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

Power = 95% $n=\frac{NZ^2Pq}{Nd^2+z^2pq}$ n=356/8 d=0.05 p=q=0.5 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

Variable \ 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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References

1.Vosoghi Karkazloo N, Abootalebi Daryasari Gh, Farahani B, Mohammad Nezhad E, Sajjadi A.The study of self-care agency in patient with diabetes (Ardabil),Modern Care, Scientific Quarterly of Birjand Nursing and Midwifery Faculty.2012;8(4):197-204[In Persian].

2. Bianco A, Pomara F, Thomas E, Oaoli A, Battaglia G, Petrucci M,et al. Type 2 Diabetes Family Histories, Body composition and fasting Glucose Levels: A Cross –Section Analysis in Healthy Sedentary Male and Female. Iran H Public Health.2013; 42(7):681-90.

3. Abou-Seif MA, Youssef AA. Evaluation of some biochemical changes in diabetic patients. Clin Chim Acta. 2004; 346(2): 161-70.

4.Deppe SJ, Sawkin MT, Stoner SC, Rasu RS, editors. Health literacy and adherence, do they vary by medication regimen? Pharmacotherapy. 2012: Wiley-blackwell.

5.Baker DW, Gazmararian JA, Williams MV, Scott T, Parker RM, Green D, et al. Health literacy and use of outpatient physician services by medicare managed care enrollees. Journal of General Internal Medicine. 2004;19(3):215-20.

6.Shaw JE,Sicree RA, Zimmet PZ. Global Estimates of the prevalence of diabetes for 2010 and 2030. Diabetes Res clin pract. 2010; 87(1):4-14.

7. Nikoogoftar M, Eshaghee F.Predicting self-care behaviours in diabetic patients with health locus of control and attachment methods.Journal of health psychology. 2013[In Persian].

8.Bastable SB. Essentials of patient education. 1st ed. USA: Jones and Bartlett Learning; 2006.

9. Vosoghi Karkazloo N, Abootalebi Daryasari Gh, Farahani B, Mohammad Nezhad E, Sajjadi A. The study of self-care agency in patients with diabetes (Ardabil), Modern Care, Scientific Quarterly of Birjand Nursing and Midwifery Faculty. 2012;8(4):197-204(Persian).

10. Wei M-H. The associations between health literacy, reasons for seeking health information, and information sources utilized by Taiwanese adults. Health Education Journal. 2014;73(4):423-34.

11.Wallston KA. Hocus-pocus, the focus isn't strictly on locus: Rotter's social learning theory modified for health. Cognitive therapy and research. 1992; 16(2);183-99.

12.Barzegar B.F, Saleh poor M, Emamjomeh SM. The relationship between locus of control and self-esteem and creativity among the students Ardakan city high school. J Sch Psychol, Winter 2014.

13.Stenström U, Andersson P.Smoking, blood glucose control, and locus of control beliefs in people with Type 1 diabetes mellitus. Diabetes Res Clin Prac 2000; 50(2): 103–7.

14.Janowski K, Kurpas D, Kusz J, Mroczek B, Jedynak T. Health-related behavior, profile of health locus of control and acceptance of Illness in patients suffering from chronic somatic diseases. 2013:8(5).

15. Shojaei F, Asemi M, Najaf Yarandi A, Hosseini F. Self-Care Behaviors, Quality of Life Among Patients with Heart Failure. Iranian Journal of Nursing. 2006;18(44):49-55.

16.Kandula NR1, Nsiah-Kumi PA, Makoul G, Sager J, Zei CP, Glass S, et al.The relationship

between health literacy and knowledge improvement after a multimedia type 2 diabetes education

program. Patient Education and Counseling. 2009; 75(3): 321-7.

17.Tehrani H. Media Health Literacy. Journal of Health Literacy. 2016;1(3):141-6.

18.WHO. Closing the gap in a generation: health equity through action on the social determinants of health: Commission on Social Determinants of Health final report. Geneva: World Health Organization; 2008.

19.Organization WHO. Division of Health Promotion,Education, and Communication. Health promotion glossary. Available from: http://appswhoint/iris/ handle/10665/64546. 1998.

20.Azimi S, Ramezankhani A, Rakhshani F, Ghaffari M,Ghanbari S. Comparison of health literacy between medical and non-medical students in Shahid Beheshti Universities in the academic year 92-93. Pejouhandeh. 2015; 20(2):78-85.

21.American Cancer Society, Joint Committee on National Health Education Standards. National health education standards: achieving health literacy. Washington (DC): American Cancer Society; 1997.

22.zarrinkolah A, Dashti F, Abedi H, Masoudi SM. A Study of Puberty Health Literacy Level of the First 14-16 Year Girls Grade High School Students in the Eghlid City. Journal of Health Literacy. 2016; 1(3):164-71.

23. Schillinger D, Grumbach K, Piette J, Wang F, Osmond D, Daher C, et al. Association of health literacy with diabetes outcomes. JAMA 2002; 288(4): 475-82.

24.Kutner M, Greenburg E, Jin Y, Paulsen C. The Health literacy of america's adults: results from the 2003 national assessment of adult literacy. NCES 2006-483. 2006. National Center for Education Statistics.

25.Reisi M, Javadzade SH, Heydarabadi AB, Mostafavi F, Tavassoli E, Sharifirad G. The relationship between functional health literacy and health promoting behaviors among older adults. J Educ Health Promot. 2014; 3:119.

26.Tavousi M, Haeri Mehrizi A A, Rafiee Far Sh, Solimanian A, Sarbandi F, Ardestani M, Hashemi A, Montazeri A. Health Literacy in Iran: Finding from National Study. Journal of the Iranian Institute for Health Sciences Research. 2016; 15(1): 95-102 [In Persian].

27.Banihashemi S-AT, Amirkhani MA, Haghdoost AA, Alavian S-M, Asgharifard H, Baradaran H, et al. Health literacy and the influencing factors: a study in five provinces of Iran. Strides in Development of Medical Education. 2007;4(1):1-

9 [Persian].
28.Howard DH, Sentell T, Gazmararian JA. Impact of health literacy on socioeconomic and racial differences in health in an elderly population. J Gen Intern Med. 2006; 21(8): 857-61.
29.Ghanbari S, Majlessi F, Ghaffari M, et al. Evaluation of health literacy of pregnant woman in urban health centers of Shahid Beheshti Medical University. Daneshvar Med. 2012; 19: 1-12. [In Persian].
30. Izadirad H, Zareban I. The Relationship of Health Literacy with Health status, Preventive Behaviors and Health services Utilization in Baluchistan, Iran. Journal of education and community Health 2015; 2(3): 43-50.
31.Lindau ST, Tomori C, Lyons T, Langseth L, Bennett CL, Garcia P. The association of health literacy with cervical cancer prevention knowledge and health behaviors in a multiethnic cohort of women. Am J Obstet Gynecol. 2002;186(5):938-43.
32.Benjamin J, Jane V, Hayden B. Can This Patient Read and Understand Written Health Information? The Journal of the American Medical Association. 2010; 304: 76-84.
33.Baker DW, Gazmararian JA, Williams MV, Scott T, Parker RM, Green D, et al. Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. Am J Public Health. 2002; 92(8): 1278-83.
34. Baker DW, Parker RM, Williams MV, Clark WS, Nurss J. The relationship of patient reading ability to self-reported health and use of health services. Am J Public Health. 1997; 87(6): 1027-30.
35.Reisi M, Mostafavi F, Hasanzadeh A, et al. The relationship between health liiteracy, health status and healthy behaviours among elderly in Isfahan. Health Sys Res. 2011; 7: 1-12[In Persian].
36.Javadzade H, Sharifirad Gh, Reisi M, Tavassoli E, Rajati F. [Health Literacy among Adults of Isfahan, Iran]. Journal of Health System Research. 2013; 9(5): 540-549[In Persian].
37.Wengryn MI, Hester EJ. Pragmatic skills used by older adults in social communication and health care contexts: precursors to health literacy. Contemporary Issues in Communication Sciences and Disorders.2011; 38: 41-52.
38.Kooshyar H, Shoorvazi M, Dalir Z, Hosseini M.,(2014) Health Literacy and its Relationship with Medical Adherence and Health-Related Quality of Life in Diabetic Community-Residing Elderly., J Mazand Univ Med Sci. 2014; 24(Supple 1): 134-143.
39.Ghanbari S, Majlessi F, Ghaffari M, Mahmoodi Majdabadi M. [Evaluation of health literacy of pregnant women in urban health centers of Shahid Beheshti Medical University]. Daneshvar. 2012; 19(97):1-12.
40.Reisi M, Javadzade SH, Mostafavi F, Sharifirad G, Radjati F, Hasanzade A. [Relationship between health literacy, health status, and healthy behaviors among older adults in Isfahan, Iran]. J Edu Health Promot. 2012;1(1):31.
41. Sahrayi M, Panahi R, Kazemi S, Rostami Z, Rezaei H, Jorvand R. The study of Health Literacy of adults in Karaj. Journal of Health Literacy. 2016; 1(4): 230-238.
42.ScottTL, Gazmararian JA, Williams MV, Baker DW. Health literacy and preventive health care use among Medicare enrollees in a managed care organization. Medical Care. 2002; 40: 395-404.
43. Howard DH, Sentell T, Gazmararian JA. Impact of health literacy on socioeconomic and racial differences in health in an elderly population. Journal of General Internal Medicine. 2006; 21: 857-61.
44. Elder C, Barber M, Staples M, Osborne RH, Clerehan R, Buchbinder R. Assessing Health Literacy: a new domain for collaboration between language testers and health professionals. Language Assessment Quarterly. 2012; 9: 205-24.
45.Bavandpour E, Azami Z, Bavandpour M, Afsordeh O, Delpisheh A. Survey Effective factors of people's health literacy Kermanshah city. Journal of Health Literacy. 2017; 2(2): 81-87.
46.Seyedoshohadaee M, Kaghanizade M, Nezami M, Hamedani B, Barasteh S. The Relationship Beetween Health Literacy and General Health in Patients with Type 2 Diabetes. ijdld. 2016; 15 (5) :312-319.
47. Lee SD, Tsai T, Tsai Y, Kuo K N. Health literacy,Health status and Health care utilization of Taiwanese Adults: Results from a National survey. BMC Public Health.2010; 56(2): 201-7.
48.Jovic- Veranes A, Bejgovic- Mikanovic J, Kocev N. Health literacy in a population of primary Health care Patients in Belgrade, Serbia. Int J Public health. 2010; 10(614): 1-8.
49.Pooryaghob M, Abdollahi F, Mobadery T, Haji shabanha N, Bajalan Z. Assesse the Health literacy in Multiple Sclerosis patients. Journal of Health Literacy. 2018; 2(4): 266-274.
50. Cho YI, Lee SYD, Arozullah AM, et al. Effects of health literacy on health status and health service utilization amongst the elderly. Soc Sci Med. 2008; 66: 1809-16.
51.Kleindl JA. Reading ability of patients versus the readability of patient's education material. [dissertation]. North Dokota State University; 2007.
52.Lindstrom AK. Patient health literacy levels and the readability of patient education materials[dissertation]. North Dokota State University; 2007.
53.Mailki S, Rakhshani F, Masoudi G, Ansari-Moghaddam M. Health literacy, Knowledge and relevant factorsin patients with type 2 diabetes presenting to a diabetes clinic in Zahedan in 2014. Caspian Journal of Health Research 2016;2(2):9-17.
54.Souza JG, Apolinario D, Magaldi RM, Busse AL et al. Functional health Literacy and glycemia control in older adults with type 2 diabetes: a cross-sectional study. BMJ Open. 2014;4(2): e004180.