ORIGINAL ARTICLE

Health Literacy, Awareness and Self-Efficacy among Cardiovascular Patients Visiting Medical Centers of Shahr-e Kord

Masoumeh Alidosti[1], Elahe Tavassoli[2], Akbar Babaei Heydarabadi[3], Mahnoush Reisi[4]

[1] Department of Public Health, Behbahan Faculty of Medical Sciences, Behbahan, Iran
[2] Social Determinants of Health Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran
[3] Social Determinant of Health Research Center, Health Education and Health Promotion Department, Faculty of Health, Ahvaz Jundishapur Uniyersity of Medical Scinces, Ahvaz, Iran
[4] Department of Health Education and Health Promotion, Bushehr University of Medical Sciences, Bushehr, Iran

ABSTRACT

Introduction: Considering the importance of self-efficacy and since inadequate health literacy can be a serious barrier to the participation and ultimately affect the health of patients. The present research aimed to study the health literacy of cardiovascular patients and its relationship with awareness and self-efficacy. **Methods:** This research was a descriptive and cross-sectional study which was conducted on 138 cardiovascular patients visiting medical centers of Shahr-e Kord in 2016. The participants were selected using simple random sampling. To assess the health literacy of the participants, TOFHLA was used. The self-efficacy standard questionnaire was applied to measure the self-efficacy of participants. The obtained data were statistically analyzed using descriptive and analytical tests in SPSS-18. Participation in the present study was voluntary. **Results:** The mean age of participants was equal to 48.59±19.05. Based on the results, 64, 13 and 61 patients had an inadequate, marginal, and adequate level of health literacy, respectively. The mean score of awareness was 68.14±21.68 and the mean score of self-efficacy was obtained 37.90±32.65. There is a direct and significant relationship between awareness, self-efficacy, and health literacy (p=0.000), and awareness is a suitable predictor of health literacy. **Conclusion:** it is necessary to measure the health literacy and the relevant skills in patients before providing information to them in medical centers. Then, commensurate with their level of information, training programs should be planned to empower patients and increase their self-efficacy, so that they can achieve correct health information.

Keywords: Cardiovascular patients, Awareness, Health, Health literacy, Self-Efficacy

Corresponding Author:
Elahe Tavassoli, PhD
Email: tavassoli.eb@gmail.com
Tel: +989132806883

INTRODUCTION

Cardiovascular diseases are considered one of the major health problems and the main cause of death (1) and disability (2) in all societies. Based on statistics, the death rate from these diseases is very high (3), as cardiovascular diseases, with a prevalence of 25-45%, are the first cause of death and the fifth cause of disability in the world (4).

According to the World Health Organization (WHO), at least 15 million deaths from cardiovascular diseases annually occur around the world, accounting for 30% of all deaths (5). In poor countries or those with moderate economic status, about 80% of deaths are due to these diseases (4). The per capita cost of treatment for coronary

artery diseases in England is about 6.1 pounds. The annual cost of hospital care for this disease accounts for 55% of total costs (4), as about $ 315 million was spent on these diseases, which is expected to reach $ 818 billion by 2030 (6).

Gresh et al. reported that cardiovascular diseases are the cause of 35.65% of all deaths in the Middle East (7). In Iran, cardiovascular diseases are also the first and most common cause of death (8).

Cardiovascular diseases are associated with adjustable and non-adjustable factors such as old age, hypertension, diabetes, familial history, obesity, insufficient mobility, smoking, the tendency to consuming high-calorie and nutritionally low-value food items, and stress (3, 4, 9).

Various studies in Iran show the high prevalence of cardiovascular risk factors among Iranians (10, 11). Low awareness of predisposing factors leads to the lack of observance of a healthy lifestyle and thus the increased

risk of developing or progressing cardiovascular diseases (12). This emphasizes the significance of changing the lifestyle aspects in the prevention of cardiovascular disease. It is noteworthy that the recognition of individuals is a prerequisite for lifestyle correction (13).

Awareness about a disease is one of the important factors in determining health behaviors. A higher level of awareness leads to a shift from an unhealthy to a healthy lifestyle and improved health behaviors (14). People's awareness of the causes of cardiovascular diseases leads to observing preventive behaviors and reduces the disease incidence and its treatment costs (15). On the other hand, health literacy is one of the major issues that can affect patients with chronic diseases and their knowledge of their illness. Health literacy refers to the ability to obtain, read, understand, and use healthcare information in order to make appropriate health decisions and follow the instructions for treatment (16). Nowadays, health literacy is recognized as a vital indicator of the healthcare outcomes and costs (17). In developed countries like the US, about 90 million people have a limited health literacy (17), which leads to increased hospitalization rate and use of emergency services (18,19).

Studies have shown that the low level of health literacy has considerable effects on patients' behavior and will bring unpleasant consequences (20, 21). The results of studies indicated that inadequate health literacy is associated with poorer health status (21, 22), the higher rate of hospitalization (21, 23), and doubled mortality rate (24). In addition, self-efficacy is an important prerequisite for behavior. Self-efficacy affects one's motivation and encourage him/her to continue the desired behavior (25). Defined as one's belief in one's ability to succeed in specific situations or to accomplish a task (26), self-efficacy can enable a person to adopt health-promoting behaviors and quit harmful ones. Hence, understanding of self-efficacy can help to maintain and improve health-promoting behaviors (27). Low self-efficacy can lead people to believe tasks to be harder than they actually are and have a one-dimensional and superficial perception of problems (28). Considering the decisive role of self-efficacy in the success of individuals and the significance of awareness and health literacy of patients to believe in their ability to perform healthy behaviors and also given that a few studies have been conducted on this subject, the present research aims to study the relationship between awareness, health literacy, and self-efficacy among cardiovascular diseases visiting medical centers of Shahr-e Kord.

MATERIALS AND METHODS

Sample and Procedure

This research was a descriptive and cross-sectional study which was conducted in 2016-2017. The statistical population consisted of all cardiovascular patients visiting medical centers of Shahr-e Kord, 138 of whom were selected as the sample using simple random sampling method. Accordingly, the list of medical records obtained from medical centers of Shahr-e Kord was coded and then some of them were randomly selected.

Considering the 95% confidence and 80% test power the sample size was calculated to be 138 patients. The inclusion criteria were the diagnosis of cardiovascular diseases by a specialist and complete and informed consent of patients. To ensure that all participants have the reading ability, they were asked to read part of the questionnaire. Patients who were not willing to participate in the study and fill out the questionnaires and those with visual impairment or psychiatric and cognitive abnormalities were excluded from the study. The participants were briefed on the research objectives and procedure and they were asked to fill out the questionnaires with complete honesty. In addition, they were assured that all information requested in questionnaires will be used confidentially. It is noteworthy that present research was approved by Deputy of Research and Technology of Shahr-e Kord University of Medical Sciences (No. 1742) and its ethics committee (IR.SKUMS.REC.1395.128).

Measuring tools

The required data and information were collected using three questionnaires. Personal information of participants was obtained using a 9-item questionnaire. To assess the health literacy of the participants, the test of functional health literacy in adults (TOFHLA) was used (29). This questionnaire is one of the most important and reputable health literacy questionnaires in the world which has been translated and validated in many languages. This scale consists of two parts: numeracy and reading comprehension.

The numeracy part measures one's ability to understand and act b in accordance with the recommendations of physicians and health educators. This part contains 5 explanations or instructions on prescribed medications, visitation schedule, and an example of a medical test result. These descriptions were presented to the participants in form of some cards and they were asked the relevant questions. The minimum and maximum scores obtainable on this part are 0 and 50, respectively. In the reading comprehension part, the ability of participants to read and understand is measured. To this end, three texts entitled "Instruction on preparation for the upper gastrointestinal tract imaging", "rights and responsibilities of the patient in insurance policies", and "standard form of hospital consent form" were given to participants to read them. The score obtainable on this part ranges between 0 and 50.

The sum of scores obtained on these two parts makes up the overall score of health literacy, which ranges

between 0 and 100. Based on this score, the participants are classified into three levels of inadequate (0-59), marginal (60-74), and adequate (75-100). In a study conducted by Raisey et al. (30), the reliability coefficient of this scale was obtained 0.79 in the numeracy part and 0.88 in the reading comprehension part.

In addition, the knowledge of cardiovascular patients about the disease was measured using a separate standard 6-item questionnaire (α=0.7) (31). The level of awareness was measured based on the number of correct answers given to questions. Accordingly, each correct and wrong answer was given a score of 2 and 0, respectively.

To evaluate the self-efficacy level of participants, the General Self-Efficiency Scale (Sherer et al.) was used. This scale consists of 17 items that are scored based on 5-point Likert scale (from totally disagree to totally agree). Each item is given a score of 1 to 5 and items 2, 4, 5, 6, 7, 10, 11, 12, 14, 16, and 17 are scored inversely. Therefore, the minimum and maximum scores obtained on this scale are equal to 17 and 85, respectively. This questionnaire measures individual beliefs and one's ability to deal with different situations. The reliability coefficient of this scale was reported to be 0.76 using Gutmann's bisection method and 0.79 using Cronbach's alpha. With the consent of participants, 20-30 minutes of time was considered for filling out each questionnaire.

Statistical Analysis

The data were statistically analyzed using the descriptive and analytical test such as independent t-test and one-way analysis of variance in SPSS. The correlation test was used to study the relationship between awareness, self-efficacy, and health literacy. In addition, health literacy was considered the dependent variable and awareness, self-efficacy, and demographics were taken as independent variables in the regression analysis. The level of significance in statistical tests was determined to be 5%.

RESULTS

The results showed that 34.1% of participants aged under 40, 51.4% of them were male, and the rest (48.6%) were female. In addition, 52.9% of participants were married, 32.6% of them had a high school diploma, and 41.3% had a history of disease less than 2 years (Table I). The mean score of awareness were 68.21±14.68 and self-efficacy in cardiovascular patients was 90.65±37.32.

64 patients (46.4%) had inadequate health literacy, 13 patients (9.4%) had marginal health literacy, and 61 patients (44.2%) had adequate health literacy (Table II).

There is a direct and significant relationship between awareness and health literacy of patients with

Table I: Demographic variables of cardiovascular patients participated in this study

Characteristics	n	%
Age (year)		
Under 40	47	34.1
40-50	27	19.6
50-60	27	19.6
Over 60	37	26.8
Gender		
Male	71	51.4
Female	67	48.6
Marital status		
Single	37	26.8
Married	73	52.9
Widowed	23	16.7
Divorced	5	3.6
Educational attainment		
Illiterate	27	19.6
Lower than high school diploma	46	21.6
High school diploma	35	32.6
Higher than high school diploma	30	21.7
History of disease (year)		
Less than 2	57	41.3
2-5	44	31.9
5-10	20	14.5
More than 10	17	12.3

Table II: The level of health literacy among cardiovascular patients participated in this study

Health literacy	n	%
Inadequate	64	46.4
Marginal	13	9.4
Adequate	61	44.2

* Levels of inadequate (0-59), marginal (60-74), and adequate (75-100).

cardiovascular diseases, as patients with higher awareness of their illness exhibited an adequate level of health literacy. In addition, a direct and significant relationship was observed between awareness and self-efficacy, as cardiovascular patients with higher awareness of their illness reported higher self-efficacy. On the other hand, there was also a direct and significant relationship between health literacy and self-efficacy. This means that patients with higher levels of self-efficacy exhibited a more adequate level of health literacy (Table III).

Linear regression analysis was used to determine the extent to which self-efficacy and awareness can predict the level of health literacy. Generally, the predictive power in this study was equal to 0.270, which is statistically significant in the regression analysis (Table IV).

Table III: Correlation matrix of awareness, self-efficacy and health literacy (n=138)

Variable	Awareness	Self-efficacy	Health literacy
Awareness	1		
Self-efficacy	p=0.001* r=0.413	1	
Health literacy	p=0.001* r=0.425	p=0.001* r=0.656	1

Pearson correlation test   *Significant at p<0.001

Table IV: The results of regression analysis for awareness, self-efficacy and health

Variable	β	B	t	Coefficient of determination (R²)
Awareness	0.412	0.417*	4.33	0.270
Self-efficacy	0.150	0.097	1.58	

*Significant regression coefficient at $p < .0001$.

The results showed that age has a significant relationship with self-efficacy and health literacy, as patients aged under 40 exhibited a higher level of self-efficacy (p=0.000) and an adequate level of health literacy (p=0.000).

In addition, it was found that awareness (p=0.001), self-efficacy (0.000), and health literacy (p=0.001) have a significant relationship with educational attainment and marital status. This means that patients who had a high school diploma or higher degree and those who were married exhibited higher levels of awareness and self-efficacy and an adequate level of health literacy (p=0.000). Self-efficacy and health literacy also presented a significant relationship with the history of disease, as patients with a history of disease of 2-5 years had a higher level of self-efficacy and an adequate level of health literacy. Other demographic variables showed no significant relationship with awareness, self-efficacy, and health literacy (Table V).

Table V: The relationship between awareness, self-efficacy, and health literacy with demographic variables

Demographics variables	Age	Gender	Marital status	Educational attainment	History of disease
	P-value [a]				
Awareness	0.058	0.131	0.001**	0.001**	0.875
Self-efficacy	0.001**	0.797	0.001**	0.001**	0.010*
Health literacy	0.001**	0.421	0.001**	0.001**	0.001**

[a] One-way ANOVA   *Significant at p<0.05   ** Significant at p<0.001

DISCUSSION

The use of health information, understanding of health status, and utilization of health services are three factors that lead to a better understanding of the impact of health literacy on the use of information and health services. Health literacy is a hidden problem, because it is often ignored by politicians and healthcare providers. Individuals with low health literacy have a poor health status and, as a result, use more of health services and incur higher costs compared to those who have adequate health literacy (32).

The results showed that most of the patients participated in this study had an inadequate or marginal level of health literacy. In a study conducted by Izadirad and Zareban, it was reported that 68% of participants had an inadequate or marginal level of health literacy (32). The percentage of people with an inadequate level of health literacy was reported to be 60% by Nekoiy Moghaddam et al. (32) and 54.6% by Ghanbari et al. (33). A study in Brazil showed that more than 32% of participants had an inadequate or marginal level of health literacy (34). The results of a study conducted on women visiting the Siberian health centers indicated that 44% of participants had an inadequate or marginal level of health literacy (35).

In the present study, the level of health literacy presented a significant relationship with age, educational attainment, history of disease, and marital status. Accordingly, inadequate level of health literacy was more common among older, single, and less educated patients and those with a longer history of the disease. This is consistent with findings of some previous studies (30, 36-38).

The study findings demonstrated that the participants enjoyed a relatively good awareness and low self-efficacy. Pariad et al. (39) reported that the level of self-efficacy was favorable in 74.9% of patients, which is not consistent with the results of this study. Their findings also indicated that marriage also affects general self-efficacy, as male patients with angina pectoris who were married and aged over 45 and had a high school diploma or higher degree and also those who were retired, living with their spouse and children, and trained in self-care exhibited a more favorable level of general self-efficacy then other groups. In the present study, there was no significant relationship between gender and self-efficacy. The effect of marriage on self-efficacy has been also reported by Johnson et al. (40). Rezabeigi et al. (41) stated that 67.2% of women participating in the study had an acceptable level of awareness. The level of awareness was also reported favorable in some other studies (42, 43).

The study findings suggested that there is a significant relationship between age and self-efficacy, as the highest level of self-efficacy was related to patients aged over 40. On the other hand, patients' awareness and self-efficacy presented a significant relationship with educational attainment and marital status. Accordingly, patients with a high school diploma or higher degree

and those who were married enjoyed a higher level of awareness and self-efficacy. Health literacy and self-efficacy also showed a significant relationship with the history of disease, as patients with a history of disease of 2-5 years had a higher level of self-efficacy and an adequate level of health literacy. Studies by Molakhalili et al (44) and Montazeri et al. showed that the health literacy level rose as the education level increased (45). There is also a direct and significant relationship between health literacy and awareness in cardiovascular patients, as patients with higher awareness of their disease exhibited an adequate level of health literacy. These results were consistent with of the study by Chajaee et al (46). The results of regression analysis also demonstrated that awareness is a suitable predictor of health literacy; this association is similar to the findings Quinlan et al (47).

In fact, patients can be expected to have a range of reading, hearing, analysis, and decision-making skills and the ability to apply these skills in their health-related situations if they have enough awareness of their health status and the causes of the disease and related issues. In other words, inadequate health literacy is followed by poor individual health status report, inappropriate use of medications, non-compliance with the physician's instructions, and lower health knowledge (48). People with low health literacy are less aware of their health status, receive fewer preventive services, and chronic diseases are less controlled in them.

Notwithstanding the significance of identifying individuals with inadequate health literacy, the health system staffs usually have a poor performance in this regard. Some methods such as the use of simple and understandable expressions and images, taking feedback after providing information to a person, and limiting the information provided to a person in each visit can be used for patients with inadequate health literacy (49). This confirms the significant relationship between health literacy and self-efficacy and indicates the fact that if people believe that they can use all their skills in their health-related situations appropriately; their health literacy will certainly increase.

The study results also showed that there is a significant relationship between awareness and self-efficacy of patients. It is obvious that when people have higher awareness of their illness and health conditions, they can take appropriate measures in a variety of situations and circumstances.

Currently, the concept of health literacy involves skills such as reading, writing, understanding health information, and following simple health messages, which are referred to as functional health literacy. However, functional health literacy is just one of the general domains of health literacy. If the psychology, sociology, and culture fields are taken into account in the concept of health literacy and the talking and listening manner is emphasized, this concept can be understood more clearly and consciously (30).

The findings of this study can be used to change and improve medical and health environments that sometimes have a lot to do with written materials. Health care workers should not merely rely on the provision of written information, because effective communication with patients and getting feedback from them will be more fruitful in this regard.

Given that the willingness to participate in the study was one of the inclusion criteria in the present research, those who were willing to participate in the study were likely to have a higher level of health literacy. This can be considered a research limitation.

CONCLUSION

Low self-efficacy and inadequate health literacy of patients should be considered a warning to politicians and the health system officials. Since limited health literacy can prevent proper understanding of health messages and recommendations, it is necessary that the medical staff use effective information transfer methods for patients. To this end, the health literacy and the relevant skills in patients should be measured before providing information to them in medical centers. Then, commensurate with their level of information, training programs should be planned to empower patients and increase their self-efficacy, so that they can achieve a correct health information. Education and culture-building in order to raise the level of health literacy and improve pattern health services utilization require the close coordination and collaboration of the health system, the media, and health educators.

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