

## Health literacy and health-promoting behaviors in southern Iran

### ABSTRACT

**Background and Objective:** Health-promoting behaviors are fundamental and important activities for the development and maintenance of health in individuals. However, people with inadequate health literacy are in a worse health position. Today, health literacy is considered a main factor involved in healthcare outcomes and costs. The present research aimed to determine the level of health literacy among the 18–64-year-old residents of Hormozgan Province in association with health promotion behaviors.

**Materials and Methods:** This cross-sectional study on 840 subjects aged from 18 to 64 years, who referred to the urban and rural health centers in Hormozgan, Iran. They were selected through a multi-stratified sampling method in 2017. The data collection instrument was a questionnaire comprised of a demographic section, the test of functional health literacy in adults (TOFHLA), and Walkers' health promoting lifestyle profile (HPLP-II). The data were analyzed by SPSS version 23 based on the descriptive and analytical statistics tests.

**Results:** The mean and standard deviation of the subjects' age was  $30.6 \pm 8.2$  years. Most of the participants (586, 72.2%) had an adequate level of health literacy and 226 subjects (27.8%) had inadequate health literacy. The mean and standard deviation of the overall health promotion behavior was found to be  $142.95 \pm 20.11$ , interpreted as an acceptable level. The highest average value was observed in the subclass of self-actualization ( $27.7 \pm 4.9$ ) and the lowest mean related to the subclass of physical activity ( $17.4 \pm 5.4$ ). Internet (43.1%) and appealing to the healthcare team (36.9%) were 43.1% and 36.9%, respectively.

**Conclusion:** Our findings showed that educational plans are essential based on different domains of health promotion behaviors with a focus on physical activity. It is also necessary to plan for educating different dimensions of health literacy in the virtual world and social health networks.

**Paper Type:** Research Article

**Keywords:** Health literacy, Health Behavior, Health Promotion, Iran.

► **Citation:** Abedini S, Nooraddin Sh, Mohseni Sh, Daryafati H, Karimi F, Ezati rad R. Health literacy and health-promoting behaviors in southern Iran. *Journal of Health Literacy*. Summer 2021; 2(6): 53-60.

### Sedighe Abedini

Assistant professor of General health, Social factors in health promotion research center, Hormozgan health research center, Hormozgan University of medical sciences, Bandar Abbas, Iran

### Shahla Nooraddin

\* M.S. of Health education, General health faculty, Hormozgan University of medical sciences, Bandar Abbas, Iran. (Corresponding author)  
sh.nooraddin@gmail.com

### Shokrollah Mohseni

Ph.D. candidate, Biostatistics and epidemiology department, social factors in health research center, Hormozgan research center, Bandar Abbas, Iran

### Havva Daryafati

M.S. of Epidemiology, Biostatistics and epidemiology department, Health faculty, Hormozgan University of medical sciences, Bandar Abbas, Iran

### Fatemeh karimi

M.S. of Health education, General health faculty, Hormozgan University of medical sciences, Bandar Abbas, Iran

### Roghayeh ezati rad

Student Research Committee, Faculty of Health, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

Received: 22 April 2021

Accepted: 12 August 2021

Doi: 10.22038/jhl.2021.59213.1172

## Introduction

Many of the existing educational interventions and awareness-raising in health system plans are not appropriate for the understanding level of the target population. Thus, the reception, comprehension and application of health information require adequate skills in reading, calculating and decision-making (1). This inappropriateness has led to the emergence of a new concept called health literacy (2), which is defined as an individual's capacity to obtain, interpret, and understand primary health information and services as well as it is the ability to use this information in methods that can promote individual's health (3). Health literacy plays a key role in an individual's capability in health-related activities, medical decision-making and preventive behaviors toward diseases. Without the required health information, it is not possible for an individual to make decisions leading to desirable health outcomes (4). In some other research in 5 provinces in Iran, 28.1% of subjects had an adequate level of health literacy; 15.3% had a borderline level of health literacy and 56.6% had an inadequate level of health literacy (5). The research findings by Tavousi et al., in 31 provinces of Iran revealed that one out of every two Iranians had a limited level of health literacy (44.4%) specially the vulnerable groups of society (6). In fact, adequate health literacy is followed by a healthy life style among all social groups (7). Life style is the manner of living and adaptation in life, which is rooted in the family influenced by culture, race, religion, socioeconomic status, and beliefs (8). A health promoting life style includes behaviors that enable individuals to increase control over their own health and eventually improve individual and social health (9). Health promoting behaviors act as an international approach and have always been a great concern for health providers and

researchers (10). They have been critical topic for research in the health domain (11). As reported by the world health organization (WHO), the most prevalent chronic diseases in the world are obesity, heart attack, diabetes, cancer, and osteoporosis which is directly associated with human life style (12). To promote health in each geographical area, it is essential to be aware of local people's health knowledge and the weaknesses in health literacy for educational curriculum design. Thus, the present research aimed to explore the health literacy status in people aged from 18 to 64 years who residents in Hormozgan Province and to examine association of health literacy with health promotion behaviors.

## Materials and Methods

The present descriptive-analytical research was a cross-sectional study that was conducted in 2017. The target population was all people with age from 18 to 64 year who was resident in Hormozgan Province in the South of Iran. They selected people who referred to the urban and rural comprehensive health centers.

The sample size was estimated based on the formula 1. Considering the degree of accuracy ( $d = 0.3$ ), and the first type error ( $\alpha = 0.5$ ), the sample size was equal to 494 people. In this study, the cluster sampling method was used considering the value of design effect = 1.7. Therefore, the final sample size is estimated as 840 ( $7.1 \times 494 = 840$ ).

$$n = \frac{z^2 \delta^2}{d^2} = \frac{(1.96)^2 (3.4)^2}{(0.3)^2} = 494$$

subjects were selected in a multi-stratified sampling method. At first, 7 counties were selected through simple randomization from the east, west, and center of the capital city of the province (including Bastak, Bandar Khamir,

Bandar Abbas, Hajiabad, Roudan, Boshakard, and Sirik). In each county, 120 questionnaires were distributed in 12 clusters (10 questionnaires in each cluster) corresponding to the constituent cities and villages. Finally, a convenient sampling method was used for male and female subjects separately in a convenient sampling method and, thus, the required sample was selected to enter the study.

**The inclusion criteria were:** Informed consent to take part in the study, 18–64-year-old and residents of Hormozgan Province. Those with problems such as psychological or perceptual disorders or poor eyesight were excluded. For ethical considerations, at the outset, all the required explanations were provided to subjects about the purpose and procedures of the study. The subjects were ensured of the confidentiality of the information they provided.

The data collection instrument was comprised of three sections. First section asked about demographic information and included 20 items. Second section was the standard test of functional health literacy in adults (TOFHLA), which is the most valid questionnaires to test literacy globally. It has been translated and validated in different languages (3). This questionnaire have two parts included a calculation and a reading comprehension part. The reading part evaluates one's ability to read real texts about healthcare issues based on 50 items. The calculation part involves explanations about the prescribed medications, appointment, process of asking for financial help, and medical tests. After providing these details on some cards, the respondents were asked to respond to 17 questions. Every respondent's health literacy score ranged between 0 and 100 and it was categorized as adequate (75-100), borderline (60-74), and inadequate (0-59). The cut-off points were 59 and 74, as suggested by a psychometrist.

Third section includes Health-Promoting Lifestyle Profile II questionnaire of Walker and Hill-Polerecky (13, 14). It was validated by karimi et al(15) in Persian. This questionnaire contains 34 questions in four dimensions of physical activity, health responsibility, nutrition, and stress management (16). This instrument consists of 52 statements, 6 sub-scales including spiritual growth (9 items), health self-responsibility (9 items), physical activity (8 items), nutrition (9 items), interpersonal relations (9 items), and stress management (8 items)(17). A subject's scores were compared to the mean score (score: 130). Thus, a score lower than 130 was interpreted as an inadequate and undesirable life style while a mean score estimated above 130 was considered as both desirable and adequate.

After data collection, the data entered SPSS version 23 and analyzed via descriptive and inferential statistics such as Chi-square test and one-way ANOVA. The significance level was set at  $p < 0.05$ .

This research was approved by the Ethics Committee of Hormozgan University of Medical Sciences (ID No: 960221, Ethics Code: IR.HUMS.REC.1398.159). The participants completed the questionnaires voluntarily, and their voluntary participation was appreciated on the first page of the questionnaire.

## Results

From the initial of the survey, response rate was 96%. Eight hundred twelve questionnaires out of the overall 840 questionnaires that had been submitted and they were finally analyzed. Some of the questionnaires were excluded due to defective information. In the present research, 332 subjects (40.9%) were male and 480 (59.1%) were female. The mean and standard deviation of subjects' age was  $30.6 \pm 8.2$  years. In the present research, 747 subjects (92%)

were local residents of Hormozgan Province, and 65 subjects (8%) were non-local. The most frequent level of education among the subjects was diploma (n=268, 33%), and bachelor's degree or higher (n=230, 28.3%). Among the subjects, 258 (31.8%) were single and 535 (64.9%) were married. In the present research, 282 subjects (34.7%) were housewives; 160 (19.7%) were employee or retired; 152 (18.7%) worked freelance; 90 subjects (11.1%) were school or university students; 54 subjects (6.7%) were unemployed. As for the socioeconomic status (SES), 140 subjects (17.1%) were a low SES, 659

(81.1%) with an average SES and 13 subjects (1.6%) had a high SES.

The mean health literacy score of the subjects was  $79.52 \pm 11.63$  (out of 100). The health literacy of 8.1% of subjects (n=66) was inadequate, 19.7% (n=160) were borderline, and 72.2% (n=586) were adequate. The mean and standard deviation of the overall score of health promotion behaviors was  $142.95 \pm 20.11$ . The minimum, maximum, mean and standard deviation of scores for different dimensions of health promotion behaviors are indicated in Table 1.

**Table 1. health literacy, health promotion behaviors and demographic variables**

Variable		Health literacy Mean $\pm$ SD	p-value	Health promotion behaviors Mean $\pm$ SD	p-value
Age	18-25	78.89 $\pm$ 11.07	<0.001	141.92 $\pm$ 19.33	0.329
	26-30	80.85 $\pm$ 11.33		144.91 $\pm$ 20.86	
	31-40	81.49 $\pm$ 10.89		142.56 $\pm$ 20.37	
	41-63	73.18 $\pm$ 13.04		141.60 $\pm$ 19.25	
Education	Elementary school	67.73 $\pm$ 13.72	<0.001	143.42 $\pm$ 16.72	0.275
	Junior high school	74.45 $\pm$ 11.32		139.82 $\pm$ 19.96	
	High school	78.00 $\pm$ 11.93		144.03 $\pm$ 22.67	
	Associate degree	81.43 $\pm$ 9.34		141.00 $\pm$ 19.44	
	Bachelor's and higher	83.87 $\pm$ 9.80		144.17 $\pm$ 18.37	
Job	Housewife	87.09 $\pm$ 11.93	<0.001	142.31 $\pm$ 20.95	<0.001
	Employee-retired	83.64 $\pm$ 9.74		148.36 $\pm$ 20.36	
	Freelance-unemployed-worker	87.50 $\pm$ 12.26		139.76 $\pm$ 19.79	
	School or university student	79.80 $\pm$ 10.16		145.00 $\pm$ 15.41	
socioeconomic status	Low	78.17 $\pm$ 12.96	<0.001	138.59 $\pm$ 21.89	.018
	Average	79.76 $\pm$ 11.29		144.27 $\pm$ 19.64	
	high	86.60 $\pm$ 5.60		144.47 $\pm$ 21.00	

The results also showed that the most frequent sources of searching information by the subjects were the Internet system (43.1%) and the health team (36.9%).

A statistically significant correlation was found

between health literacy and health promotion behaviors ( $r= 0.546$   $p=.031$ ). The correlation between health literacy, health promotion behaviors and demographic variables was indicated in Table 2.

**Table 2. Minimum, maximum, mean and standard deviation scores of all dimensions of health promoting behaviors**

Dimension	Self-actualization	Health self-responsibility	Physical activity	nutrition	Interpersonal relations	Stress management	Total life style
Mean (SD)	27.78 (5.38)	24.14(4.86)	17.40(5.44)	25.04(4.38)	26.85(4.44)	21.75(4.40)	142.95(20.11)
Minimum score	11	11	8	13	9	10	87
Maximum score	36	36	32	36	36	36	195

## Discussion

The present research aimed to explore the health literacy of people age from 18 to 64-year-old who residents of Hormozgan province and they referred to the healthcare centers. The findings revealed that 72.2% of Hormozgan residents had an adequate level of health literacy. The overall research findings of health literacy in Iran are neither desirable nor promising. As an instance, Tehrani Bani Hashemi et al. investigated health literacy in 5 Iranian provinces including Bushehr, Mazandaran, Kermanshah, Qazvin, and Tehran (one city and one village). They showed that 56.6% of the participants had an inadequate level of health literacy (5). Moreover, another national research by Tavousi et al., in 31 provinces showed that about 44% of the target population had a low level of health literacy (6). This difference might be due to the fact that the present research is conducted on health caregivers of health centers. It is maintained that individuals with a low level of health literacy have a lower awareness of health and receive less preventive services (18). The results revealed a statistically significant negative correlation between individuals' age and level of health literacy. In other words, a higher age was accompanied by a lower level of health literacy. This is consistent with the

findings reported by Safari et al(19) as well as another study. We found a statistically significant correlation between education and health literacy ( $p<0.001$ ). A statistically significant correlation was found between the academic years of studies and the level of health literacy. This is consistent with a body of research by Panahi et al(20). In the existing literature, education was also recognized as a key factor in health literacy(21).

As the present research showed, a statistically significant correlation was found between SES and the level of health literacy ( $p<0.001$ ). It seems that a high SES is positively and significantly correlated with health literacy. Thus, an increase in the SES is accompanied by a higher score of health literacy. This is consistent with the findings reported by Saatchi et al (22), who showed that an increase in family income was followed by an increasing in the level of health literacy. We also found a statistically significant correlation between job and health literacy, which is in line with Safari et al and Zarei et al(19, 23). A national study of health literacy in the U.S. showed that those who are functionally illiterate are more probably had low SES such as unemployed or holding unstable jobs (24). It makes sense that having a proper job followed by a better SES that

is associated with a higher mean score of health literacy. In the present research, no statistically significant correlation was found between gender and health literacy. There was a slight difference in the mean score of male and female health literacy, yet this difference was not statistically significant. A body of research has addressed the correlation between gender and health literacy; however, their results are still contradictory. Javadzadeh et al., found significant higher health literacy among men than women (25). A number of national and international studies found a higher level of health literacy in women (26). It seems differences in the level of health literacy between different genders could be due to the social and cultural differences among different ethnicities and different levels of education between men and women (27). The mean score of lifestyle and health promotion behaviors was 142.95 among Hormozgan residents, which is interpreted as desirable.

In the present research, the most frequent sub-scale was found to be self-actualization and the least frequent was physical activity. Similar findings were also reported by Motlagh et al (28). However, the potent cultural and religious background in Iran and less attention to sports and physical activity especially among women were not far from expectation (29).

We observed, no statistically significant correlation between the level of health promoting behaviors and gender. The mean score obtained by the male was slightly higher than the female; but difference was not statistically significant. This is in line with the research by Moradi and Shojaeizadeh (29). We found no significant correlation between healthy lifestyle and level of education. This was inconsistent with a body of research including Rastgar Yadaki (30). Similarly, Yarahmadi and Roustafound a slight correlation between the level of education and life style

(31). It was not beyond expectation that higher education further illuminates the significance of health, and encourages people to adopt health promotion behaviors (29). Besides, a statistically significant correlation was found between employment and lifestyle, which was divergent from the research findings reported by Rastgar Yadaki (30) and Yarahmadi and Roustafound (31).

In the present research, a significant correlation was found between a Health promotion behaviors and income, which is in contrast with Rastgar Yadaki (30) who reported a negative correlation. This difference seems to be due to the type of study and the target population. In general, income is related to health-promoting behaviors. People with higher incomes can get better nutrition and better primary health care. One study found that several factors may be associated with healthy and unhealthy lifestyles in low-income women and ethnic minorities, and that environmental stressors, such as exposure to violence, may have a significant effect on health-promoting behavior in these groups (32).

Besides, the present findings showed that the Internet (43.1%) and appealing to the healthcare team (36.9%) were the major sources of acquiring health information by the subjects. Similarly, Tavousi et al. showed that their target population acquired their health information firstly from radio and TV (42%) and secondly from asking physicians and health staff (40.6%) (6).

People with e-health literacy use more efficient web search strategies and are better able to identify high quality health information. Education and information for promoting e-health literacy is essential and helps better control and manage the spread of the disease. E-health literacy skills are a prerequisite for achieving accurate and quality information about healthcare in the information explosion of the digital age (33).

**Limitations:** limitation of the present research was the measurement of health literacy with questionnaires as the instrument. This questionnaire was more focused on the reading and calculation skills. Reading, writing and calculation comprise part of the basis of health literacy. Still, other skills are involved in the level of health literacy.

The strength of this research was that it was a pioneering study in Hormozgan Province to investigate health literacy and health promoting behaviors simultaneously. Thus, the present findings can provide useful information on health literacy and health promotion behaviors among Hormozgan residents for the authorities and decision-makers.

## Conclusion

The overall findings showed that the level of health literacy and health promoting behaviors among Hormozgan residents was desirable. However, people with the lower level of education and also the elderly did not have an adequate level of health literacy. As these are the most vulnerable social groups, it is essential for the national health system to pay closer attention to health education and promotion via unpublished media, which are truly effective in conveying health messages for people with the level of lower functional literacy. Considering the low score of physical activity and stress management, it is essential to implement appropriate educational interventions with a focus on promoting these behaviors in society.

As the results revealed, the subjects acquired their health information basically from the internet and then from the health team. Considering the extensive use of the Internet in Iran, all sectors should actively cooperate in awareness-raising and distributing health information, in response to the target population's that needs

and potentials to promote health literacy and health promotion behaviors. All members of society should cooperate to develop simple and understandable educational media to help promote individual's health in society.

**Acknowledgements:** The present authors wish to express their gratitude to all participants of this study and all others who wholeheartedly contributed to the conduction of this research.

**Funding:** This study received financial support from the Deputy of Research of Hormozgan University of Medical Sciences (grant No.: 960221). The study design, data collection, and data analysis were developed independently of the funder.

**Conflict of interest:** The authors declare that they have no Conflict of interest.

## Reference

- Shahbazi M, Mortazavi Z, Nazemi Z, Ezzati- Rastegar K, Mortazavi S-s. The Health Literacy of Employees in Educational-Rehabilitation Centers Affiliated to The Welfare Organization. *Journal of Health Literacy*. 2021;5(4):48-55.
- Charoghchian Khorasani E, Tavakoly Sany SB, Tehrani H, Doosti H, Peyman N. Review of Organizational Health Literacy Practice at Health Care Centers: Outcomes, Barriers and Facilitators. *International journal of environmental research and public health*. 2020;17(20):7544. <https://doi.org/10.3390/ijerph17207544>
- Khosravi A, Ahmadzadeh K. Investigating health literacy Level of patients referred to Bushehr hospitals and recognizing its effective factors. *Iranian South Medical Journal*. 2016;18(6):1245-53.
- Kickbusch I. Health literacy: an essential skill for the twenty-first century. *Health Education*. 2008;108(2):101-104. <https://doi.org/10.1108/09654280810855559>
- Tehrani Banihashemi S-A, Haghdoost AA, Amirkhani MA, 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.
- Tavousi M, Ebadi M, Fattahi E, Jahangiry L, Hashemi A, Hashemiparast M, et al. Health literacy measures: A systematic review of the literature. *Payesh (Health Monitor)*. 2015;14(4):485-96.
- Smith SK, Dixon A, Trevena L, Nutbeam D, McCaffery KJ. Exploring patient involvement in healthcare decision making across different education and functional health literacy groups. *Social science & medicine*. 2009;69(12):1805-12.

- <https://doi.org/10.1016/j.socscimed.2009.09.056>
8. Khosravi M, Saemi H, Hosseinaei A, Bayani aA. Identifying the Components of a Healthy Lifestyle with Emphasis on Adolescence: A Qualitative Study. *Iranian Journal of Health Education and Health Promotion*. 2021;9(1):80-93.. <https://doi.org/10.52547/ijhehp.9.1.80>
  9. Baheiraei A, Mirghafourvand M, Charandabi SM-A, Mohammadi E, Nedjat S. Health-promoting behaviors and social support in Iranian women of reproductive age: a sequential explanatory mixed methods study. *International journal of public health*. 2014;59(3):465-73. <https://doi.org/10.1007/s00038-013-0513-y>
  10. Myers RE. Promoting healthy behaviors: How do we get the message across? *International journal of nursing studies*. 2010;47(4):500-12. <https://doi.org/10.1016/j.ijnurstu.2009.11.017>
  11. Yamamoto K, Okazaki A, Ohmori S. The relationship between psychosocial stress, age, BMI, CRP, lifestyle, and the metabolic syndrome in apparently healthy subjects. *Journal of physiological anthropology*. 2011;30(1):15-22. <https://doi.org/10.2114/jpa2.30.15>
  12. Dalvandi A, Maddah SSB, Khankeh H, Parvaneh S, Bahrami F, Hesam Zadeh A, et al. The health-oriented lifestyle in Islamic culture. *Journal of Qualitative Research in Health Sciences*. 2020;1(4):332-43.
  13. Walker S, Hill-Polerecky D. Psychometric evaluation of the health-promoting lifestyle profile II. Unpublished manuscript, University of Nebraska Medical Center. 1996;13:120-6.
  14. Karimi N, Saadat-Gharin S, Tol A, Sadeghi R, Yaseri M, Mohebbi B. A problem-based learning health literacy intervention program on improving health-promoting behaviors among girl students. *Journal of education and health promotion*. 2019;8:251-.
  15. Karimi N, Saadat-Gharin S, Tol A, Sadeghi R, Yaseri M, Mohebbi B. A problem-based learning health literacy intervention program on improving health-promoting behaviors among girl students. *Journal of education and health promotion*. 2019;8.
  16. Rahmanian M, Ghaffari Targhi M. A survey on health literacy of referred diabetic patients to Yazd diabetes research center. *Toloebehdasht*. 2016;15(3):176-86.
  17. Seyedoshohadaee M, Barasteh S, Jalalinia F, Eghbali M, Nezami M. The relationship between health literacy and self-care behaviors in patients with type 2 diabetes. *Iranian Journal of Nursing Research*. 2016;10(4):43-51.
  18. 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 Medicine: Basic and Clinical Research Journal*. 2020;19(6):1-12.
  19. Safari Morad Abadi A, Agha Molaei T, Ramezankhani A, Dadipoor S. The Health Literacy of Pregnant Women in Bandar Abbas, Iran. *Journal of School of Public Health and Institute of Public Health Research*. 2017;15(2):121-32.
  20. Panahi R, Osmani F, Sahraei M, Ebrahimi S, Shamsizadeh Nehadghashti M, Javanmardi E. Relationship of health literacy and quality of life in adults residing in Karaj, Iran. *J Educ Community Health*. 2018;4(4):13-9. <https://doi.org/10.21859/jech.4.4.13>
  21. Tehrani H, Olyani S. The Effect of an Education Intervention on Mental Health Literacy among Middle School Female Students. *Journal of Health Literacy*. 2021;5(4):41-7.
  22. Saatchi M, Panahi M, Ashraf Mozafari A, Sahebkar M, Azarpakan A, Baigi V, et al. Health literacy and its associated factors: A population-based study, Hormuz Island. *Iranian Journal of Epidemiology*. 2017;13(2):136-44.
  23. Zaree F, Karimi F, Mohseni S, Mdani S, Dadipoor S, Mdani AH. Health literacy of pregnant women and some related factors in pregnant women referred to Minab health centers. *Journal of Preventive Medicine*. 2017;4(2):40-6.
  24. Aghamolaei T, Hosseini Z, Hosseini F, Ghanbarnejad A. The relationship between health literacy and health promoting behaviors in students. *Journal of Preventive Medicine*. 2016;3(2):0-.
  25. Javadzade H. Health literacy among adults of Isfahan, Iran. 2013.
  26. Jovic-Vranes A, Bjegovic-Mikanovic V, Marinkovic J. Functional health literacy among primary health-care patients: data from the Belgrade pilot study. *Journal of public Health*. 2009;31(4):490-5. <https://doi.org/10.1093/pubmed/udp049>
  27. Carthery-Goulart MT, Anghinah R, Areza-Fegyveres R, Bahia VS, Brucki SMD, Damin A, et al. Performance of a Brazilian population on the test of functional health literacy in adults. *Revista de Saúde Pública*. 2009;43(4):631-8. <https://doi.org/10.1590/S0034-89102009005000031>
  28. motlagh Z, Mazloomi-Mahmoodabad S, momayyezi M. Study of Health-promotion behaviors among university of medical science students. *Zahedan J Res Med Sci*. 2011;13(4):e93999.
  29. Moradi A, Shojaizade D. A Survey on Healthy Lifestyle of Health Care Workers in Andimeshk. *Toloebehdasht*. 2016;14(5):38-49.
  30. Rastegar M, Zendehtalab H, Yavari M, Mazlom S. Health-promoting lifestyle and its related factors among health volunteers Mashhad in 2015. *Journal of Torbat Heydariyeh University of Medical Sciences*. 2015;3(3):55-48.
  31. Yarahmadi A, Roustaf F. Health-promoting lifestyle of women in pragnancing age. *J Women Develop and policy*. 2014;11(4):543-58.
  32. Sanders-Phillips K. Correlates of Health Promotion Behaviors in Low-Income Black Women and Latinas. *American Journal of Preventive Medicine*. 1996;12(6):450-8. [https://doi.org/10.1016/S0749-3797\(18\)30267-8](https://doi.org/10.1016/S0749-3797(18)30267-8)
  33. Dastani M. E-Health Literacy: A Skill Needed in the Coronavirus Outbreak Crisis. *Health Technology Assessment in Action*. 2020;4(1). <https://doi.org/10.18502/htaa.v4i1.5861>