

Investigating Health Literacy Level and Its Relation with Some Factors in Patients with Type 2 Diabetes in Ahvaz -2018

ABSTRACT

Background and Objective: Patients with diabetes need adequate knowledge of the disease due to complications of the disease and its control. One of the factors affecting the level of awareness is health literacy. The present study aimed to determine the level of health literacy and its relation with some factors in patients with type 2 diabetes in Ahvaz.

Materials and Methods: This cross-sectional descriptive study was performed on 362 patients over 18 years with type 2 diabetes referred to diabetes clinic affiliated to Golestan Hospital of Ahvaz. Data were collected using demographic questionnaire and Iranian health literacy questionnaire (HELIA). Data were analyzed using SPSS software version 22.

Results: The majority of samples age was 48-58 years old (% 71.20), female (%62.80), illiterate (% 54.70), and housewife (% 52.60). Fifty individuals (13.8%) had adequate health literacy, 169 (46.7%) had inadequate health literacy and 143 (39.5%) had low health literacy. Based on the results, there was no significant relationship between the health literacy dimensions and the duration of the disease ($p = 0.13$) and gender ($p = 0.29$). But there was a significant relationship between health literacy dimensions and age ($p = 0.000$), marital status ($p = 0.000$), education ($p = 0.000$), occupation type ($p = 0.00$), residence place ($p = 0.008$) and treatment type ($p = 0.000$).

Conclusion: The research showed that the health literacy of diabetic patients in Ahvaz was inadequate. There was a significant relationship between health literacy dimensions and age, marital status, education, occupation type, place of residence and kind of cure. Therefore, health professionals should notice to identifying demographic variables and the needs and capabilities of diabetic patients for preparation educational resources. As health literacy is expected to increase, health-related behaviors will also be enhanced.

Paper Type: research article

Keywords: Health literacy, Type II Diabetes, Ahvaz

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Introduction

According to the World Health Organization, diabetes is considered an epidemic in the world (1). Based on studies, the number of diabetics in Iran in 2010 was estimated to be 2872000, which is estimated to reach 5981000 by 2030 and 155,000 new cases will be added each year in Iran (2). Moreover, diabetes is the 16th cause of death in men and the 9th cause of death in Iranian women (3). In Iran, due to the high prevalence of diabetes, its complications are increasing every day (4). Therefore, the economic and social burden of type 2 diabetes is one of the concerns of the health system (5). The disease is strongly associated with lifestyle and has strong behavioral and emotional components; thus, researchers consider it as a behavioral issue (6). It is expected that change in people's knowledge, belief, and attitude will lead to behavioral changes in self-care because self-care is a key concept in promoting health and points to decisions and activities of individuals in adapting to their problems, health and well-being (7).

Chronic diseases create educational opportunities to encourage patients to take more care of themselves (8). Many researchers consider diabetes control and care as the main responsibility of the individual and the family and believe that clients need to take responsibility for controlling their illness. One of the important goals in controlling diabetes is empowerment of patients in self-care behaviors (9). However, self-care is influenced by beliefs, attitudes and thoughts. Self-care promotion is possible with the provision of education and training to the patient is an integral part of controlling diabetes (10). Effective factors on the control of the disease are adequate knowledge,

effective factors and control of the disease. One of the factors influencing the level of knowledge and control of the disease is the level of health literacy (11). Health literacy refers to the individual's capacity to gain, understand and interpret primary information and health services that is necessary for a person's proper decision making (12) as the WHO has identified health literacy as one of the greatest determinants of health (13). Also, health literacy is defined as social and cognitive skills that determine the motivation and ability of individuals to access, understand and use information in a way that maintain the health (14-15). Low health literacy is associated with poor health status, inappropriate use of medications, lack of compliance with doctor's orders, poorer blood glucose control, lower participation in treatment decisions, lesser expression of health concerns and poorer association with doctors, Worse control of chronic diseases, poorer physical and mental health performance, more use of emergency and hospital services (17-19), more hospitalization (20-21), poorer preventive behaviors (22), and more medical expenses (23). According to studies by Community Health and Counseling Services in America, people with a lower level of health literacy less understand and less educated by health professionals (7). In another study in the United States, 53% of people over 16 had a moderate level of health literacy and only 12% had good health literacy (24). In a study conducted in Iran in 2013, 79.7% of the elderly had an inadequate level of health literacy and only 8.8% had adequate health literacy level (25). In a study, Montazeri et al. stated that 44% of the Iranian 18-65 year old had limited health literacy (26). In another study in Iran, during the health literacy survey

in five provinces, the level of overall health literacy was reported as low (27).

Most studies indicated that most people aged 18-65 do not act well on decision making because of low health literacy level (28-29). In a study conducted in Iran, 71.3% of patients with type II diabetes had inadequate health literacy level (30). On the other hand, low levels of health literacy are more common in illiterate, low income and those with chronic diseases, such as type 2 diabetes, which is why they are considered as at-risk (31). Increasing the level of health literacy of diabetics facilitates understanding disease information such as diet, prescribing drugs, and controlling blood glucose. It also plays an important role in facilitating admission of the disease to self-care and helps people participate in health care decisions (25). The results of studies in Iran have shown that health literacy helps people to participate in health care decisions and those with higher health literacy are more likely to pay more attention to their health status (32-35). Regarding the fact that health literacy can be influenced by many factors including individual factors such as age, gender, race, education, etc. and considering the effect of health literacy on self-care behaviors in line with health promotion of individuals, this study aimed to determine the level of health literacy and its relation with some factors in patients with type 2 diabetes in Ahvaz.

Materials and methods

This cross-sectional descriptive study was carried out from July to September 2018 for 4 months. Participants in the study were those with type 2 diabetes who were referred to the diabetes clinic affiliated to Golestan Hospital in Ahvaz. After receiving the confirmation

from the ethics committee of Ahvaz Jundishapur University of Medical Sciences, the researchers referred to the Golestan Hospital for diabetes and all of the patients with type 2 diabetes were eligible. The samples were randomly selected. Sample size were identified using the Cochran formula for a limited population, 362 patients over 18 years old with type 2 diabetes.

$$\text{Power} = 95\% \quad n = \frac{NZ^2Pq}{Nd^2 + z^2pq} \quad n = 356/8$$

$$d = 0.05 \quad p = q = 0.5 \quad z = 1.96$$

After obtaining consent and coordination with the participants in the study of how the plan was carried out, the confidentiality and non-use of information tools, as well as explaining the objectives of the plan and obtaining written consent were included. The questionnaires were then given to them to complete. The inclusion criteria included type 2 diabetes with doctor's diagnosis, age over 18 years old, ability to comprehend, ability to answer questions and have written consent and exclusion criteria including incomplete filling of the questionnaire. The data gathering tool was a demographic questionnaire and Health Literacy for Iranian adult (HELIA) questionnaire.

Demographic questionnaire: Includes questions about demographic characteristics of patients such as gender, age, marital status, occupation, educational status, residence place, type of treatment, and duration of the disease.

Health Literacy for Iranian adult (HELIA) questionnaire: This questionnaire was designed by Ali Montazeri and his colleagues in 2014 to measure the health literacy of the Iranian community. This questionnaire consists of 33 items in five domains: access, reading skills, understanding, assessment and decision making and the use of health

information. Items were in 5-point Likert scale (always = 5, most times = 4, sometimes = 3, rarely = 2 and never = 1) and the overall range of scores is between 33 and 165. The health literacy scores of individuals were considered to be between 0 and 100 and in the final analysis, health literacy was divided into Low (0-50), inadequate (51-66), adequate (67-84) and high (85-100). In this study, two high and adequate levels were considered as adequate levels (67-100). The initial validity of the questionnaire were confirmed by its designers and exploratory factor analysis and reliability were confirmed with Cronbach's alpha (0.72 to 0.89) (26). In another study, Cronbach's alpha was obtained 0.85 for the access range, 0.78 for reading skill, 0.88 for understanding, 0.79 for assessment, 0.90 for decision making and 0.92 for total questionnaire (30). Data were analyzed by SPSS software version 22. Descriptive statistics were used to report frequency, frequency of personal characteristics and health literacy level. Inferential statistics were performed using Chi-square test for the relationship between health literacy level and demographic characteristics of the subjects. It should be noted that Chi-square test (modified Chi Square Pearson) were used in the health literacy relationship with variables such as age, marital status, education, occupation, place of residence and type of treatment, which in some areas have fewer than 5 people. In this study, the significance level was considered to be less than 0.05.

Results

Based on the results of this study, 231 (62/80%) were female and 131 (37.20%) were male. Most people were married in the age group of 48-58 years old (0.71.20)

and 297 (0.82). Other information on demographic variables is shown in Table 1. About health literacy, 50 (13.8%) had adequate health literacy, 169 (46.7%) had low health literacy and 143 (39.5%) had inadequate health literacy (Table 2). In examining the relationship between health literacy dimensions and demographic variables, the Chi-square test showed that there was no significant relationship between the health literacy dimensions and the duration of the disease ($p = 0.13$) and gender ($p = 0.29$). But there was a significant relationship between health literacy dimensions and age ($p = 0.000$), marital status ($p = 0.000$), education ($p = 0.000$), occupation type ($p = 0.00$), residence place ($p = 0.008$) and treatment type ($p = 0.000$). In the age group of 18-28 years, most of people had low health literacy level; in the age group of 28-38 years, most of people had adequate health literacy level and in the age group of 38- 48 years old and in the age group of 48-58 years old also the majority of people had adequate health literacy level. Most single and married individuals had low level of health literacy. Based on the results, with the increase in education, the level of health literacy also increased; so that most illiterate people had inadequate level of health literacy (69.20%), and most people under the diploma had low health literacy level (85.30%) and most people with diploma (41.71%) and higher than the diploma (82.10%) had adequate health literacy. In the case of jobs, employee had adequate level of health literacy, students had low health literacy level and housewives and unemployed people had inadequate health literacy level. The city inhabitants had low health literacy and the villagers

had inadequate health literacy. Individuals treated with oral medicines had inadequate level of health literacy and those who received injectable treatment and oral and injectable treatments at the same time had low health literacy level (Table 3).

Table 1. Demographic characteristics of patients with type 2 diabetes

Variable		Frequency	Percent
Age	18-28	20	4
	28-38	25	6.70
	38-48	96	21.70
	48-58	221	71.20
Gender	Female	231	62.80
	Male	131	37.20
Marital Status	Single	13	3.64
	Married	344	94.98
	Others	5	6
Education	Illiterate	198	54.70
	Under the diploma	95	26.20
	Diploma	36	10.80
	Higher diploma	33	8.30
Occupation	Unemployed	36	8.40
	Housewife	188	52.60
	Worker	23	7
	Employee	26	8
	Retired	23	7.70
	Student	6	0.40
	Others	60	17.50
Residence Place	City	305	82.25
	Village	57	15.75
Type of Treatment	Oral	224	61.3
	Injectable	29	8.40
	Oral and Injectable	109	29.90
Duration Of Disease	Under 5	146	42
	5-10 years	140	36.50
	More than 5	76	21.20

Table 2. Frequency distribution of health literacy levels in patients with type 2 diabetes

Health Literacy	Frequency	Percent
Adequate	50	13.80
Low	169	46.70
Inadequate	143	39.50

Table 3. Relationship between health literacy levels and demographic variables in patients with type 2 diabetes

Health Literacy		Adequate	Low	Inadequate	P-value*
		Number (%)	Number (%)	Number (%)	
Age	18-28	5(25)	10(50)	5(25)	< 0.001**
	28-38	16(67)	6(20)	4(13)	
	38-48	10(17)	56(60)	31(23)	
	48-58	36(16.28)	118(53.39)	67(31.33)	
Gender	Female	27(11.70)	110(47.70)	94(40.70)	0.29
	Male	23(17.60)	59(45)	49(37.40)	
Marital Status	Single	5(38.50)	8(61.50)	0(0.0)	< 0.001**
	Married	45(15.20)	154(51.90)	98(33)	
	Others	0(0.0)	0(0.0)	5(100)	
Education	Illiterate	0(0.0)	61(30.80)	137(69.20)	< 0.001**
	Under diploma	12(12.60)	81(85.30)	2(2.10)	
	Diploma	15(41.70)	21(58.30)	0(0.0)	
	Higher diploma	28(82.10)	5(17.90)	0(0.0)	
Occupation	Unemployed	1(2.80)	3(8.30)	32(88.90)	< 0.001**
	Housewife	27(14.40)	90(47.90)	71(37.80)	
	Employee	18(72.80)	8(27.20)	0(0.0)	
	Worker	0(0.0)	10(43.47)	13(56.53)	
	Retired	6(23.10)	17(76.90)	0(0.0)	
	Student	0(0.0)	6(100)	0(0.0)	
	Others	7(11.67)	35(58.33)	18(30.0)	
Residence Place	City	49(16.10)	149(48.80)	107(35.10)	< 0.008**
	Village	1(2)	18(35.30)	32(62.70)	
Type of treatment	Oral	24(10.70)	99(44.20)	101(45.10)	< 0.001**
	Injectable	2(7.40)	23(85.20)	2(7.40)	
	Oral and Injectable	23(20.72)	47(42.34)	41(36.94)	
Duration of disease	Under 5	30(20.50)	61(41.80)	55(37.70)	0.13
	5-10 years	12(8.80)	69(48.20)	59(43.10)	
	More than 5	9(12.50)	42(58.80)	25(30.70)	

* Chi-square test

** Yates Correction test

Discussion

The present study aimed to determine the level of health literacy and its relation with some factors in patients with type 2 diabetes in Ahvaz. The results of the study showed that the mean score of health literacy in patients with type 2 diabetes in Ahvaz was 74.59. Most of the samples (46.7%) had inadequate health literacy and the least (13.8%) had adequate health literacy, which was consistent with the study of Izadirad et al. In their study, 68% of individuals had inadequate health literacy level (30). In the study of Ghanbari et al., 54.6% of the samples (39) and in the study of Bani Hashemi et al. in five provinces of the country, 56.6% of Iranians had inadequate health literacy level (27). In his study, Reisi also assessed the level of health literacy as inadequate for most participants (40). Regarding the relationship between demographic variables and health literacy, the findings of the study indicate a significant relationship between the level of health literacy with age, type of occupation and education which is consistent with the study of Izadirad et al., as they reported that having higher education and a suitable job status has led to an increase in the level of health literacy (30).

In this study, with the increase in education, health literacy level has become more desirable; so that the level of health literacy in illiterates was inadequate, in people with under diploma and diploma was inadequate and in individuals with higher education than the diploma was adequate.

Sahrayi et al. also indicated the relationship between the level of health literacy and the level of education (41). Education in other studies is also an effective factor in the level of health literacy (42-44). The level of health literacy in this study was associated to the marital status. Although

there were not enough health literacy levels for both singles and married groups, but married people with more inadequate health literacy were more frequent which is consistent with the study of Tehrani Banihashemi (27). This result may be due to the fact that, principally, singles care less about their health and self-care behaviors. Also, a high number of participants were illiterates (54/70%) or under-diploma level (26/20%) which is a factor in lower self-care and control of the disease.

The type of residence place was also associated to the level of health literacy; so that the city residents had low level of health literacy and the villagers had inadequate level of health literacy, which was consistent with the study of Banihashemi (27) and Bavandpour (45). Concerning the relationship between the level of health literacy and age in this study, the level of health literacy was inadequate in all age groups and only in the age group of 28-38 years, most people had adequate health literacy level which was consistent with Seyedoshohadaee et al. (46).

In this study, there was a significant relationship between the level of health literacy and the type of treatment; so that individuals treated with oral medicines had inadequate level of health literacy and those who received injectable treatment and oral and injectable treatments at the same time had low health literacy level. This is likely to be due to treatment, follow-up and more care in injecting drug users.

Being employed and living in a city is also a reason for gaining access to and knowledge of disease control. Totally, with increasing age, level of education, being employed, being a resident of the city and injectable and combination therapy, the level of health

literacy increased, which was consistent with the results of other studies (47-48). In this study, there was no relationship between health literacy and gender, which is consistent with the results of Pooryaghob (49) and is not consistent with the studies by Cho et al. (50), Kleindl (51) and Lindstrom (52). Although the proportion of women was twice as high as the number of men participating in the study, most people in both groups had inadequate levels of health literacy. Although the proportion of women was twice as high as the number of men participating in the study, most people in both groups had inadequate levels of health literacy. Also, the proportion of women with inadequate level of education was higher than men, but there was no statistically significant relationship between the two groups. Of course, the percentage of women in the group with inadequate health literacy levels is likely to be due to the fact that the total number of participating women was twice as high as men, and most were housewives and illiterate women, all of which have led to inadequate level of health literacy.

In this study, there was no significant relationship between the duration of disease and the level of health literacy. In this regard, studies by Maliki et al. (53) and Souza et al. (54) also suggested that health literacy was not associated with the duration of the disease. It is expected that as the duration of the disease progresses, the level of patient's health literacy and their experiences will increase. Therefore, in order to increase the level of health literacy of patients, it is necessary to take steps to promote the provision of educational classes and the use of simple educational tools, simple and understandable expressions for patients, especially those with lower education and higher age.

The limitations of this study include the respondent understanding from the questions in the questionnaire which varies from person to person, the accuracy of the information contained in the questionnaire, which is both outside the researcher's field and the inability for generalization, which can only be generalized to Type II diabetic patients in Ahvaz. More studies are recommended in specific geographic regions with different cultures to maximize the ability to generalize. It is also suggested that studies on health promotion factors be designed and implemented in this group of patients.

Conclusion

Overall, the results of this study showed that the level of health literacy in diabetic patients is low. Health literacy showed a significant relationship with age, marital status, occupation, type of residence place and type of treatment. Therefore, the need for health information specialists to recognize the demographic variables of diabetic patients and their needs and abilities to provide educational resources is essential because it is expected to increase health-related behaviors by increasing health literacy.

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