thousand tomans)	< 500	27 (24.1)
	501-1000	66 (58.9)
	> 1000	19 (17)
Insurance	Rural	194 (74.6)
	Social Welfare	52 (20)
	Treatment	9 (3.5)
	No insurance	5 (1.9)
Education level	Illiterate or elementary	83 (31.5)
	Secondary or high school	160 (61.5)
	Tertiary	18 (6.9)
Spouses education	Illiterate or elementary	83 (36.6)
	Secondary or high school	135 (59.5)
	Tertiary	9 (4)
Gender	Male	69 (26.5)
	Female	191 (73.5)
History of disease	No disease	229 (88.1)
	Hypertension	10 (3.8)
	Diabetes	12 (4.6)
	Cardiovascular	2 (0.8)
	Other	7 (2.7)
Welfare facilities Automobile	Yes	106 (40.8)
	No	154 (59.2)
Washing machine	Yes	187 (71.9)
	No	73 (28.1)
Dishwashing machine	Yes	7 (2.7)
	No	253 (97.3)
Accommodation status	Rented house	61 (23.5)
	Mortgaged house	9 (3.5)
	Personal ownership	190 (73.1)
Income	Good	22 (8.5)
	Moderate	155 (59.6)
	Poor	83 (31.9)

The mean score of health literacy of the participants equaled 109.6±21.71. A total of 21.2% of the participants had poor health literacy, 51.9% had moderate health literacy, and 26.9% had good health literacy. In order to

compare the mean score of health literacy with regard to demographic variables, the independent t-test and one-way ANOVA were used. The results showed that there was a significant difference between the mean score of health literacy and education (p=0.008) and gender (p=0.03) (Table 2), but the effects of variables of marital status (T=0.82, P=0.41), employment (F=0.91, P=0.41), number of children (F=2.46, P=0.06), income level (F=1.19, P=0.31), insurance (F=0.43, P=0.73), spouse's education (F=1.81, P=0.16), accommodation (F=0.99, P=0.37) and income condition (F=0.49, P=0.91) were not significant on health literacy. Pearson correlation coefficient showed significant negative correlation between health literacy and age (r=-0.13, p= 0.03). Also, Multivariate analysis of variance was used to study the factors affecting health literacy. This test indicated that variables of sex and education are 1.6% and 3.4%, respectively effective on health literacy (Table3).

Table 2: Comparison of literacy in terms of education and gender

Variable	Mean ± SD	Statistical test result
Education		
Illiterate or elementary	106.23 ± 84.09 a	F = 4.86
Secondary or high school	109.20 ± 37.32 a	Df = (2 & 257)
Tertiary	124.22 ± 17.74 b	P = 0.008
Gender		T = -2.21
Male	104.23 ± 6.07	Df=258
Female	111.20 ± 38.98	P=0.03

Table 3: Multivariate analysis of variance for assessing effective factors on health literacy

Source of Variation	Sums of Squares	df	Effect Size	Fisher statistic	P-value
Sex	1845.70	1	0.016	4.08	0.04
Education	4042.60	2	0.034	4.45	0.01

4. Discussion

According to a statement by the World Health Organization, health literacy has an essential role in determining health inequality in developed and developing countries (24). Given the importance of health literacy in improving and promoting public health, the present study aimed to determine the status of health literacy in people who referred to Askarieh rural health center. The results of this study can be utilized in planning interventions to improve health literacy in the society.

The results showed that only 26.9% of the subjects enjoyed a good level of health literacy. Shariatinia reported 16.4% desirable health literacy rate in Yasouj (25). Azimi et al. found that 31.2% of the students of the University of Tehran enjoyed desirable health literacy (26). Khosravi et al. reported that 41% of the diabetic patients referring to health centers in Shiraz had adequate health literacy (27). Tavousi et al. reported that 44% of the Iranian adults living in cities have poor health literacy (28). Torres et al. found that 55% of the patients with cancer in NorthEast Carolina have poor health literacy (29). Although the rate of health literacy of the individuals in the present study is more than those in Yasouj, it is lower than other studies in other regions of Iran and the study in NorthEast Carolina; therefore, it is essential that the authorities in charge of health and healthcare services should pay more attention to this issue in order to design and implement educational interventions to improve health in these people.

There was a significant relationship between the mean score of health literacy and gender, where women enjoyed higher health literacy than men. Compared with men, women generally care more about hygiene and healthcare principles and comply more with medical advice and have more inclinations toward learning and observing health care principle. These all can influence their health literacy. This is consistent with the studies by Mahmoudi et al. (2015) and Tehrani Banihashemi (2007) (30), though not consistent with the studies of Khosravi et al. (2015) (27), Shariatinia et al (2015) (25), Mollakhalili et al. (2014) (31) and Rafiezadeh Gharrehtapeh et al. (2014) (32).

The results showed a significant relationship between the level of health literacy and education level, In other words, people with university education have significantly higher levels of health literacy. This is consistent with the findings of the studies by Khosravi et al. (2015) (27), Shariatinia et al. (2015) (25), Rafiezadeh Gharrehtapehet al. (2014) (32), and Mahmoudi et al. (2015) (33). Obviously, promoting health literacy among people is something beyond simple information transfer and dependent on the levels of literacy and cognitive development.

Results of the present study showed that the difference in the mean score of health literacy was not significant in terms of marital status, employment, number of children, income level, insurance, spouse's education, accommodation and income status. Wang et al. (34) reported that11.4% of adults in the UK had inadequate

health literacy and there was a significant relationship between health literacy and age, gender, education and income. Similarly, Ozdemir et al. (8) showed that 28.1% of adults in Turkey had poor health literacy and that there was a significant relationship between health literacy and education, gender and income. Javadzadeh et al. (35) reported that 15.5% of adults in Isfahan had poor health literacy and that there was a significant relationship between health literacy and age, education, gender, and economic status. As it can be seen, in these studies there was asignificant relationship between health literacy and income, which is not consistent with our results. Similarly, Tehrani Banihashemi et al. (30) found a significant relationship between limited health literacy and lower economic status.

As consent to participate was an inclusion criterion in the study, it is possible that those with higher levels of health literacy were willing to participate. On the other hand, given that the questionnaire was developed by the researchers and its reliability and validity were confirmed for the first time for people referring to public health centers, it is suggested that this study be carried out in other geographic regions with different cultures and populations and with larger sample sizes. It is hoped that this new tool, which is designed in accordance with the cultural matters of Iran, can be a useful tool for assessing health literacy inthe society and this study can be the cornerstone for future national studies.

5. Conclusion

The results of this study showed that less than a third of the subjects had adequate health literacy levels. Hence, given the importance of health literacy and its impact on the way people make decisions about their health, policy makers should consider it as an important issue to improve health in society and promote the quality of health services. Higher levels of health literacy can reduce the staggering costs of treatment on the government and people, and accordingly, the high costs of treatment can be spent on prevention, healthcare services and ultimately improving people's lifestyle. Therefore, it is recommended that authorities in charge with establishment of health should design short-term, mid-term and long-term programs and educational interventions to improve health literacy, particularly among men and individuals with low literacy levels. Also, with the contribution of other institutions, including the mass media, health literacy levels can raise in Iran.

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