

The Relationship Between Health Literacy and General Health of Staff of Isfahan University of Medical Sciences

ABSTRACT

Background and Objective: Health literacy is cognitive and social skills that determine the motivation and ability of individuals to access, understand and use information in a way that maintains and improves their health. Inadequate health literate people have a weaker health status. The aim of this study was to investigate the relationship between health literacy and health public of staff of Isfahan University of Medical Sciences.

Materials and Methods: This descriptive-analytic and correlational study a total of 185 personnel staff in Isfahan University of medical sciences in 2019. Data collection tools were demographic information questionnaires, health literacy and general health. Data were analyzed by SPSS software version 22 using Descriptive and analytical tests. P-value less than 0.05 were considered significant.

Results: 64.9% of the samples had sufficient health literacy. In terms of general health, 52.4% of the research samples were at an Undesirable level. The findings showed that the relationship between health literacy and general health is significant ($P\text{-value}=0.001$).

Conclusion: Regarding the communication of staff health literacy among staff units with their general health status, it is necessary Programs by effective institutions such as mental health centers, university counseling and human relations units To create job training to eliminate the necessary ambiguities or job stress before the start of the activity periodically or short-term courses held and the specialist forces to request more participation.

Paper Type: Research Article

Keywords: Health Literacy, General Health, Staff.

► **Citation:** Jafari A, Tavassoli E. The Relationship Between Health Literacy and General Health of Staff of Isfahan University of Medical Sciences. *Journal of Health Literacy*. Spring 2020; 5(1): 23-31.

Azin Jafari

M.Sc. Health service management, school of Medical sciences, Islamic Azad University Shahrekord, Shahrekord, Iran.
M.Sc. staff, vice-chancellor in administration and resources development affair, Isfahan University of medical sciences, Isfahan, Iran.

Elahe Tavassoli

*. Assistance professor, department of public health, school of health, shahrekord University of medical sciences, Shahrekord, Iran.
(Corresponding Author)
Email: tavassoli.eb@gmail.com

Received: 27 December 2019

Accepted: 9 March 2020

Doi: 10.22038/jhl.2020.46111.1096

Introduction

One of the major concerns of governments and policy makers of health field is to promote health of individuals and subsequently health of society, and achieving this aim requires targeted and macro policy making a program. Therefore, one of the most important issues considered by human societies is public health. The health is fundamental right of every human and is a social target, and all the governments and organizations are responsible for providing individual's health (1).

Health is necessary and needed factor for the individual and social roles, and all the society's strata, and all the society's stratum specifically organization staff can perform thorough activity in case of feeling healthy and knowing the society healthy (2). Without doubt, staff with health disorders, are unable to accept personal, family, social, occupational, and organization duties (3). Staffs at each organization and country are considered as factor of growth, development, and efficiency (2). One of the factors affecting efficiency level of staff and occupational and organization output is public health of staffs (4). The organization in case of providing physical and mental health of its staff can progress toward higher levels of efficiency dynamically. Therefore, all the institutes and organizations are tended to recruit staff that is reasonably healthy in general (5). One of the factors associated closely to health outcomes is health literacy of individuals (6).

World health organization describes health literacy in this way: health literacy includes cognitive, social skills and ability of individuals to achieve better concept and using the present information in order to preserve and spread optimum health (7). Health literacy is the consequence of joint efforts of personal and social factors which investigates worries and fields of health in health era, and is identified as

an important and necessary index of results and costs of health care. In addition, health literacy is a social item which is growingly considered as an instrument in order to improve health outcomes and a tool for decreasing inequality in health care (8).

The recent research showed that health literacy is a more appropriate predictor of health status of individuals rather than gender or ethnicity, educational level, job, economic and social status (9). Approximately, 80 million of American adults at 2011, who are faced to the risk of weak health outcome, had limited health literacy (10). Damman et al reported sufficient health literacy in 837 individuals of office staff as 89.7% and in 482 individuals of construction workers as 60.5% (11). Qanbari et al reported in their study that staff with higher health literacy is tended to perform health and preventive behaviors (12).

Although it is not fully clear that how much health literacy affects health outcomes, however evidences indicate that most of the undesirable results related to health is the result of insufficient health literacy (13). Insufficient health literacy is the predictor of lesser healthy behaviors, higher mean of hospitalization at treatment centers and hospitals, difficulty in verbal communicating with presenters of health services and weaker status of health, and lower levels of health of staff might decrease feeling wellbeing in their work (14). Feeling wellbeing in work improves satisfactory of personnel on their performance and also in regard with providing services. As employees' performance improves, function of organization will also increase; therefore, staffs should feel wellbeing in workplace to be more successful (15).

Since nowadays familiarity of the staffs to the health literacy and using of it in work

environment is greatly emphasized, and in fact, the main step in order to design and program to promote quality of providing health services by staffs is awareness on the current status among the staff by considering issue of health literacy, therefore, the current study aimed to investigate association among health literacy and public health of the Isfahan University of Medical Sciences staff.

Methods and Materials

This descriptive-analytical study is an association study which was done at 2018.

Study population was all the staffs of IUMS which were determined based on Morgan table at 185 individuals, these individuals were selected randomly based on random number table to participate in the study.

In order to determine sample size required for IUMS staff, the following equation at confidence level of 95% and test power of 80% was used.

Willingness to participate in the study, at least having an associate's degree and a job experience of more than 2 years were inclusion criteria, and employee allocated to service and incomplete filling out the questionnaire were considered as exclusion criteria.

After coordinating with authorities, and providing needed explanations regarding objectives of the study to the staff, which can be effective in attracting the attention and cooperation of staff to participate in the study, the study questionnaires were provided to eligible participants.

All the participants were assured to that their information remains confidential, and there is no need to write the name and family name of the individuals in the lists, all the information was assessed individually and totally, and in case of tendency, the whole results were announced to the individuals.

In order to gather data, three questionnaires

were used.

- 1- Questionnaire of demographic characteristics: this questionnaire includes demographic characteristics (gender, age, marital status, educational level, job experience, and source of information on health and disease)
- 2-Questionnaire of health literacy: This questionnaire was standardized (16) and consists of 33 main items, and assesses capability of individuals in various dimensions of health literacy including skill of reading (four questions of 1-4), access (6 questions of 5-10), understanding and conception (7 questions of 11-17), assessment (four questions of 18-21), and decision making and using health information (12 questions of 22-33).

Scoring scale of this questionnaire is as 5-option Likert, so that in the questions related to dimension of reading skill; the score of 5 is for option of absolutely easy, score of 4 is for easy, score of 3 is for the medium as not easy and not difficult, score of 2 is for difficult, and score of 1 is for absolutely difficult.

Regarding the other four aspects of health literacy; score of 5 is always, score of 4 is often, score of 3 is sometimes, score of 2 is rarely, and score of 1 is never.

The way of scoring of this tool is so that firstly, the raw score of each person in each of the fields was achieved from algebraic sum.

Then to convert this score into zero-to-100 spectrum, the distinguishing equation of raw score obtained from the possible minimum raw score divided by the difference of possible maximum score from the minimum possible score was used.

Finally, to compute the total score, the scores of all the dimensions (based on 0-to-100 spectrum) were summed and divided by the all dimensions (number of 5).

Scores of 0 to 50 were considered as insufficient

health literacy, 50.1 to 66 as not so sufficient, 66.1 to 84 as sufficient health literacy, and scores of 84.1 to 100 as excellent health literacy.

3-General health questionnaire: Goldberg GHQ consists of 28 questions in four physical scales (including 7 questions from 1 to 7), anxiety and sleep disorders (7 questions from 8 to 14), social performance (7 questions from 15 to 21) and depression (7 questions from 22 to 28).

Scoring was performed as four level of 1-4, in addition, score of questions of social performance is also provided reversely.

Regarding variables of this questionnaire, it should be noted that lesser score represents higher and better general health (17). Validity and reliability of health literacy questionnaire was investigated and confirmed in the study by Montazeri et al (16).

Regarding reliability, all the dimensions were reliable, so that reading skill dimension was achieved for Cronbach's alpha as 0.72, after assessment, it was 0.79, after accessibility, it was 0.86, after understanding and conception, it was 0.77, and after decision making, it was 0.89. Validity of GHQ was assessed in many studies. Goldberg et al reported reliability of questionnaire as 95% through studying on 83 individuals (18).

Cheong and Spires reported reliability of the questionnaire as 93% by Cronbach's alpha (19).

Najafi et al achieved reliability of the questionnaire at 89% (20).

Finally, in order to analyze data, descriptive and analytical statistics using SPSS software version 22 and Pearson correlation test were used.

Results

55.7% of participants in the study were woman and 44.3% were male staff of the IUMS. 81.1% were married and 18.9 and 18.9% were single. Age of the participants from the range of <35 to >56

years old were classified in four groups, which the highest rate of them, 48.6%, were aged between 36 to 45 years old, and lowest rate, 4.3%, was aged more than 56 years old. Educational level of staffs showed that the Master's degree and higher were the most frequency as 41.1% and associate degree with a percentage of 8.1% was the lowest frequency among study participants. Besides, job experience of staffs of university in the group of experience more than 20 years (33%) was the highest frequency and in the group of lesser than 5 years was just (2.7%) the lowest frequency. Regarding source of information on health and disease, the findings showed that 61.1% of staff get the information on health and disease from the physician, health and treatment staff, 61.1% get from internet, using interactive voice response was 7.2%, using radio and TV was 16.8%, using newspaper, magazines and journals was 9.7%, and asking friends and relatives was 11.9%, using training and advertising booklets, pamphlets, and brochures was 9.7% and only 3.8% used satellite channels as the source of health information regarding disease.

Level of health literacy of study samples is presented in table 1. The results represent that health literacy of the most of study samples (64.9%) is at the sufficient level (84-66.1).

Table1: Health literacy levels in the staff of Isfahan University of Medical Sciences

Health Literacy Level	Frequency	Percentage
Low Health Literacy (0-50)	2	1.1
Inadequate Health Literacy(50.1-66)	28	15.1
Adequate Health Literacy(66.1-84)	120	64.9
High Health Literacy(84.1-100)	35	18.9
Total	185	100

General health level of the study sample is presented in table 2. The results represent that general health level of the most of the study sample (52.4%) is at the undesirable level (56-84).

Table2: General health level in the staff of Isfahan University of Medical Sciences

general health level N(Percentage)	Undesirable (58-84)	Relatively desirable (27-58)	Desirable (1-26)
General health	97(52.40)	87(47.60)	0(0.00)
Physical	43(23.20)	144(76.20)	1(5.00)
Anxiety and sleep disorders	47(25.40)	129(69.70)	9(4.90)
Social Performance	150(81.10)	34(18.40)	1(5.00)
Depression	11(5.90)	80(43.20)	94(50.80)

There is significant inverse association among health literacy and general health ($P\text{-value}=0.001$), indicating that by increase in score of health literacy, scores of general health decreases.

Since low scores represent desirable general health status, therefore, by increasing health literacy, general health of study samples is also

increased.

The association rate if $r=-0.23$. Since this rate is lesser than -0.3, this association is considered as weak.

Investigating association among score of health literacy and aspects of general health showed that there is a significant and adverse association among health literacy and physical aspects ($P\text{-value}=0.003$), anxiety and sleep disorder ($P\text{-value}=0.019$), and social performance ($P\text{-value}=0.025$).

This association was -0.21, -0.17, and -0.16, respectively. Since correlation coefficient is lesser than -0.3, association among variables is considered as weak.

Investigating association among general health and aspects of health literacy showed that general health is inversely and significantly associated with access dimensions ($P\text{-value}=0.01$), understanding and conception ($P\text{-value}=0.006$), and decision making and using health information ($P\text{-value}<0.001$).

This association was -0.18, -0.20, and -0.30, respectively (table 3).

Table 3: The relationship between health literacy with general health in the studied units

Variables	Physical	Anxiety and sleep disorders	Social Performance	Depression	General health
Reading skills	$P=0.07$ $r= - 0.13$	$P=0.91$ $r= 0.008$	$P=0.009$ $r= -19.00$	$P=0.31$ $r= 0.07$	$P=0.29$ $r= - 0.07$
Access	$P=0.28$ $r= - 0.07$	$P=0.05$ $r= - 0.14$	$P=0.003$ $r= - 22.00$	$P=0.36$ $r= - 0.06$	$P=0.01$ $r= - 0.18$
Understanding	$P=0.007$ $r= - *19/0$	$P=0.31$ $r= - 0.07$	$P=0.04$ $r= - 0.14$	$P=0.06$ $r= - 0.13$	$P=0.006$ $r= - 0.20$
Assessment	$P=0.035$ $r= - 0.15$	$P=0.031.$ $r= - 0.15$	$P=0.75$ $r= - 0.02$	$P=0.55$ $r= - 0.04$	$P=0.051$ $r= - 0.14$
Decision Making and Using health information	$P<0.001$ $r= - 0.28$	$P<0.001$ $r= - 0.28$	$P=0.33$ $r= - 0.07$	$P=0.028$ $r= - 0.16$	$P<0.001$ $r= - 0.30$
Total Health Literacy	$P=0.003$ $r= - 0.21$	$P=0.019$ $r= - 0.17$	$P=0.025$ $r= - 0.16$	$P=0.25$ $r= - 0.08$	$P=0.001$ $r= - 0.23$

Discussion

The current study aimed to assess association among health literacy and general health of staff of IUMS.

Findings of the current study shows statistically significant association among health literacy level and general health of IUMS staff which indicates key and important role in promoting general health of staff.

Since health-promoting behaviors in staffs had a considerable effect in progressing health and life quality, and similarly, decrease costs related to health care, therefore, health literacy should consider health literacy as an important factor which promote and improve health behaviors and establishing healthy lifestyle, and should be considerably pointed.

The current findings showed that health literacy level in 69.4% of IUMS staffs was at the sufficient level, which were in line in this regard with the studies by Rahimi et al (9), Owens et al (21), Mahmoudi and Taheri (22), Ziapour and Kianiour (23).

In addition, Van Vagner et al in one study at England reported that 88.6% of individuals had sufficient health literacy (24).

Among the reasons of sufficient level of health literacy in the current study, in-service training for staff, being colleague or any member of health and treatment personnel, staffs' awareness on topics related to health, using continuing educating courses, and using communicating tools and internet, and asking physician and health and treatment staffs can be pointed.

In addition, results of the current study were inconsistent with the studies by Peyman et al (25), Miri et al (26), Javadzade et al (27), and Tehrani et al (28). This inconsistency might be due to higher frequency of women comparing to men in the current study, employment in one health and treatment organization, educating

in various fields of Medical Universities and more and closer relations with specialists and medical team.

Regarding level of general health, the current findings showed that 52.4% of study samples had undesirable health status, and 47.6% had also nearly desirable health status, which this finding indicates undesirable ststus of general health in IUMS staffs.

In the study by Qanbari et al, general health status of the most of the staffs was reported moderate (29), in addition, Eshmite et al investigated health status of 3231 individuals of office staffs in their study, their findings showed that 47.6% of the individuals stated their health status in the optimum range (30) which was higher than the current study.

In the current study, there was significant and adverse association among health literacy and general health of IUMS staffs, and the association among aspects of health literacy and aspects of general health were also investigated.

Significance level and association among the variables show that by increasing health literacy, general health of the study sample is increased.

Investigating association among score of health literacy and general health aspects also showed a significant adverse association among health literacy and physical aspects, anxiety and sleep disorder and social performance.

In addition, general health is adversely and significantly associated with dimensions of access, understanding and conception and decision making and using health information. No significant association was observed among health literacy and general health status in the study by Qanbari et al (29).

In the study by Izadi and Zareban (6), a significant statistical association was observed among health literacy and general health status.

Individuals with better health literacy status

assessed their general health status better. In addition, they attempted to perform predictive behaviors more than others.

Besides, a significant statistical association was observed among health literacy and general health status, visiting physician and performing predictive behaviors.

The significant statistical association among health literacy and general health status was observed in many studies, and individuals with higher health literacy reported better health status (31-33).

Health literacy is effective on performing predictive behaviors in order to benefit from complete health, so that individuals with higher health literacy attempted to do predictive behaviors more (34).

In the study by Panahi et al, individuals with greater health literacy attempted to do predictive behaviors more than those with insufficient health literacy (35).

This study is among the first studies conducted on the staff of university, besides, since the current study is conducted on group of staff, the results obtained could not be generalized to the other occupational groups in various categories and other age groups.

Therefore, further studies are warranted to investigate effects of health literacy on various aspects of health in these individuals.

It is recommended that due to demand of staff units to increase health literacy and general health of staffs, appropriate training courses should be held for staff of IUMS.

Since social performance was observed at undesirable level to determine score of general health of staffs of units of the university, it is recommended that by holding and participating of staffs in sessions of general and specialized conversations regarding health, scientific knowledge, cultural believes and also promoting

general heath of staffs to be established and increased after social performance.

Besides, due to wide role of local mental health centers, local cooperation and using existing capacities in providing community health, it is recommended to provide backgrounds of cooperation among various associations with staff units of university in regard with promotion of community health at first step and health of staff in second step in order to develop health literacy and score of general health of staff personnel.

Conclusion

The current findings show that mean health literacy of staff of IUMS was at sufficient level and the highest score is related to aspect of understanding and conception.

Besides, mean general health score of the IUMS staff showed that general health of them is not desirable. In order to resolve this limitation, it is necessary to perform required programs and attempts by the authorities of affiliated units to change general health status of the staff.

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

Funding: No financial support was received for this study

Acknowledgement: The researcher appreciates kind cooperation of staffs of Isfahan University of Medical Sciences. This article is extracted from the thesis of Master's degree of the Islamic Azad University, Shahrekord Branch.

References

- Malekpour M, Banihashemian K. relationship between general health, pessimism, and self-esteem in college students of Shiraz University of medical sciences with father and martyr father, journal of Isfahan medical school. 2011; 28(120): 14371446.
- Haery SM, Tehrani H, Olyaeimanesh A, Nedjat S. Factors Influencing the Social Health of Employees of the Ministry of Health and Medical Education in Iran. Iranian Journal of Health Education and Health Promotion. 2016;3(4):311-8.

3. Rasoulzadeh N. Aabaszadeh A. Amini F. Zafarian R. burnout and general health among nurses, Iranian journal of nursing research. 2015; 11(3): 31-44.
4. Ghaljaei F, Naderifar M, Ghaljeh M. Comparison of general health status and sleep quality between nurses with fixed working shifts and nurses with rotating working shifts. Zahedan Journal of Research Medical Sciences (ZJRMS). 2010; 13(1): 47-50.
5. Mashak B, Farhand B, Moghadam S, Pazhoon Z, Hajalikhani T, Taghipoor N, Soltannezhad N, Shahnavaz N, Farid M. relationship between job stresses among nurses with their general health status in Kamali hospital, Alborz university medical journal. 2015; 4(4):231-236. <https://doi.org/10.18869/acadpub.aums.4.4.231>
6. 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. 2016; 2(3): 43-50. <https://doi.org/10.20286/jech-02036>
7. Panahi R, Ramezankhani A, Tavousi M, Osmani F, Ghazanfari E, Niknami Sh. Evaluation of health literacy and its influencing factors on dormitory students of shahid Beheshti University of medical sciences in Tehran, Journal of Education and Community Health. 2016; 3(3): 30-36. <https://doi.org/10.21859/jech-03035>
8. Hosieni F, Mirzaei T, Ravari A, akbary A. The relationship between health literacy and quality of life in retirement of Rafsanjan University of Medical Sciences. Journal of Health Literacy. 2016;1(2):92-9. <https://doi.org/10.22038/jhl.2016.10969>
9. Rahimi A, Ahmadian Majin N. Investigating health literacy Level and Relation to demographic factors of Nurses in Teaching Hospitals of at West Cities of Iran: 2016. Journal of Health Literacy. 2017;2(1):54-61. <https://doi.org/10.22038/jhl.2017.10953>
10. Wharf Higgins J, Begoray D, MacDonald M. A social ecological conceptual framework for understanding adolescent health literacy in the health education classroom. Am J Community Psychol. 2009; 44(3-4):350-62. DOI: 10.1007/s10464-009-9270-8 PMID: 19838790. <https://doi.org/10.1007/s10464-009-9270-8> PMid:19838790
11. Damman OC, van der Beek AJ, Timmermans DR. Workers' knowledge and beliefs about cardio metabolic health risk. J Occup Environ Med 2014; 56(1): 92-100. <https://doi.org/10.1097/JOM.0000000000000041> PMid:24351894
12. Ghanbari A, Rahmatpour P, Khalili M, Mokhtari N. Health Literacy and its Relationship with Cancer Screening Behaviors among the Employees of Guilan University of Medical Sciences. JHC. 2017; 18 (4) :306-315. <https://doi.org/10.5812/semj.58665>
13. McLaughlin RA. Associations among health literacy levels and health outcomes in pregnant women with presentational and gestational diabetes in an urban setting. Tennessee, USA the University of Tennessee Health Science Center; 2009.
14. Esna ashari F, Pirdehghan A, Rajabi F, Sayarifard A, Ghadirian L, Rostami N, Pirdehghan M. the study of health literacy of staff about risk factors of chronic diseases, scientific journal of Hamadan University of medical sciences. 2015; 22(3): 248-254.
15. Kaabomeir N, Naami A. the effect of perceived organizational justice on organizational loyalty and job well-being with mediating role of social undermining and moderating role of job control in employees of Ahwaz golestan hospital, journal of nursing education. 2016; 5(3): 55-62. <https://doi.org/10.21859/jne-05038>
16. Montazeri A, Tavousi M, Rakhshani F, Azin SA, Jahangiri K, Ebadi M, et al. health literacy for Iranian adults (HELIA): development and psychometric properties. Journal of the Iranian institute for health sciences research. 2014; 13: 589-599.
17. Goldberg DP & Hillier VF. A scaled version of the general health questionnaire. Psychological Medicine 1979; 9(1): 139-45. <https://doi.org/10.1017/S0033291700021644> PMid:424481
18. Goldberg DP, Gater R, Sartorius N, Ustun T, Piccinelli M, Gureje O, et al. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. Psychological Medicine 1997; 27(1): 191-7. <https://doi.org/10.1017/S0033291796004242> PMid:9122299
19. Cheung P & Spears G. Reliability and validity of the Cambodian version of the 28-item general health questionnaire. Social Psychiatry and Psychiatric Epidemiology 1994; 29(2): 95-9.
20. Najafi M, Solati Dehkordi K & Forouzbakhsh F. Relationship between staff burnout and mental health in staff of nuclear energy organization, Isfahan. Journal of Shahrekord University of Medical Sciences 2000; 2(2): 34-41[Article in Persian].
21. Owens LM. Health Literacy an Educational Program for the Acute Care Professional Nurse (Doctoral dissertation, Capella University). 2015. Retrieved from <http://www.nursinglibrary.org/vhl/> handle/10755/565642.
22. Mahmoudi H, Taheri A. Relation between Information Literacy and Health Literacy of Students in Ferdowsi. University of Mashhad. Human Information Interaction. 2015; 2(2):31-41.
23. Ziapoor A, Kianipoor N. Predicting health literacy of students in Kermanshah University of Medical Sciences in 2016: The role of demographic variables. Journal of Health Literacy. 2016;1(3):182-90. <https://doi.org/10.22038/jhl.2016.10966>
24. von Wagner C, Knight K, Steptoe A, Wardle J. Functional health literacy and health-promoting behavior in a national sample of British adults. JECH 2007; 61(12):1086-90. <https://doi.org/10.1136/jech.2006.053967> PMid:18000132 PMCid:PMC2465677

25. Peyman N, Samiee-roudi K. Investigating the status of health literacy among health providers of rural area. *Journal of Health Literacy*. 2016;1(1):46-52. <https://doi.org/10.22038/jhl.2016.10976>
26. Miri A, Ghanbari MA, Najafi A. The relationship between health literacy and the recovery rate of cardiovascular patients after bypass surgery. *Journal of Health Literacy*. 2016;1(2):83-91. <https://doi.org/10.22038/jhl.2016.10968>
27. Javadzade. H, Sharifirad. Gh, Reisi. M, Mahaki. B, Nasr Esfahani. M, Mostafavi. F. Relationship between knowledge and implementing health literacy strategies in patient educationDepartment of Immunology of the Islamic Republic of Iran Army nurse.2015; 2(1):33-39.
28. 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. <https://doi.org/10.22038/jhl.2018.36901.1021>
29. 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 . DMed. 2012; 19 (97) :1-12.
30. Schmidt B, Loerbroks A, Herr RM, Wilson MG, Jarczok MN, Litaker D, et al. Associations between supportive leadership and employee's self-rated health in an occupational sample. *Int J Behav Med* 2014; 21(5): 750-756. <https://doi.org/10.1007/s12529-013-9345-7> PMid:24072350
31. Cho YI, Lee SY, Arozullah AM, Crittenden KS. Effects of health literacy on health status and health service utilization amongst the elderly. *Soc Sci Med* 2008; 66(8): 1809-16. <https://doi.org/10.1016/j.socscimed.2008.01.003> PMid:18295949
32. Reisi M, Mostafavi F, Hasanzadeh A, Sharifirad G. The Relationship between Health Literacy, Health status and Healthy behaviors among Elderly in Isfahan. *Journal Health System Research*. 2011; 7(4): 469-80.
33. Lee SY, Tsai TI, Tsai YW, Kuo KN. Health literacy, health status, and healthcare utilization of Taiwanese adults: results from a national survey. *BMC Public Health* 2010; 10: 614. <https://doi.org/10.1186/1471-2458-10-614> PMid:20950479 PMCid:PMC2967535
34. Aghamolaei T, Hosseini Z, Hosseini F , Ghanbarnejad A. The Relationship between Health Literacy and Health Promoting Behaviors in Students. *Jpm* 2016; 3 (2):36-43.
35. Panahi R, Ramezankhani A, Tavousi M, Osmani F, Karami A, Niknami S. Effect of Educational Intervention on Health Literacy and Adoption of Smoking Preventive Behaviors among University Students. *J Educ Community Health* 2018; 5 (2):26-35. <https://doi.org/10.21859/jech.5.2.26>