Relationship between health literacy and lifestyle of patients at risk and with chronic obstructive pulmonary disease

ABSTRACT

Background and Objective: Chronic Obstructive Pulmonary Disease (COPD) is one of the most important progressive pulmonary disorders. The aim of this study was to investigate the relationship between health literacy and lifestyle in patients at risk and with chronic obstructive pulmonary disease.

Materials and Methods: In this descriptive-analytical study, 224 patients referred to Allameh Bohlool Gonabad Hospital participated. Sampling was carried out in an easy method and the data were measured by form of demographic information, Health Literacy of Iranian Adults (HELIA) and Miller & Smith Life Style standard questionnaires. Data were analyzed using SPSS version 20 and inferential statistics, chi-square, Mann-Whitney, Kruskal-Wallis and Spearman correlation coefficient.

Results: The mean of health literacy score in patients with and at risk was 109.32 ± 26.60 and 78.69 ± 29.70, respectively. The mean of life style score in patients with and at risk was 56.29 ± 9.50 and 51.41 ± 11.57, respectively. The findings showed low health literacy especially in reading skill dimension and sick life style. Significant relationships were found between health literacy and lifestyle (P=0.00, r=0.58).

Conclusion: Health literacy scores were higher in patients with chronic obstructive pulmonary disease and lower lifestyle. Therefore, just by raising the awareness of patients cannot be achieved a healthy lifestyle and further action is needed.

Paper Type: Research Article

Keywords: Health Literacy, Lifestyle, Patients, Chronic Obstructive Pulmonary Disease.

Maryam Eshghizadeh
Department of Pediatrics, Faculty of Nursing, Social Development & Health Promotion Research Center, Gonabad University of Medical Sciences, Gonabad, Iran.

Ali Delshad Noughabi
Department of Community and Mental Health, Faculty of Nursing, Social Development & Health Promotion Research Center, Gonabad University of Medical Sciences, Gonabad, Iran

Sara Akbari
Student Research Committee, Gonabad University of Medical Sciences, Gonabad, Iran.

Fatemeh Majidi
Student Research Committee, Gonabad University of Medical Sciences, Gonabad, Iran.

Fatemeh Khalili
*. Student Research Committee, Gonabad University of Medical Sciences, Gonabad, Iran. (Corresponding Author): E-mail: f.khalili.925@gmail.com

62

Introduction

Nowadays, pulmonary diseases become one of the most important leading causes of morbidity and mortality in the modern world. Chronic obstructive pulmonary disease (COPD) is one of the most important diseases which lead to disability and mortality (1, 2). According to the estimates of world association, at 2020, COPD is transformed from sixth grade of common causes of death globally to the third grade (3, 4). COPD is a phrase for patients with chronic bronchitis or emphysema, and the obstruction in their airways is confirmed based on spirometry. COPD is an irreversible disease and is characterized by limitations in airflow. On average, 10% of Iranians are affected by the disease (5). Genetic and environmental factors such as tobacco use, inhalation of tobacco smoke inactively, air pollution, old age, occupational factors and defect in alpha-1 antitrypsin enzyme are involved in the incidence of the disease. The most important dangerous factor for these patients is using tobacco (3, 4). Dyspnea is one of the common symptoms in the patients (3, 6). Due to progressiveness and chronic lung dysfunction caused by disease and symptoms of pulmonary aggregations, these patients experience gradual decline of health status during lifespan, and their social life, physical performance and daily activities are impaired repeatedly (7).

Modern health systems are growingly emphasizing management of health in individuals by themselves. Ability of doing this work requires literacy skill of patients to perceive information of health literacy. Therefore, conception of health literacy was developed (8). Health literacy consists of a set of skills of reading, listening, analysis, deciding and ability of applying these skills in health situations, which is not necessarily referred to the years of education or general reading ability (9-11). World health organization introduces health literacy as one of the biggest determinants of health domain, and recommends countries all around the world to establish an association to follow and coordinate strategic activities regarding promotion of level of health literacy (9-13).

Health literacy is an important element in ability of individuals to cooperate in activities related to health and treatment decision makings as well as their ability t prevent diseases (8). It is claimed that insufficient health literacy is associated with poor self-report on health, lower health knowledge, lesser cooperation in treatment decision-makings, and poor correlations among physician and patient. On the other hand, health care givers are not aware of health literacy and reading ability of patients, and only confine to health information (8). Patients with low health literacy are more hospitalized in hospital and also for the longer durations comparing to those with sufficient health literacy. Patients with insufficient health literacy seek for treatment when their problems have become critical. Therefore, identifying factors effective in health is of most important. In addition to health literacy, lifestyle is one of the factors important and effective in health (14).

Prevention of diseases and promotion of health literacy of the people are always considered by the health system. Individual's lifestyle is closely associated with his/her health, so that healthy lifestyle promotes health status of the individual.

The individual by selecting lifestyle to preserve and promote his/her health level and prevent diseases perform attempts and activities which make up this lifestyle set (15).

Lifestyle is daily and usual activity according to the description of WHO which the individuals accept it in their lives; These activities affect

63

The association among health literacy and lifestyle of patients at ...

individual's health. Lifestyle is a combination of behavioral pattern and individualized habits through life including nutrition, physical activity, stress, tobacco use and sleep quality which is established through socializing. Since lifestyle is an effective factor in health, and constructs more than half of the determinants of health of the human, therefore, health status and lifestyle are closely associated together (16). Nowadays, in medicine of lifestyle to treat chronic diseases, instead of concentrations on disease symptoms which are external manifestations of the issue, it is tried to investigate the leading cause of the disease in her/his lifestyle (17).

Health literacy might affect lifestyle which is a set of elective behaviors, and some studies showed that individuals with sufficient health literacy are less diseased.

Positive and negative importance and outcomes of health literacy on lifestyle attracts the attention of the authorities and policy-makers of health system in Iran, so that these two components are considered as the priorities of health ministry, and in the visionary program of the training and promoting office of Iran at 2025, the first priority is going to be allocated to increase health literacy and the second priority to the lifestyle (14).

Therefore, due to importance of health literacy of patients with chronic disease as well as limitations of studies conducted in this regard in the country, and also lack of study in order to investigate health literacy of patients with COPD at Gonabad, the current study aimed to determine association of health literacy and lifestyle of the patients at risk or with COPD.

Materials and Methods

The current study is a descriptive-analytical study conducted on 224 patients (112 patients with COPD, and 112 patients at risk) hospitalized in Alame Bohlul Hospital of Gonabad at 2017. The participants were selected through convenient sampling method from the study population.

Inclusion criteria for entering the study in patients with COPD were as follow: COPD diagnosed by the physician, lack of mental and conceptual disorders, talking ability to respond the questions, hospitalization in Alame Bohloul Hospital of Gonabad, tendency to participate in the study, and patients at risk include: history of tobacco or hookah use, presence of asthma and recurrent pulmonary infections, high-risk jobs and exposing to dusts as agriculture, building worker, and ..., hospitalization at Alame Bohloul hospital of Gonabad, and being willingness to participate in the study.

Exclusion criteria include: patients with cognitive problems or functional disability, and incomplete filling the questionnaires.

Data gathering tool was a questionnaire consisting of three parts, demographic properties form, questions related to health literacy and questions related to lifestyle.

Demographic characteristics form include information such as age, gender, habitat, educational level, marital status, employment status, type of work, economic status, history of tobacco use, history of pulmonary diseases, physical activity level, resource of health and disease information.

Health Literacy for Iranian Adults (HELIA) was designed at 2014 by Montazeri et al which consists 33 items in 5 access dimensions (6 items), reading skill (4 items), conception (7 items), assessment (4 items), and decision making dimension, and health information application (12 items) (18).The power of this tool is its generality which is not belonged to any specific stratum, occupation, educational level, age group or any other limitations, and can be applied for all various groups of population,

and identifies level of health literacy.

Content validity of this questionnaire and its reliability was confirmed using retest method by Cronbach's alpha greater than 0.7 in the study by Montazeri et al (18). Criteria of evaluation of health literacy was set based on Likert scale so that the study population stated their opinions as (always 1, often 2, sometimes 3, rarely 4, never 5) and (absolutely easy, easy 2, difficult 3, absolutely difficult 4, not easy and not difficult 5) (18).

Miller-Smith lifestyle assessment inventory consists of 20 questions and each question includes 5 responses (always=1, often=2, sometimes=3, rarely=4, never=5), and the higher scores represent undesirable and unhealthy lifestyle. Score of 20-45 represents healthy lifestyle, score of 46-75 represents moderate lifestyle, and score of 76-100 represents unhealthy lifestyle. Validity of the questionnaire after translation was confirmed through re-translation by faculty members of Isfahan University of Medical Sciences. Its reliability in the pilot study on 20 patients with pulmonary disease was 0.86 and Cronbach's alpha of the questions was greater than 0.5 (17).

After obtaining required licenses from the research deputy of Gonabad University of Medical Sciences and providing required explanations and obtaining written informed consent to participate in the study, the questionnaires were provided to the participants.

In cases which individuals were not able to fill out the questionnaire due to illiteracy, the researcher read the questions for them and records their responses in the questionnaire without any manipulation. In addition, the current study obtained the approval from the local ethical committee (ethical code: IR.GMU. REC.1395.99).

Data was analyzed using descriptive indices and statistical tests of chi-square, Mann-Whitney, Kruskal-Wallis and Spearman correlation coefficient through SPSS software version 20 and at the significance level less than 0.05.

Results

In this study, 112 patients with COPD and 112 patients at risk of the disease were studied with mean age of 69.59 ± 14.51 and 49.11 ± 17.47 years old, respectively. The resource of health and disease information of 66.4% of patients with COPD and 41.1% of patients at risk was medical team. 55.8% of patients with COPD and 27.7% of patients at risk had no physical activity. 54.9% of patients with COPD had history of cigarette and hookah use, and 26.8% of patients at risk had history of hookah use which a significant difference was observed among these two groups (P=0.00). Demographic characteristics of patients in two groups are shown in table 1.

Mean lifestyle score of the patients with COPD and those at risk was 56.9±29.50 and 51.41±11.57 years old and was at the moderate level. The mean of lifestyle score in patients with COPD was the highest. In addition, a significant association was observed among the two groups (P=0.001). Comparison of mean and standard deviation of health literacy score and its dimensions is shown in table 2, which significant association was observed among the two groups in health literacy score and its dimension (P=0.02).

Kruskal-Wallis test showed that mean health literacy and lifestyle score was significantly associated with educational level and marital status in two groups (P=0.00).

Health literacy in single individuals, widow, and divorcee was higher, but they had poorer lifestyle. Health literacy score in individuals with low educational level was higher, but they had poorer lifestyle. Mann-Whitney test showed

**Table 1: Demographic characteristics of Patients
with COPD and Patients at risk**

Variables	Patients with COPD		Patients at risk		Chi-square
	N	%	N	%	
Gender Female Male	55 57	48.7 51.3	26 86	23.2 76.8	P =0.00
Habitat City Village	69 43	61.1 38.9	86 26	76.8 23.2	P =0.014
Marital status Single Married Widow divorced	2 89 20 1	1.8 78.8 18.6 0.9	5 94 12 1	4.5 83.9 10.7 0.9	P =0.27
Education Illiterate Primary intermediate High school College education	60 30 5 8 9	53.1 27.4 404 7.1 8	23 22 23 24 20	20.5 19.6 20.5 21.4 17.9	P =0.00
Economic situation Good Medium Weak	7 63 42	6.2 55.8 38.1	10 62 40	8.9 55.4 35.7	P =0.27
Employment status Housewife Employed Retired	54 18 40	47.8 15.9 36.3	21 79 12	18.8 70.5 10.7	P =0.00

**Table 2: Mean of health literacy score and its dimensions Patients
with COPD and Patients at risk**

Dimensions of health literacy	Patients with COPD	Patients at risk	Chi-square
	Mean ± SD	Mean ± SD	
Access	22.56±5.82	16.75±7.12	P=0.00
Reading skills	13.76±4.01	10.87±4.69	P=0.00
Understanding	22.58±8.18	16.79±8.01	P=0.001
Assessment	14.81±4.33	11.02±4.34	P=0.001
Decision Making and Using health information	8.11±35.59	23.24±9.78	P=0.036
Total Health Literacy	109.32±26.60	87.69±29.70	P=0.023

a significant difference among health literacy score and gender in the group of COPD (P=0.00).

In both groups, health literacy was higher in women, however the lifestyle was lower.

In addition, the findings showed a significant relationship among health literacy and habitat in two groups (p=0.00).

In two groups, lifestyle in village was poorer, but the health literacy was higher (table 3). According to the results of Spearman correlation coefficient test, there was a significant association among scores of health literacy and lifestyle in two groups (P=0.00, r=0.58)

Table 3: Relationship between health literacy, lifestyle and demographic in Patients with COPD and Patients at risk

Variables		Patients with COPD		Patients at risk	
		P-value (Health Literacy)	P-value (Life Style)	P-value (Health Literacy)	P-value (Life Style)
Kruskal-Wallis	Education	0.00	0.00	0.00	0.00
	Marital status	0.00	0.00	0.00	0.02
Mann-Whitney	Gender	0.00	0.28	0.07	0.36
	Habitat	0.00	0.20	0.00	0.01

Discussion

This study aimed to investigate association among health literacy and lifestyle of patients at risk and with COPD. In this study, health literacy score of patients with COPD comparing to patients at risk of the disease was higher, which shows more educations and considering outcomes and issues of the disease for them, which consequently, the patients increase their knowledge on disease, various issues and aspects of it, and try to control it. However, they had poorer lifestyle comparing to the group at risk.

Findings of the current study showed a significant inverse association among health literacy and educational level in both groups.

This finding is inconsistent with the findings of some researchers (9, 14, 19, 20, 21) and research findings which is done by the core of American health care strategies.

This difference might be due to illiteracy of most of the patients of this study, since they see themselves at risk of various diseases and become more sensitive on their health, and tend to more learning on health issues and

health literacy.

The results also showed that married individuals had poorer healthy literacy comparing to single ones. This difference might be the result of age and educational level.

Since, single individuals were younger and had higher educational level and this can lead to more precise responses to the questions. The findings of the study by Molakhalili et al were in line with the current study in this regard (9).

Additionally, the findings of the current study showed that health literacy is significantly correlated to habitat. So that rural habitats had higher health literacy. The findings by Molakhalili et al in this regard were inconsistent with the above study.

This might be due to that in the study by Molakhalili the concept of habitat is not thoroughly definite regarding being rural or urban and the classification was for being habitat at one of the centers at Isfahan, the cities around Isfahan and/or other cities and provinces. The patients were mostly habitat of various cities,

67

The association among health literacy and lifestyle of patients at ...

not village, and therefore, no difference was observed for health literacy level of them. While, in the current study the meaning of habitat was the difference of city and village (9).

In the current study, lifestyle score of patients with COPD comparing to the patients at risk of this disease was higher, which shows their unhealthy lifestyle (inappropriate sleep, lack of appropriate physical activity, cigarette use, impaired social relation, and ...).In the study by Rouhafza et al aimed to investigate association of lifestyle and COPD, the results showed that score of lifestyle of the patients with COPD comparing to healthy individuals was higher and shows unhealthy lifestyle, which was in line with the current study (17).In one study in Spain, a direct association among COPD and lifestyle was achieved and showed that inappropriate lifestyle can be one of the major causes of re-hospitalization of patients with COPD. In the study by Mymerich Garcia performed on risk factors and causes of hospitalization of patients with COPD, the inappropriate lifestyle is among the factors effective in hospitalization of patients with COPD. By emphasizing of many studies on the effect of lifestyle on chronic pulmonary disease, it seems that improvement of lifestyle should be considered in treatment programs of the theses patients, so that, in the study at 2000 in England, it was identified that in primary care of patients with chronic pulmonary diseases, the modification of lifestyle should be considered. Even, researchers of Harvard know assessment of lifestyle of the patients with COPD effective in treatment decision making and rehabilitation of these patients (17).

Findings of the current study showed a significant association among score of lifestyle and educational level in both groups so that, increase in educational level improves and promotes lifestyle, which the findings of the study by Rezaei et al in this regard were in line with the current study (19).

The findings of the current study showed a significant association among health literacy and lifestyle in each of the two groups. Due to method of scoring of lifestyle tool, the results in this study means that the higher the health literacy score the more the lifestyle score, and increase in lifestyle score means having unhealthy lifestyle, indicating that if the health literacy of individuals is increased but they do not act based on their taught.

The results of the study by Rezaei et al also showed that increase in health literacy promote lifestyle which was in line with our study (19).

In addition, the findings of the current study showed that physicians are the most important information source. This indicates that patients trust in physician's knowledge regarding their disease, therefore, they prefer to use physicians as the first source of receiving information through face-to-face visit. The results of the study by Rezaei et al in this regard were in line with our findings (19).

One of the limitations of this study is convenient sampling method, and one of the strengths of the study was the two groups of patients with COPD and those at risk of COPD.

Conclusion

Due to the findings of the study, health literacy score in patients with COPD was higher, but the lifestyle score was lower, and the group at risk had better lifestyle.

Therefore, it can be concluded that there is a need to provide cares which can modify lifestyle of these individuals rather than performing attempts in order to increase awareness of these patients. In this regard, it is recommended to perform studies on modifying lifestyle of the patients with COPD, to use their results for resolving the problems of the patients.

References

1. Jokar Z, Mohammadi F, Khankeh HR, Fallah Tafti S, Koushesh F. Comparing Home-based Pulmonary Rehabilitation Nursing on Fatigue and quality of life in Patients with COPD. J Fasa Uni Med Sci. 2014; 4(2): 168-176.

2. Jingjuan XU, Shengnan He, Ying Han, Jingya Pan, Ling Cao. Effects of modified pulmonary rehabilitation on patients with moderate to severe chronic obstructive pulmonary disease: A randomized controlled trail. Int J Nurs Sci. 2017; 4(3): 219-224. DOI: 10.1016/j.ijnss.2017.06.011 https://doi.org/10.1016/j.ijnss.2017.06.011 PMid:31406744 PMCid:PMC6626181

3. Ghanbari A, Shirmohammadi N, Paryad E, Kazemnejad Leily E. Predictors of fatigue in patients with chronic obstructive pulmonary disease. J Knowledge & Health. 2016; 11(3): 25-31. https://doi.org/10.22100/jkh.v11i3.1348

4. Amini M, Gholami M, Abed Natanzi H, Shakeri N, Haddad HR. Effect of diaphragmatic respiratory training on some pulmonary indexes in older people with chronic obstructive pulmonary disease. Salmand: Iranian Journal of Ageing. 2019; 14(3): 332-341. DOI: 10.32598/sija.13.10.330 https://doi.org/10.32598/sija.13.10.330

5. Vali L, Mirshekari N, Saeedi Far A, Ghorbani Nia R, Abbaszadeh S. A Survey on the Health Status of Patients with Chronic Obstructive Pulmonary Disease (COPD) in Kerman in 2016. J Military Medicine. 2018; 20(4): 391-401.

6. Jani MR, Razm Ara MR, Barzegari Esfeden Z, Moudi A, Jamshidi A, Ayoobi R, Davari MR. Effect of educational film on quality of life on patients with chronic obstructive pulmonary disease (COPD). J sabzevar Uni Med Sci. 2019; 26(1): 35-43.

7. Masroor Roodsari DD, Rafii F, Fadaeeaghdam N, Hoseini AF. Health-Related Quality of Life in Patients with Chronic Obstructive Pulmonary Disease. Iran Journal of Nursing (IJN). 2012; 25(76): 19-27.

8. Khosravi A, Ahmadzadeh Kh. Investigating health literacy Level of patients referred to Bushehr hospitals and recognizing its effective factors. South Med. Bushehr Uni Med Sci. 2015; 18(6): 1245-1253.

9. Khaleghi M, Amin Shokravi F, Peyman N. The Relationship Between Health Literacy and Health-Related Quality of Life in Students. Iranian Journal of Health Education and Health Promotion. 2019;7(1):66-73. https://doi.org/10.30699/ijhehp.7.1.66

10. 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

11. Carollo S. Low health literacy in older women: the influence of patient-clinician relationships. Geriatr Nurs. 2015; 36(2): 38-42. DOI: 10.1016/j.gerinurse.2015.02.017 PMID: 25858518. https://doi.org/10.1016/j.gerinurse.2015.02.017 PMid:25858518

12. Sarpooshi Robat D, Tavakoly Sany SB, Alizadeh Siuki H, Peyman N. Assessment of Health Literacy Studies in Iran: Systematic Review. J sabzevar Uni Med Sci. 2019; 25(6): 793-807.

13. Arabi H, Suleimanpour Omran M. The relationship between health literacy and health promoting lifestyle and environmental behavior. J of Social and Cultural Development Studies. 2018; 6(4): 191-216.

14. Sajjadi H, Hosseinpour N, Sharifian Sani M, Mahmoodi Z. Association between health literacy and style in married rural woman in Izeh, Iran. Journal of Health. 2016; 7(4): 479-489.

15. Soleimani Moghadam R, Mohammadi S, Kargar Kakhki N, Mohammadi M, Ghadimifar A, Ahmadnejad A, and et al. Evaluation the Predictors in Patients with Cardiovascular disease based on walker health-promoting lifestyle. Iran J Diabetes and Metabolism. 2018; 17(3): 157-164.

16. Fallah Mehrabadi E, Pakgohar M, Asadi S, Haghani H. Lifestyle of people with osteoporosis and its related factors. Iranian Journal of Ageing. 2017; 12(2): 132-145. DOI: 10.21859/sija-1202132 https://doi.org/10.21859/sija-1202132

17. Roohafza H, Akochakian SH, Sadeghi M, Fardmoosavi A, Khairabadi Gh.R, Ghasemi Tehrani H. Investigating the relation between lifestyle and chronic obstructive pulmonary disease. Med J Gilan Uni Med Sci. 2006; 15(59): 32-37.

18. Montazeri A, Tavousi M, Rakhshani F, Azin SA, Jahangiri k, Ebadi M, and et al. Health Literacy for Iranian Adults (HELIA): development and psychometric properties. Payesh J. 2014; 13(5): 589-599.

19. Rezaee N, Seraji M. Relationship between health literacy and lifestyle in patients with heart failure. J Health Literacy. 2018; 3(3): 26-32. DOI: 10.22038/JHL.2018.34916.1013

20. Lee S.D, Tsai T, Tsai Y, Kuo K. N. Health Literacy, Health Status, and Healthcare Utilization of Taiwanese Adults: Results from a National Survey. BMC Public Health 2010; 10(614): 1-8. DOI: 10.1186/1471-2458-10-614 https://doi.org/10.1186/1471-2458-10-614 PMid:20950479 PMCid:PMC2967535

21. Nekoei-Moghadam M, Parva S, Amiresmaili M, Baneshi M. Health Literacy and Utilization of health Services in Kerman urban Area 2011. Tolue Behdasht Journal 2012; 11(4): 123-134.