Research Journal of Medical Sciences 11 (3): 143-148, 2017
ISSN: 1815-9346

Evaluation of Health Literacy and its Factors Affecting in the Population Covered by Sabzevar University of Medical Sciences 2015 in Sabzevar, Iran

Fatemeh Hasan-Nezhad, Ali Sharifan and Maryam Tavakoli
Sabzevar University of Medical Sceinsec, Sabzevar, Iran

Abstract: Health literacy is an important element for ability of people to participate in activities relevant to health, therapeutic decisions and diseases prevention. Purpose of this study is evaluating health literacy from the health perspective of population covered by Sabzevar University of Medical Sciences. This is a descriptive-analytical study in kind of cross-sectional research conducted on 413 persons at the range age of 158-64, 2015 covered by Sabzevar University of Medical Sciences in urban and rural areas. To assess health literacy, a questionnaire including 5 dimensions (access, reading, understanding, evaluation and decision-making) and 49 questions was applied. Collected data was analyzed using regression models through SPSS20 Software and survey models through Stata Software. In total, 413 members (46.5% men and 53.5% women) participated in this project. Health literacy level of participants was at average level of 46% in terms of access to more health information at good level of 53% in terms of understand more health information at good level of 99% in terms of judge or appraise more information and at average level of 80.9% in terms of apply more information. Generally, health literacy of studied population is at marginal border. Since, health literacy plays a vital role in improvement of health status leading to health improvement among society members, it is necessary to consider this issue within educational programs of hygiene and health promotion.

Key words: Health information, understand, health literacy, judge and appraise, promotion, necessary

INTRODUCTION

Health literacy is a new concept introduced in scientific texts related to health education in 1974; however, it was entered into the health promotion field in 1997 by Kickbusch (Kindig *et al*., 2004). Now a days, health literacy has been introducing as a global issue in the 21st century. Accordingly, World Health Organization has introduced health literacy as one of the prominent determinants for health issue in a report (Marmot *et al*., 2008). Health literacy means capacity of a person to acquire understanding and interpretation, initial information and health services that are necessary for suitable decision-making (Kennard, 2016). Health literacy consists of some skills including reading, listening, analyzing, decision-making and ability to apply these skills at health situation. Health literacy is a result of collaboration between social and individual factors considering concerns and dimensions of literacy in health field. Capacity of a person including intrinsic potential and individual skills is the basic component of health literacy that is adjusted by education and its adequacy is affected by culture, language and characteristics of situations relevant to health (Aldoory, 2017).

Health literacy is an important factor for person's ability to participate in activities relevant to health, therapeutic decision-makings and their abilities to prevent form diseases. It is impossible to make decisions which lead to desirable health implications for persons without an adequate understanding of health information (Ghanbari *et al*., 2012). According to studies conducted by USA Center for Health Care Strategies, people who have low-level literacy health are not able enough to understand written or oral information presented by health practitioners and follow instructions; therefore, they burden higher medical costs, they are at weaker health status, they use more emergency and hospitalization services and they have less preventive cares (Aldoory, 2017).

Low health literacy leads to high economic effects and imposes high costs to healthcare systems. For instance, estimates of USA Aging Academy reported a cost over 57 billion dollars in 1998 for extra health care due to low-level health literacy. For example, such patients with low-level health literacy used hospital services 6% more than people with high-level literacy at similar status and their hospitalization' duration was 2 days more than people with high health literacy (Berkman *et al*., 2011). Eichler *et al*. (2009) conducted a comprehensive study using data existing in 2000 studies in this field in Norway, Italy, Canada, Bermuda, Mexico, America and Sweden and found that low health literacy leads

Corresponding Authors: Fatemeh Hasan-Nezhad, Sabzevar University of Medical Sceinsec, Sabzevar, Iran

to 3-5 times higher costs of health care annually. This issue could be easily seen among patients; hence, the extra costs imposed to the system by people with low health literacy compared to others vary from 143 US dollars to 7798 dollars (Eichler *et al*., 2009).

According to the results obtained from the study of Reisi (2011) in Isfahan, Iran, health literacy status of elderlies is inadequate in this city. Also, the results obtained from study conducted by Nekoei-Moghadam *et al*. (2011) indicate that health literacy is at a low level in Kerman, Iran. Ghanbari *et al*. (2012) expressed in a study that limited health literacy is a common problem among pregnant women and prevents from a correct understanding of health recommendations and messages among them (Sh *et al*., 2011). According to the study conducted by Javadzade *et al*. (2013) in Isfahan, 46.5% of persons had adequate health literacy, 38% had marginal health literacy and 15.5% had inadequate literacy.

Conducted studies in field of health literacy indicate that level of health literacy both in Iran and outside of Iran is inadequate or marginal. Majority of studies have applied inventory of functional health literacy in adults or its short form in which health literacy of people is classified to three categories including inadequate, marginal and adequate health literacy. Getting closer to perspective of Office of Health Education and Promotion and Ministry of Health, every Iranian person has enjoyed adequate health literacy and completed his/her health literacy using educational instruments by the end of 2025 because Health Promotion Office of Health Ministry aims on implementing a project to determine health literacy level of Iranian people and to project health literacy level through determining health literacy of 18-64 years old people who live in different urban and rural areas of Iran based on healthy life style and prevention method in order to provide a correct plan for suitable trainings regarding needs of society. Hence, we applied designed and standardized questionnaire pursuant to Iran in this study to evaluate health literacy 18-64 years old population covered by Sabzevar University of Medical Science in urban and rural areas based on hygiene perspective.

MATERIALS AND METHODS

This descriptive-analytical study with cross-sectional type was conducted on 413 persons at age range of 18-64 covered by Sabzevar University of Medical Sciences in urban and rural areas during 2015. Sampling method was cross-sectional through survey in houses, survey areas were chosen based on stratified selection Model.

Accordingly, some places in urban and rural map were randomly determined and then questioner stood at selected place toward Qibla direction then turned clockwise and stopped at the first residential pathway (residential not commercial alley or street) then entered to pathway. Sampling was done among all houses existing at 2 sides of path way using successive method until considered sample size was obtained. Consent of participant was gained and required information was provided to them and then educated persons filled out the questionnaire and uneducated person were interviewed by questioner.

Questionnaire consisted of 5 scopes including access, reading, understanding and appraise and decision-making and 49 questions. Validity and reliability of questionnaire determined through a separate study conducted by Office of Health Education and Promotion of Health Ministry. For this purpose, the concept of "health literacy" was extracted through interview with experts in different field of health in a qualitative study and then relevant questions based on obtained concepts in 5 scopes (access, reading, understanding, apprise and decision-making) determined for considered population. Finally, 49 questions out of 235 questions presented in expert's panel chosen and then face, content, structural validity and reliability of instrument assessed. It should be mentioned that these stages was managed by Office of Health Education and Promotion of Health Ministry and required permissions were obtained. Proposed instrument by this office also applied in this study.

This questionnaire consisted of 2 parts of calculations and reading comprehension. Calculation's part evaluates ability of person to understand and perform based on the prescriptions presented by practitioner and health teachers to the person which require to be calculated. This part includes some explanations on prescribed medicines, visit time, stages of receiving financial contribution and a sample of clinical test result. Persons were scored at the range of 0-50. Participant's ability of reading information relevant to health cares was evaluated at reading comprehension stage which consisted 50 questions and each participants was scored at range of 0-50. Total score of health literacy which could be between 0-100 was calculated based on total scores obtained from the mentioned parts. Finally, total score of participant's health literacy was classified to three categories of inadequate level (0-59), marginal (60-74) and adequate (75-100) based on cut points of 59 and 74.

Collected and completed data was statistically analyzed within 3 stages. At first stage, data was entered into SPSS20 Software in which information defects, outlier data, missed data and accuracy of collected data were

examined. At second stage, data was transferred to Stata Software in which descriptive analyses including mean, standard deviation, frequency and percentage of data calculated. At third stage, advance statistical analyses were done based on questionnaire analyzing instructor presented by employer. First, total score of health literacy based on each subgroup was determined based on mentioned instructor and then relationships between health literacy and effective factors was calculated using univariate regression models. Survey models were applied in Stata Software in case of considerable intra cluster correlation in order to analyze data based on a survey view. Base population of urban and rural areas was considered in this analysis to weigh data. After calculating the sample ratio to the target group's population, its reverse was applied in calculations as weight and multiple regression models and multivariable analysis were applied for data analysis.

RESULTS

Findings: In total, 413 members with age average of 41 entered into the study. About 188 members (46.5%) were men and 217 members (53.5%) women. About 57.9% lived in urban areas and 42.15 lived in villages. Plenty of participants (about 29.1%) had BA degree and lowest frequency was related to diploma degree (about 5.3%). In terms of job, most frequency was related to permanent job (42.4%) and lowest frequency (4.6%) consisted of students. Age group of 41-50 was the most populated age group (25.7%) and lowest age groups consisted of under 20 (4.4%). Demographic characteristics of studied population are indicated in Table 1.

Table 1: Demographic features of studied people

	Frequency	
Variables	Numbers	Percent
Living place		
County	239	57.9
Rural	174	42.1
Gender		
Male	188	46.5
Female	217	53.5
Education level		
Uneducated	25	6.1
Elementary, reading and writing	38	9.2
Secondary school	47	11.4
High school	22	5.3
Diploma	78	18.9
Associate degree	34	8.2
BA	120	29.1
MA and above	20	4.8
Job		
Student	19	4.6
University student	27	6.5
Housewife	84	20.3
Retired	24	5.8
Unemployed	6	1.5
Permanent employee	175	42.4
Temporary employee	72	17.4
Age		
<20	18	4.4
21-30	98	23.7
31-40	104	25.2
41-50	106	25.7
51-60	53	12.8
>60	27	6.5

Education status of studied persons was evaluated based on 4 dimensions of health literacy including access to health information, understand health information, judge or appraise and apply information. According to Table 2, education level of participants is at average level of 46% in terms of access to more health information at good level of 53% in terms of understand more health information at good level of 99% in terms of judge and appraise more health information and at average level of 80.9% in terms of use more information.

Regarding average scores related to education level of participants, the maximum score obtained to 55 in terms of access to information which mean of obtained scores among these people was equal to 28.53±15.75, maximum score of understanding information obtained to 76 and mean of scores was equal to 50.71±14.04, maximum score of judge and appraise obtained to 32 and mean score of participants was equal to 29.53±2.34 and maximum score of using information obtained to 96 and mean score of participants was equal to 47.52±12.86. Mean scores at different levels are indicated in Table 3. Normalizing data using Mann-Whitney test, data statistical analysis indicate that there is not a significant difference between two women and men groups in terms of access and judge ($p>0.05$) but there was a significant difference between two groups in terms of understanding health information ($p = 0.002$) indicating that understanding of health literacy among women is more than women 29.70 compared to 27.07.

Kruskal-Wallis test was applied to analyze education status and a significant difference was observed between different levels in terms of understanding and access to information ($p = 0.000$) but there was not any significant difference in terms of judge and use information ($p>0.05$) indicating that increase in education level leads to more understand and access to health information.

Kruskal-Wallis test used to analyze different age groups and indicated a significant difference between age groups in terms of understand and access to information ($p = 0.000$) but there was not any significant difference between age groups in terms of judge and use health information ($p>0.05$). This indicates that younger people have more access and understanding of health information.

Table 2: Education level of studied people based on 4 dimensions of health literacy

	Weak		Average		Good	
4 dimensions of health literacy	Numbers	Percent	Numbers	Percent	Numbers	Percent
Access to health information	98	23.7	190	46.0	125	30.3
Understand health information	12	2.9	182	44.1	219	53.0
Judge and appraise	-	-	4	1.0	409	99.0
Use information	72	17.4	334	80.9	7	1.7

Table 3: Average scores of education level of studied persons based on 4 dimensions of health literacy

Dimensions of health literacy (mean±standard deviation)	Weak level	Average level	Good level	Total
Access to health information (11 questions, maximum score 55)	6.73±5.51	27.47±5.43	47.24±5.09	28.53±15.75
Understand health information (19 questions, maximum score 76)	22.75±1.13	39.04±7.04	61.94±6.91	50.71±14.04
Judge and appraise (8 questions, maximum score 32)	-	21.00±5.15	29.16±2.21	29.08±2.34
Use information (24 questions, maximum score 96)	27.55±3.22	51.34±9.50	70.42±4.79	47.52±12.86

According to, χ^2-test, there is a significant difference between living place, understanding, access and use information ($p = 0.000$) while there was not any significant difference in terms of judge ($p>0.05$); therefore, living place affects access, understanding and use health information by people.

DISCUSSION

Health literacy is a concept that describes patient's ability to understand prepared references and information by practitioners and health experts. This concept consists of a wide range of complex and simple skills which allows persons participate in therapeutic decisions and protect themselves, their families and societies against diseases (Noblin *et al*., 2012).

Concerns relevant to literacy and health skills have been an alarm for many of health field during past decade. Results obtained from present study indicated that health literacy is low in Iran totally. According to the results, it can be stated that 18-64 years old population covered by Sabzevar University of Medical Science living in urban and rural areas have good level of 99 and 53% in terms of judge, appraise and understand, respectively and have average level of 46 and 80.9% in terms access and use information, respectively.

The results obtained from other studies conducted inside and outside of Iran show inadequate health literacy among people.

Wagner *et al*. (2007) conducted a study in Britain and found that literacy of majority population is at marginal or inadequate level (11.4%). Lee *et al*. (2010) reported health literacy at weak level (30%) by Taiwan. Paasche-Orlow *et al*. (2005) and Baker *et al*. (1999) have expressed health literacy at low level in their studies.

Afshari *et al*. (2014) reported access to information and understand information at weak level and found judge and appraise and use information at average level. In this regard, Banihashemi *et al*. (2007), Reisi (2011), Sh *et al*. (2006), Ghanbari *et al*. (2012), Mollakhalili *et al*. (2014) and Nekoei-Moghadam *et al*. (2011) found health literacy at inadequate and marginal level in healthcare systems while health literacy in healthcare systems is necessary to make suitable health decisions leads to people's empowerment to apply information and instruction relevant to health.

Findings of present study indicate that there is a significant relationship between access level to health literacy, understand it and education level; hence, increased education level leads to access to and understand health literacy among people. Persons with higher academic degree would understand health instructions and perform them better; hence, they have high-level health literacy. In contrary, less educated people have low-level understanding of health literacy and have problem when using health information, application or using method of medicines and understanding medical instructions; therefore such people should be trained. Similar studies conducted in this field including Lee *et al*. (2010), Banihashemi *et al*. (2007), Nekoei-Moghadam *et al*. (2011), Mollakhalili *et al*. (2014) and Afshari *et al*. (2014) have reported results matched with results of present study.

There was a significant statistical relationship between health literacy level and gender in terms of understanding information. Also, there was a significant difference between age groups in terms of understand and access to information indicating that younger people have more understanding of health information and more access to this information. In total, women have fewer problems to understand health and medical information compared to men due to their roles in family, more family responsibilities and paying more attention to children; younger people can understand health information better than old people can.

Possible reasons for higher education level among women compared to men might be more referral of women to healthcare centers, obtaining more information,

understand and use more information. Therefore, young people and women have more accuracy and attention in this field than older people and men. These results are coordinated with results obtained from studies conducted by Mollakhalili *et al.* (2014), Banihashemi *et al.* (2007), Afshari *et al.* (2014), Lee *et al.* (2010) and Fang *et al.* (2006). On the other hand, younger people usually have higher education levels and more access to health literacy; therefore, they have more accuracy and concentration on understanding and use health literacy in health situations and environments compared to older people.

There is a significant difference between living places in terms of understands, access and use information; hence, living place affects access to understand and use health information among people. People who live in urban areas have better access to internet and media due to more facilities and more access to information related to health literacy on the other hand, understand and use of health information is more in urban areas due to life conditions. The obtained results are matched with results obtained from studies conducted by Banihashemi *et al.* (2007), Afshari *et al.* (2014) and Mollakhalili *et al.* (2014). According to Mollakhalili *et al.* (2014) not only health literacy is related to living place in city or village but also some factors in urban areas such as classification of people to citizens in city center, capital city, surrounding cities and other cities of province can effect on access level to healthcare information and health literacy.

In case of difference between people with different jobs and health literacy levels, this can be related to education level and age of people. According to the results obtained in field of access and use information in field of health literacy, students and people who have permanent jobs have the most level of health literacy respectively and lowest level of health literacy is related to unemployed and retired people. Therefore, elderlies, unemployed and uneducated people with better jobs should be trained, information should be provided for them more simply, more time and contribution is required for them to make them aware in field of health information and systems.

CONCLUSION

In conclusion, findings obtained from this study evaluated the relationship between health literacy level and different health dimensions. Health literacy level among population covered by Sabzevar University of Medical Sciences was reported at this study. Since, health literacy plays a vital role in improvement of health status and health promotion among people in society, it is necessary to consider this issue in educational programs of health and health promotion plans. Also, staffs of health system, practitioners, nurses, etc. should be trained to increase health literacy level among people. On the other hand, it is required to increase health literacy level in society making more relationship between healthcare staffs and people in society, expressing information with an understandable language, considering necessity of health literacy and using it in life. Also, health literacy would empower people to use information and instructions related to health.

Since, education of people is related to health literacy significantly and directly, education and literacy training in society is necessary particularly in field of health information. Some strategies including appropriate health programs, preparing simple and understandable educational materials, spending more time on health trainings and promoting health literacy can help people with low-level health literacy improving their health literacy.

REFERENCES

Afshari, M., S. Khazaei, M. Bahrami and H. Merati, 2014. Investigating adult health literacy in Tuyserkan city. J. Educ. Community Health, 1: 48-55.

Aldoory, L., 2017. The status of health literacy research in health communication and opportunities for future scholarship. Health Commun., 32: 211-218.

Baker, D.W., M.V. Williams, R.M. Parker, J.A. Gazmararian and J. Nurss, 1999. Development of a brief test to measure functional health literacy. Patient Educ. Counseling, 38: 33-42.

Banihashemi, T.A., M. Amirkhani, A. Haghdust, M. Alavian and H. Asgharifard *et al.*, 2007. Health literacy in five provinces of the country and its determinants. Strides Dev. Med. Educ., 1: 1-9.

Berkman, N.D., S.L. Sheridan, K.E. Donahue, D.J. Halpern and K. Crotty, 2011. Low health literacy and health outcomes: An updated systematic review. Annals Internal Med., 155: 97-107.

Eichler, K., S. Wieser and U. Brugger, 2009. The costs of limited health literacy: A systematic review. Intl. J. Public Health, 54: 313-124.

Fang, M.C., E.L. Machtinger, F. Wang and D. Schillinger, 2006. Health literacy and anticoagulation-related outcomes among patients taking warfarin. J. Gen. Internal Med., 21: 841-846.

Ghanbari, S., F. Majlessi, M. Ghaffari and M.M. Majdabadi, 2012. Evaluation of health literacy of pregnant women in urban health centers of Shahid Beheshti medical university. Daneshvar, 19: 1-12.

Javadzade, H., G. Sharifirad, M. Reisi, E. Tavassoli and F. Rajati, 2013. Health literacy among adults of Isfahan, Iran. J. Health Syst. Res., 9: 540-549.

Kennard, D.K., 2016. Health literacy concepts in nursing education. Nurs. Educ. Perspect., 37: 118-119.

Kindig, D.A., A.M. Panzer and L. Nielsen-Bohlman, 2004. Health Literacy: A Prescription to end Confusion. National Academies Press, Washington, USA. isBN:0-309-52926-3, Pages: 368.

Lee, S.Y.D., T.I. Tsai, Y.W. Tsai and K.N. Kuo, 2010. Health literacy, health status and healthcare utilization of Taiwanese adults: Results from a national survey. BMC. Public Health, 10: 614-614.

Marmot, M., S. Friel, R. Bell, T.A. Houweling and S. Taylor, 2008. Health CoSDo closing the gap in a generation: Health equity through action on the social determinants of health. Lancet, 372: 1661-1669.

Mollakhalili, H., A. Papi, F. Zare-Farashbandi, G. Sharifirad and A. HasanZadeh, 2014. A survey on health literacy of inpatient's educational hospitals of Isfahan University of Medical Sciences in 2012. J. Educ. Health Promotion, Vol. 3,

Nekoei-Moghadam, M., S. Parva, M.R. Amiresmaili and M.R. Baneshi, 2011. Health literacy and utilization of health services in Kerman urban area. J. Toloo E. Behesht, 11: 123-134.

Noblin, A.M., T.T. Wan and M. Fottler, 2012. The impact of health literacy on a patient's decision to adopt a personal health record. Perspect. Health Inf. Manage., 9: 1-13.

Paasche-Orlow, M.K., R.M. Parker, J.A. Gazmararian, L.T. Nielsen-Bohlman and R.R. Rudd, 2005. The prevalence of limited health literacy. J. Gen. Internal Med., 20: 175-184.

Reisi, M., 2011. A survey on health literacy among elderly in Isfahan in 1390. Master Thesis isfahan University of Medical Sciences isfahan, Iran.

Sh, G., F. Majlessi, M. Ghaffari and M.M. Majdabadi, 2011. Survey on health literacy of pregnant women in health centers of Shahid Beheshti University of Medical Sciences. Med. J., 19: 1-13.

Sh, K., S. Ghasemi and M. Dodange, 2006. The relationship between health literacy and maternal prenatal care and labor. Iran. J. Nurs. Midwifery Res., 3: 33-42.

Wagner, V.C., K. Knight, A. Steptoe and J. Wardle, 2007. Functional health literacy and health-promoting behaviour in a national sample of British adults. J. Epidemiol. Community Health, 61: 1086-1090.