

## The study of health literacy and its related factors among female students at high schools in Qazvin

### Leila Dehghankar

Department of Nursing, Social Determinants of Health Research Center, School of Nursing & Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran.

### Rahman Panahi

P.h.D. in Health Education & Promotion, School of Medical Sciences, Tarbiat modares University, Tehran, Iran.

### Leili Yekefallah

Assistant professor, Department of Nursing, Social Determinants of Health Research Center, School of Nursing and Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran

### Narges Hosseini

Students of Nursing, Student Research Committee, School of Nursing & Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran.

### Elham Hasannia

Students of Nursing, Student Research Committee, School of Nursing & Midwifery, Qazvin University of Medical Sciences, Qazvin, Iran. (Corresponding author) Email: Elhamhasannia@yahoo.com

Received: 2019-05-14

Accepted: 2019-06-14

DOI: 10.22038/jhl.2019.40390.1055

### ABSTRACT

**Background and Objective:** Health literacy has an impact on preventing harm to the community of students, disease prevention, self-care, and life quality. This study aimed to determine the health literacy and its related factors in high school students in Qazvin city.

**Materials and Methods:** This research was a descriptive cross-sectional study. The population of this study was 372 students of girl's high school of Qazvin in 2019 that were selected by multi-stage sampling. The data collection tool was a demographic and field questionnaire and the standard questionnaire for Health Literacy Measure for Adolescents (HELMA). Data were analyzed using SPSS software version 23 and descriptive statistics and logistic regression.

**Results:** The mean (standard deviation) of the health literacy score was 70.84(12.58) from 100. 5.4 % (n=20) had low health literacy, 31.2 % (n=116) had inadequate health literacy, 46.5 % (n=173) had adequate health literacy and 16.4 % (n=61) had high health literacy. Health literacy had a significant statistically relationship with basic educational variables ( $P = 0.003$ ) and interest in health topics ( $P = 0.002$ ) but it had no relationship with other demographic and background variables ( $P > 0.05$ ).

**Conclusion:** Considering the limited health literacy in a wide range of students, adding some items to school curricula such as education related to the level of health literacy can be effective in improving the health literacy of students.

**Paper Type:** Research Article

**Keywords:** Health literacy, students, HELMA

► **Citation:** Dehghankar L, Panahi R, Yekefallah L, Hosseini N, Hasannia E. The study of health literacy and its related factors among female students at high schools in Qazvin. *Journal of Health Literacy*. Summer 2019; 4(2):18-26.

## Introduction

Health literacy is a global issue and has a central role in determining health inequalities in poor and rich countries. Although it is unclear to what extent health literacy affects health outcomes, evidence suggests that many of the adverse health-related outcomes are due to insufficient levels of health literacy. Researchers believe that health literacy is a stronger predictor of individuals' health than variables such as age, income, race, etc. (1, 2). In this regard, the World Health Organization (WHO) has identified health literacy as a key determinant of health (3).

The World Health Organization defines health literacy as cognitive and social skills that determine the motivation and ability of individuals to access, understand and utilize information (contributing to the maintenance and promotion of health). (4). In fact, health literacy includes the ability to understand prescribed medication guidelines, educational brochures, consent forms, the ability to benefit from the complex medical system, reading and writing skills, analysis, decision making and the ability to apply these skills in health situations (5-7).

Health literacy encompasses one's knowledge, motivation, and competence for accessing, understanding, evaluating, and applying health information in a way that enables the person to make judgments and decisions about health care, disease prevention, and health promotion throughout his or her life for improving quality of life (8, 9).

Evidence suggests that many adverse health-related outcomes are inadequate due to the lack of health literacy. People need to take a more conscious step by finding reliable information along this path. Those with poor health literacy are not able to communicate easily with the medical staff and as a result are reluctant to ask questions to make appropriate decisions

(10, 11). Therefore, it is necessary to measure the level of health literacy in order to prevent the risks of limited health literacy. Low health literacy is a silent killer that is hidden behind almost all health-related issues (12). People with low literacy levels have poorer health and a higher incidence of chronic illness and tobacco and alcohol use. They use less prevention and screening services and are more likely to receive medical treatment (13, 14).

Although low health literacy is prevalent across all age groups, this issue is of particular importance to students. Students are at a critical developmental stage during this period in terms of rapid biological, psychological, social and emotional changes. (15). Adolescence and adolescence are critical growth stages for health interventions to create a healthy lifestyle. Since human health guarantees the health of the community, it is important to try to establish any effects and changes to promote the health of the younger generation (16).

On the other hand, paying attention to the characteristics of adolescence and the stages of mental, physical, emotional and social development play a very important role in the stability and development of students' personality (16). In particular, attention to the health of girls during this period is particularly important because of the crucial role they will play in childbearing, culture transfer, promoting literacy and the control of future health and medical behaviors of families (17). They also need to be able to play new roles in self-care field (18).

From a health promotion perspective, improving health literacy at an early age is crucial for the health and empowerment of students now and in the future (19). From a health promotion perspective, research on students' health literacy is more important than health literacy research on patients (20).

Health literacy helps students to get new information and put it into practice. Studies have shown that people with poor health literacy are less likely to understand health information and are less likely to comply with instructions and incur heavy medical costs (3, 21).

As a developing country, Iran is undergoing social, cultural and economic changes. According to the 2015 census, adolescents include (30%, 24 million) Iranian population (15). Approximately 60% of premature deaths and more than 33% of adult illnesses can be related to behavior or conditions that occurred or started in adolescence. Some studies show that Iranian students face serious health problems including smoking and drugs, alcohol abuse, mental disorders such as depression, anxiety, stress, puberty disorder, menstrual health and malnutrition (22-26). In addition, high schools in the Iranian education system are the last step in the education of health literacy. Given the role of students in the future development of any country, it is essential that their health literacy level be high (3).

A study by Saeedi et al. (2016) in Tehran showed that 74.5% of students' health literacy was low and inadequate (27). In Kerman, Khajouei Study (2017) showed that the level of students' health literacy is adequate (15). Also in the study of Guo et al. in Beijing, the mean score of health literacy among high school students was 26.37 with a standard deviation of 5.89 (28).

However, further research is needed to understand the impact of health literacy levels on lifestyle recommendations for the prevention of chronic illness. This information helps to allocate resources and develop interventions to address low health literacy and reduce health inequalities at the population level. Since few studies have been done on students' health literacy and its health consequences, the present study aimed to determine the health literacy and its related factors in students.

## Methods

This study was a descriptive cross-sectional study and the statistical population consisted of female students studying in high schools of Qazvin in the second semester of the 2018-2019 academic year. Among these students, 375 students were selected by multi-stage sampling. First, a list of the educational districts of Qazvin was prepared and then the map was divided into two parts: north and south. Then, six girls' high schools were randomly selected from each section, and at the final stage of each school, 3 classes from 10th through 12th grade were randomly selected, and all students were entered in the selected classes.

Considering the prevalence of adequate health literacy ( $P = 0.25$ ) in students (29), also using Cochran sample size formula, taking into account 80% test power and 95% statistical confidence, the sample size was estimated to be 288. Also considering the 30% probability of specimen loss 375 subjects considered for this study. Inclusion criteria included residence in Qazvin, studying in Qazvin high schools, students in the age group of 18-15 years and willingness to participate in the study. The following two-part questionnaire was used for data collection.

A) Demographic and background information: including age, grade, major, father's job, mother's job, parent's education level, TV watching time, internet use, health interest, self-assessment (Self-report with a Likert was rated as very good to very bad, respectively) and the priority of the students in asking questions about health and illness.

B) Health Literacy: Health literacy data were collected through the Health Literacy Measure for Adolescents (HELMA). This questionnaire was designed, validated and used by Ghanbari et al. The validity and reliability of the HELMA

questionnaire have already been established for students (30). The Cronbach's alpha coefficient of this questionnaire was calculated to be 0.95 in the study of Saeedi et al. (27). Health Literacy Questionnaire consisted of 44 items in 8 dimensions: access (5 items), reading (5 items), comprehension (10 items), evaluation (5 items), use (4 items), communication (8 items), self-efficacy (4 items) and calculation (3 items) that is a self-assessment of one's ability and ability to take a particular action in dealing with health information and with a five-point Likert scale of never (1 Score), rarely (2 Scores), Sometimes (3 scores), most times (4 scores) and always (5 scores). Based on the cut-off points of 50, 66 and 84, students' health literacy ranked at four levels of low (0-50), inadequate (50/66/66), adequate (66/1-84) and high (84/1- 100) (30).

After observing the ethical and research principles, including receiving the Code of Ethics from the Vice-Chancellor for Research and Technology of Qazvin University of Medical Sciences (IR.QUMS.REC.1397.197), submitting a letter of introduction to the Qazvin Education Department and school officials and describing the nature and goals, the questionnaires were distributed and completed by the students. Study participants were assured that all information requested in the questionnaire would be used confidentially. Questionnaires were also completed in the student classrooms with the assistance of school authorities. The data were entered into SPSS software version 23 and analyzed using descriptive statistics and logistic regression. It should be noted that the input of variables was performed concurrently by the method of contrasting independent variables classified as an indicator, and the first class of variables was selected as the reference class. In this study, health literacy as a dependent variable and variables of age, educational

level, field of study, father's job, mother's job, parent's education level, interest in health issues, assessment of their health status and students' priority in asking health-related questions and disease contexts were included as independent variables. Significant level was considered less than 0.05 in this study.

## Results

In this study, 375 students were included and 3 were excluded due to lack of interest in the study (99.2% participation rate). A total of 372 students were analyzed. Of these, the highest number was in the age group of 16 years with 151 students (40.6%). 159 (42.7%) were in tenth grade and 127 (34.1%) were in mathematics-physics. Table 1 shows other demographic and background characteristics of the students.

144 individuals (38.7%) rated their health as good and in response to a question about their interest in health-related issues, 33.9% of the students selected "somehow". Parents (39.2%), internet (29.8%), and physician (22.8%) had the highest percentage of questions regarding health and illness (Table 1).

As you can see in Table 2, only 61 (16.4%) of the students had high health literacy. Also, the mean (standard deviation) of health literacy score was 70.84 out of 100 (12.58) (Table 2).

The results showed that the average television viewing time on school days was  $1.92 \pm 1.53$  hours, on the holidays  $2.87 \pm 2.64$  hours, the rate of internet use on school days was  $2.58 \pm 2.70$  hours and at The off days were  $3.64 \pm 3.87$  hours.

Table 3 shows the relationship between health literacy, demographic and background variables of students participating in the study. As the results show, there was a significant statistical relationship between health literacy and educational level ( $P = 0.003$ ), so that the

chances of having good health literacy in 12th-grade students were 0.498 times higher than 10th-grade students. There was also a statistically significant relationship between health literacy and interest in health topics ( $P = 0.002$ ), so that the odds of having good health literacy in high and high-interest students were 9.22 and 2.69 times, respectively. Students with interest were almost none. Also, there was no relationship between health literacy and other demographic and background variables ( $P < 0.05$ ). (Table 3)

**Table 1- Frequency distribution of the students according to demographic and background characteristics**

Variables		Total	
		Frequency	Percent
Age	15	54	14.5
	16	151	40.6
	17	127	34.1
	18	40	10.8
Grade	Tenth	159	42.7
	Eleventh	158	42.5
	Twelfth	55	14.8
field of study	Science	90	24.2
	Math	127	34.1
	Humanities	83	22.3
	school of art	72	19.4
father's job	Employed	263	70.7
	Unemployed	11	3.0
	Retired	88	23.7
mother's job	Housewife	253	68.0
	Employed	99	26.6
	Other	10	2.7
father's education level	Under Diploma	104	28.0
	Diploma	116	31.2
	University Degree	147	39.5
mother's education level	Under Diploma	103	27.7
	Diploma	149	40.1
	University Degree	120	32.3

**Table 2- Frequency distribution of different health literacy levels among students participating in the study**

Health Literacy Level	Number	Percent
Low	20	5.40
Inadequate	116	31.20
Adequate	173	46.50
High	61	16.40
Total	372	100

**Table 3- Factors Related to Student Health Literacy in Logistic Regression Test \***

Variables	Levels	Chance ratio	Confidence interval		The probability value
			Lower limit	upper limit	
Age					0.85
	15	Reference			
	16	0.810	0.334	1.964	0.614
	17	1.021	0.368	2.831	0.969
	18	0.749	0.154	3.645	0.72
Grade					0.003
	Tenth	Reference			
	Eleventh	1.631	0.444	5.985	0.461
field of study					0.697
	Science	Reference			
	Math	1.237	0.457	3.347	0.676
	Humanities	1.509	0.648	3.517	0.340
	School of Art	1.041	0.436	0.487	0.927
father's job					0.211
	Employed	Reference			
	Unemployed	6.576	0.90	48.058	0.063
	Retired	1.438	0.792	2.611	0.233
	Other	3.197	0.114	89.546	0.494
mother's job					0.197
	Housewife	Reference			
	Employed	1.028	0.508	2.082	0.939
	Other	0.163	0.023	0.173	0.072
father's education level					0.052
	Under Diploma	Reference			
	Diploma	0.36	0.158	0.821	0.015
	University Degree	0.428	0.175	1.042	0.062

mother's education level					0.119
	Under Diploma	Reference			
	Diploma	1.30	0.598	2.830	0.508
	University Degree	1.66	0.974	7.259	0.056
Interest in health topics					0.002
	No	Reference			
	Little	0.988	0.405	2.411	0.979
	Somehow	1.803	0.838	3.787	0.131
	A lot	2.695	1.178	6.165	0.019
	So much	9.227	2.504	33.997	0.001
Assess Self health status					797/0
	Very Good	Reference			
	Good	0.728	0.39	1.359	0.319
	Average	0.69	0.344	1.384	0.296
	Bad	1.114	0.311	3.994	.0868
	Very Bad	0.796	0.105	6.011	0.825
Prioritize health and illness questions					0.844
	Teacher	Reference			
	Parent	3.529	0.403	30.875	0.254
	Physician	3.460	0.382	31.327	0.27
	Health Staff	2.127	0.135	33.576	0.592
	Others ( Friends, Family , ...)	2.202	0.176	6/27	541/0
	Internet	2.547	0.290	22.408	0.399
	Book	3.735	0.156	89.303	0.416
Fixed Value		0.451			0.57

\* Independent variables were entered into the logistic regression model concurrently.

## Discussion

The purpose of this study was to determine the health literacy and its related factors in high school students of Qazvin in 2019. The results showed that 36.6% of students had poor health literacy (low and inadequate health literacy) and 63.4% of students had good health literacy (adequate and high health literacy). In the study of Saeedi et al., 74.5% of students had limited health literacy (27). Also, Ghanbari et al. study showed that 57.5% of students had limited health

literacy (30, 31). In a study by Ye X-H et al., only 14.4% of students had adequate health literacy (32), which contradicts the results of our three studies. But in the study by SaeediKoupai et al., using a researcher-made tool, 4.9% of students had low levels of health literacy (33), which is consistent with our study. 52% of students in the Ghaddar et al study (34) using the NVS and eHEALS tool, 41% of the students in Chang et al study (35) using the c - sTOFHLAd tool in Taiwan and 47% of the students The study group by Sorensen et al. (36) using the HLS-EU-Q instrument in Europe had a good level of health literacy, which is consistent with the present study. The difference in the results can be due to the use of different health literacy tools and different social and cultural conditions.

According to the findings, there was a significant relationship between students' educational level and their level of health literacy. Similar studies were also found in the studies of Saeedi et al. (29) and Ermi et al. (37). Also, in the Khadivi study, students over the age of 17 had higher health literacy. To justify this finding, it can be argued that increasing age may improve students' health literacy by influencing increased literacy rates.

The results showed that there was a statistically significant relationship between health literacy and interest in health issues. This result is in line with the results of studies by Saeedi et al (29) and Ghanbari et al (30). The justification for this relationship may be that health principles, medical advice, and interest in learning and acquiring health information are more common in girls than in boys (31). Girls' health is also more important than boys. Its causes include religious, cultural and social beliefs, including childhood, adolescence, marriage, pregnancy, infant birth and menopause (15, 38).

In the present study, 68.3% of students

rated their health status as “good” and “very good”. In the study of Saeedi et al (29), this value was reported to be 72.2%. In another study by Sorensen et al. (36), 78.10% of the target group described their health status as “very bad”, indicating that respondents to this question had only two options of “very bad” and “bad”. In the study by Reisi et al. (39), only 9.7% of participants reported poor health, with the respondents having three options of “bad”, “moderate” and “good”. Whereas in the present study, the choice of “very good” to “very bad” was included in the options.

In spite of the information gap between the two generations, parents were the primary source of health information for 39.2% of students. using the internet and referring to a physician were their next priorities. Among the various resources, teachers, books and referrals to health care staff came to the next level. Other studies have reported relatively similar priorities (29, 31, 32, 40-42). In the study by Brown et al. (43), 21 percent of students identified the school as the primary source of health information. Zare et al. (21) also found that the most common source of information was watching television and then asking friends and acquaintances who did not agree with our results. In most studies, the Internet is one of the top three priorities for health information. It seems to be due to the tendency for the Internet, easy to access and extend to all age groups.

Limitations of this study include the relatively small sample size, the limited number of selected high schools, the lack of access to dropout students and the self-report method of completing the questionnaires, which makes it difficult to compare these results with the present study. It is suggested that the results of this study be used for future intervention.

## Conclusion

According to the results, 36.6% of students had limited health literacy. The importance of this issue and its impact on disease prevention, self-care and quality of life, education to this age group, especially girls, because of the essential role they play in childbearing, culture transfer, literacy promotion, and control of family health behaviors is of particular importance. Therefore, given the high inclination of students to the Internet, programs, and content related to illness and health can be made available through the Internet and social networks. Adding health literacy education to school curricula can also help to improve students’ health literacy.

**Competing interests:** The authors declare that they have no competing interests.

**Funding:** No financial support was received for this study.

## Acknowledgement

This research was carried out with the support of Qazvin University of Medical Sciences Research and Technology Vice-Chancellor, Qazvin Provincial Education General Assistance Department, Qazvin City Schools, and Secondary School Girl Students. In doing so, their efforts are appreciated.

## References

1. Wharf Higgins J, Begoray D, MacDonald M. A social ecological conceptual framework for understanding adolescent health literacy in the health education classroom. *American Community Psychol J.* 2009;44(3-4):350-62.
2. Williams M, Parker R, Baker D, Coates W, Nurss J. The impact of inadequate functional health literacy on patients’ understanding of diagnosis, prescribed medications, and compliance. *Acad Emerg Med J.* 1995;2(5):386.
3. Tehrani Banihashemi S-A, Amirkhani MA, Haghdoost AA, Alavian SM, Asgharifard H, H. B. Health literacy and the influencing factors: a study in five provinces of Iran. *Strides Dev Med Education J.* 2007;4(1):1-8.
4. Nutbeam D, Smith BJ, Tang KC. WHO Health Promotion Glossary: new terms. *Health Promotion International J.* 2006;21(4):340-5.
5. Mohammadi Farah S, Asr S, Hasan M, Kavivani Manesh A,

- Barati M, Afshari M, et al. health literacy level and its related factors among college students of Hamadan university of medical sciences, Hamadan, Iran. *Educ Community Health J*. 2017;4(2):11-7.
6. Tehrani H, Rahmani M, Jafari A. Health literacy and Its relationship with general health of women referring to health care centers. *Journal of Health Literacy*. 2018;3(3):191-8.
  7. Bailey SC, McCormack LA, Rush SR, Paasche-Orlow MK. The progress and promise of health literacy research. *health communication J*. 2013;18(sup1):5-8.
  8. F EA, Pirdehghan A, Rajabi F, Sayarifard A, Ghadirian L, Rostami N, et al. The study of health literacy of staff about risk factors of chronic diseases in 2014. *Hamadan Univ Med Sci J*. 2015;22(3):248-54.
  9. Sørensen K, Van den Broucke S, Fullam J, Doyle G, Pelikan J, Slonska Z, et al. Health literacy and public health: a systematic review and integration of definitions and models. *BMC public health J*. 2012;12(1):80.
  10. Peyman N, Abdollahi M. The relationship between health literacy and self-efficacy physical activity in postpartum women. *Health Literacy J*. 2016;1(1):5-12.
  11. Begoray DL, Wharf-Higgins J, MacDonald M. High school health curriculum and health literacy: Canadian student voices. *Global Health Promotion J*. 2009;16(4):35-42.
  12. Zarcadoolas C, Pleasant A, Greer DS. *Advancing health literacy: A framework for understanding and action*. Fransisco. sEJWSS, editor: John Wiley & Sons; 2009.
  13. Franze M, Fendrich K, Schmidt CO, Fahland RA, Thyrian JR, Plachta-Danielzik S, et al. Implementation and evaluation of the population-based programme "health literacy in school-aged children"(GeKo KidS). *Public Health J*. 2011;19(4):339-47.
  14. Frisch A-L, Camerini L, Diviani N, Schulz PJ. Defining and measuring health literacy: how can we profit from other literacy domains? *Health promotion international J*. 2011;27(1):117-26.
  15. Khajouei R, Salehi F. Health literacy among Iranian high school students. *American Health Behavior J*. 2017;41(2):215-22.
  16. Najafi F, Mozafari S, Mirzaee S. Assessment of 3rd grade junior school girl students' knowledge and attitude toward puberty age sanitation. *Guilan Univ Med Sci J*. 2012;21(81):22-8.
  17. Khadivi A. Study of Health Literacy among Girl Students in Tabriz City, Iran, based on Demographic Characteristics. *Health Information Management J*. 2018;15(4):182-7.
  18. Fatemeh Zahra Ahmadi, Mahmoud Mehr-Mohammadi, Ebrahim Talaei, Hashem Fardanesh, Mahdieh Paknahad, Susan Taghizadeh, et al. Health Literacy among students of Farhangian University. *Health Monitor the Iranian Institute for Health Sciences Research J*. 2018;17(3):257-66.
  19. Baker DW. The meaning and the measure of health literacy. *general internal medicine J*. 2006;21(8):878-83.
  20. De Onis M, Blössner M, Borghi E. Global prevalence and trends of overweight and obesity among preschool children. *The American Clinical Nutrition J*. 2010;92(5):1257-64.
  21. Zare V GE, Asghari M. Health information-seeking behavior of public libraries in Qazvin. . *Inf Res Public Libr J*. 2014;76:93-112.
  22. Nahvizadeh MM, Akhavan S, Arti S, Qaraat L, Geramian N, Farajzadegan Z, et al. A review study of substance abuse status in high school students, Isfahan, Iran. *International Preventive Medicine J*. 2014;5(Suppl 2):77-82.
  23. Momtazi S, Rawson RA. Substance abuse among Iranian high school students. *Current opinion in psychiatry J*. 2010;23(3):221-6.
  24. Mohammadi MR, Ahmadi N, Salmanian M, Asadian-Koohestani F, Ghanizadeh A, Alavi A, et al. Psychiatric disorders in Iranian children and adolescents. *Iranian Psychiatry J*. 2016;11(2):87-98.
  25. Banihashemi S-AT, Amirkhani MA. Health literacy and the influencing factors: a study in five provinces of Iran. *Strides in Development of Medical Education J*. 2007;4:1-9.
  26. Panahi R, Ramezankhani A, Tavousi M, Kooshehloo A, Niknami S. Relationship of health literacy with knowledge and attitude toward the harms of cigarette smoking among University Students. *Education Community Health J*. 2017;3(4):38-44.
  27. Panahi R. The Survey of association between health literacy and BMI among adolescents. *Health Literacy J*. 2017;2(1):22-30.
  28. Guo S, Davis E, Yu X, Naccarella L, Armstrong R, Abel T, et al. Measuring functional, interactive and critical health literacy of Chinese secondary school students: reliable, valid and feasible? *Global health promotion J*. 2018;25(4):6-14.
  29. Saeedi F, Panahi R, Osmani F. The Survey of Health Literacy and Factors Influencing It among High School Students in Tehran, 2016. *Health Education & Health Promotion J*. 2016;4(2):49-59.
  30. Ghanbari S, Ramezankhani A, Montazeri A, Mehrabi Y. Health literacy measure for adolescents (HELMA): development and psychometric properties. *Plos one J*. 2016;11(2):e0149202.
  31. Panahi R, Ramezankhani A, Tavousi M, Osmani F, Ghazanfari E, Niknami S. Evaluation of Health Literacy and its influencing factors on dormitory students of Shahid Beheshti University of Medical Sciences in Tehran. *Educ Community Health J*. 2016;3(3):30-6.
  32. Ye X-H, Yang Y, Gao Y-H, Chen S-D, Xu Y. Status and determinants of health literacy among adolescents in Guangdong, China. *Asian Pac Cancer Prev J*. 2014;15(20):8735-40.
  33. SaeediKoupai M, Motaghi M. Comparing Health Literacy in High School Female Students and Their Mothers Regarding Womens Health. *Health Literacy J*. 2017;1(4):220-9.
  34. Ghaddar SF, Valerio MA, Garcia CM, Hansen L. Adolescent health literacy: the importance of credible sources for online health information. *school health J*. 2012;82(1):28-36.
  35. Chang LC. Health literacy, self-reported status and health promoting behaviours for adolescents in Taiwan. *Clinical Nursing J*. 2011;20(1-2):190-6.
  36. Sørensen K, Pelikan JM, Röthlin F, Ganahl K, Slonska Z, Doyle G, et al. Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). *European public*

- health J. 2015;25(6):1053-8.
37. Wu AD, Begoray DL, MacDonald M, Wharf Higgins J, Frankish J, Kwan B, et al. Developing and evaluating a relevant and feasible instrument for measuring health literacy of Canadian high school students. *Health promotion international J.* 2010;25(4):444-52.
38. Fakhri M, Hamzehgardeshi Z, Hajikhani Golchin NA, Komili A. Promoting menstrual health among persian adolescent girls from low socioeconomic backgrounds: a quasi-experimental study. *BMC Public Health J.* 2012;12(1):193.
39. 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. *education and health promotion J.* 2012;1(1):31.
40. Kushalnagar P, Ryan C, Smith S, Kushalnagar R. Critical health literacy in American deaf college students. *Health Promotion International J.* 2017;33(5):827-33.
41. Paek H-J, Reber BH, Lariscy RW. Roles of interpersonal and media socialization agents in adolescent self-reported health literacy: a health socialization perspective. *Health Education Research J.* 2011;26(1):131-49.
42. Khoshravesh S, Moeini B, Rezapur-Shahkolai F, Taheri-Kharameh Z, Bandehelahi K. Health Literacy of Employees of Hamadan University of Medical Sciences and Related Demographic Factors. *Education and Community Health J.* 2018;5(1):19-26.
43. Brown SL, Teufel JA, Birch DA. Early Adolescents Perceptions of Health and Health Literacy\*. *School Health J.* 2007;77(1):7-15.