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## Health literacy among adults in Yazd, Iran

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### Abstract

The purpose of this survey was to assess the health literacy levels and determine the relationship between health literacy with demographic variables and the socioeconomic status. Three hundred and eighty adults, 18 years and older, were randomly selected and assessed by the Test of Functional Health Literacy in Adults (TOFHLA) instrument in two sections of reading comprehension and numeracy. The second instrument used to detect the relationship between the demographic variables and socio-economic status and the level of health literacy of the subjects of adults in Yazd district. Three hundred and eighty adults, 18 years and older, were randomly selected and assessed by the Test of Functional Health Literacy in Adults (TOFHLA) instrument in two sections of reading comprehension and numeracy. The second instrument used to detect the relationship between the demographic variables and socio-economic status and the level of health literacy of the subjects. The mean score of a participant's health literacy was  $73.33 \pm 1.29$ . Fifty-four percent of the individuals had adequate health literacy and the rest of them had limited health literacy. The mean score of functional health literacy was significantly different by socio-economic status ( $p < 0.05$ ) and the years of schooling ( $P = 0.00$ ). On the basis of linear regression, in this research, the years of schooling ( $B = 0.28, p < 0.01$ ) and marital status ( $B = 3.08, p < 0.05$ ) were two predictors of health literacy.

**Keywords:** Functional health literacy, health literacy, Iran, test of functional health literacy in adults

### INTRODUCTION

Health literacy is the key component of pursuing health and wellbeing in modern society. It is linked to literacy and entails people's knowledge, motivation, and competence to access, understand, appraise, and apply health information in order to make judgments, and take decisions related to healthcare in everyday life, such as disease prevention and health promotion, to maintain or improve their quality of life during life's course.[1] Healthy people 2010, defines health literacy as 'the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions'. Significantly, health literacy is necessary not just to expand individual skills, but also to interact with people and their environment for a better life.[2]

Overall, the level of functional health literacy in Iran is low.[3] But the recent surveys in some provinces of Iran suggest that this trend has been upgraded.[4] According to the development vision document of the Islamic Republic of Iran 2025, 'at the end of 2025, every Iranian person must be health literate and must

complete his/her own health literacy, by means of educational instruments.[5,6] Therefore, monitoring and surveying the level of health literacy is the key component of the health policy in Iran. Therefore, the purpose of this study was to investigate the situation of health literacy and the relationship among the socio-economic, the socio-demographic, and health literacy of the people of Yazd, Iran.

## MATERIALS AND METHODS

This study was a cross-sectional study, which was done on the performance of people living in the Yazd province between January 2013 and June 2013. Yazd is one of the 31 provinces of Iran and is located in the center of the country.

The eligibility criteria for this research were individuals 18 years old and above, having basic literacy for reading and writing, and residents of the urban district of Yazd. During the process of data collection, the ones who lacked cooperation were excluded from the research. Considering the 95% confidence interval and the standard error of measurement, 380 people were chosen for this research. This sample was chosen by cluster sampling of people living in nine regional municipalities of Yazd.

The long version of the TOFHLA test was used to assess the functional health literacy (FHL) of the subjects. The original version of the TOFHLA instrument was translated to Persian by Tehrani and colleagues using the standard method.[6] In addition to the TOFHLA test, the demographic and socio-economic characteristics of the participants, including: Sex, age, marital status, level of education and socioeconomic status were also collected. The long version of TOFHLA was scored on a scale 0-100 in two sections: Reading comprehension and numeracy. The cut off points for the health scale were set at 57, and 74. Subjects with a score of 0-59 were considered as having inadequate functional health literacy, subjects with a score of 60-74 score were considered as having marginal functional health literacy, and subjects with a score of 75-100 score were considered as having adequate functional health literacy, which takes up 22 minutes. The statistical comparisons in this survey were based on analysis of variance (ANOVA) and regression statistics. ANOVA was used for comparing the means and regression statistics were used to determine the association between the socio-demographic characteristics and the level of health literacy among the participants.

## RESULTS

The total number of participants was 380, which included 186 (48.9%) males and 194 (51.1%) females. The mean age of subjects was  $35.65 \pm 1.24$  years, which ranged between 18 and 73 years. The mean score of the participants in TOFHLA test was  $73.33 \pm 12.93$ . The mean score of the subjects in reading section and numeracy was  $39.66 \pm 7.06$  and  $33.67 \pm 8.81$  respectively. The mean score of women in the numeracy section was  $33.27 \pm 8.53$  and in the other group was 34.09.

[Table 1](#) shows the distribution of the TOFHLA mean score of the participants according to the demographic and socio-economic variables.

Both the *t*-test and ANOVA showed that the two variables of socio-economic status ( $P < 0.001$ ) and years of schooling ( $P = 0.00$ ) had significant association with the scores of TOFHLA. There were no differences between the scores of TOFHLA and sex ( $P = 0.28$ ), marital status ( $P = 0.10$ ), as well as age ( $P = 0.53$ ). According to the findings of this research 224 (59%) of the participants had an adequate health literacy level and the prevalence of limited health literacy was equal to 41%. The highest level of health literacy was seen in males, married, and individual, in the age range of 31- 40 years, from a good socio-economic status.

According to the findings of this research, the years of schooling and socioeconomic status were two variables that had a positive and significant correlation with functional health literacy [[Table 2](#)]. The first one had the highest correlation with health literacy ( $P = 0.000$ ,  $r = 0.247$ ).

A multiple linear regression model was used to predict the TOFHLA scores. By using the enter method, the years of schooling and socioeconomic status were two predictors of functional health literacy, wherein, by increasing the year of schooling and changing the marital status from single to married, the score of TOFHLA increased [[Table 3](#)].

Health literacy score = 63.45 + 2.44(the years of schooling) +3.08(Marital status)

## DISCUSSION

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The finding of national survey about the Iranian's health literacy suggested that overall most of the Iranians have limited health literacy.[3] According to Tehrani's study, there is no significant difference between the level of health literacy and sex of participants, which support the results of our study. The mentioned survey showed that the unadjusted score of women was lower than that in men, but the interesting findings of the research showed that the score of women's health literacy would be higher than the score of men's health literacy if the years of education were adjusted. This finding implied that overall if the participants had been at the same level of education, the health literacy score of women would be higher than that of men. The combination of these results, with previous findings, showed that the level of education in women is rapidly growing[5] which indicated that probably in future the health literacy of women would become higher than that in men. This was consistent with our study.

Pursuant to the findings of this research, the prevalence of adequate health literacy in the urban district was estimated to be 59%, which was comparable to the study of Jovic-Vranes,[7] on this subject.

The findings of this research showed a significant association between the FHL and the years of schooling as well socio-economic variables, which support the results of Tehrani and colleagues,[3] Ghanbari and colleagues,[8] Nekoei Moghadam and colleagues[4] in Iran and other countries. [2,6,8,9,10,11,12,13] In this survey, consistent with increasing with the years of schooling, the mean score of functional health literacy of the participants intensified with increased schooling, with low, medium, and high education, fetching 35, 59, and 75%, respectively, for participants who had adequate health literacy.

Therefore, educational interventions to promote health literacy of individuals help them to make decisions about their own health situation, as well as that of their families and the community they live in. Yet, there is no complete correlation between the year of schooling and health literacy, as 25% of the participants with high education, have limited health literacy. Therefore, assessment of health literacy according to the educational certificate or the years of schooling is incorrect, and this proved the findings of the previous studies on this subject.[14]

According to Nutbeam's assessment, any strategies to promote general literacy, have a positive effect on health literacy.[15] It seems that the high rate of general literacy in Yazd is one of the factors in the acceptable rate of functional health literacy. It is estimated that over 90% of the individuals in Yazd have basic literacy, which includes the ability to read and write.[16]

In contrast, as in most of the researches in this field,[6,9,11] the results of this survey have not indicated any significant correlation between age and health literacy. Although this survey does not show any association between socioeconomic and functional health literacy, this variable and the years of schooling have been two predictors of health literacy.

In conclusion, the result of this assessment may possibly help policy makers to make decisions about the future programs, especially educational programs. This research has some limitations: This is a cross-sectional study and the sample of this study is restricted to urban people, therefore, the findings of this study may be generalized cautiously.

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## Conflicts of Interest

There are no conflicts of interest.

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## Figures and Tables

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**Table 1**

Characteristics	N (%)	TOFHLA	
		Mean	Standard deviation
Gender			
Female	194 (51.1)	72.63	13.25
Male	186 (48.9)	74.06	12.58
Age, Years			
18-30	197 (51.8)	73.22	11.65
31-40	112 (29.5)	75.94	11.90
41 and older	71 (18.7)	69.53	16.57
Education (years)			
Low	79 (20.8)	67.43	13.87
Medium	197 (51.8)	73.80	12.11
High	104 (27.4)	76.93	12.24
Marital status			
Single	133 (35)	71.85	11.96
Married	247 (65)	74.136	13.37
Socio-economic status			
Weak	21 (11.3)	72.52	16.82
Moderate	114 (61.3)	73.01	13.91
Good	51 (27.4)	73.89	12.47

TOFHLA=Test of Functional Health Literacy in Adults

Mean values of TOFHLA scores by demographic and socio-economic characteristics of the participants

**Table 2**

Characteristics	Adequate (n=224)	Marginal (n=98)	Inadequate (n=58)	P
Gender				0.28
Female	113 (60.8)	46 (24.7)	27 (14.5)	
Male	111 (57.2)	52 (26.8)	31 (16)	
Age, Years				0.53
18-30	111 (56.3)	58 (29.4)	28 (14.2)	
31-40	76 (67.9)	23 (20.5)	13 (11.6)	
41 and older	224 (58.9)	98 (25.8)	58 (15.3)	
Education, Years				0.00
Low	28 (35.4)	30 (38)	21 (26.6)	
Medium	118 (59.9)	51 (25.9)	28 (14.2)	
High	78 (75)	17 (16.3)	9 (8.7)	
Marital status				0.10
Single	61 (27.2)	40 (40.8)	18 (27.2)	
Married	163 (72.8)	58 (59.2)	40 (69.0)	
Socio-economic status				0.03
Weak	26 (48.1)	17 (31.45)	11 (20.4)	
Moderate	194 (60.4)	80 (25)	47 (14.6)	
Good	4 (80)	1 (20)	0	

Participants characteristics by health literacy level

**Table 3**

Model	B	Std. Error	Beta	P	R <sup>2</sup> Adj
Constant	63.45				
Education	0.28	0.054	0.261	0.000	0.06
Socio-economic status	3.08	1.45	0.11	0.034	

Analyzing of multivariate linear regression

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