

Original Article

Correlation Between Health Literacy Levels and Healthcare Behaviors in Patients With Heart Failure in Shahid Mohammadi Hospital (Bandar Abbas, Iran)

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ABSTRACT

Background: Heart failure (HF) is one of the most prevalent cardiovascular disorders. Patients with HF need self-care behaviors and, thus, need to be equipped with health literacy to make informed decisions. This study aimed to evaluate health literacy among patients with HF hospitalized in Shahid Mohammadi Hospital, Bandar Abbas, Iran, and its effect on self-care behaviors.

Methods: The present cross-sectional correlational investigation was conducted on 192 patients with HF selected via convenience sampling. The data collection instruments were HF health literacy in 3 domains and the European Heart Failure Self-care Behavior scale. The data were analyzed using SPSS, version 23, and descriptive statistics were used along with the Pearson correlation coefficient.

Results: The mean score of health literacy and self-care was 34.6 and 30, respectively. A statistically significant correlation was found between the functional dimension of health literacy and self-care. Thus, a higher health literacy rate was associated with more self-care efforts. The mean score of health literacy varied among the subjects with different education levels.

Conclusions: Considering the statistically significant relationship between health literacy and self-care, it is essential to pay attention to the promotion of the whole dimension of health literacy among patients with HF, especially those of lower education levels, in order to improve their level of self-care. Effective interventions are required to improve patients' skills in the critical analysis of information and to promote their power of making therapeutic decisions. (*Iranian Heart Journal 2020; 21(2): 57-63*)

KEYWORDS: Health literacy, Self-care, Heart failure

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Heart failure (HF) is one of the most prevalent cardiovascular disorders and a threat to public health at current times. This disease is a progressive and debilitating chronic disease whose prevalence increases with age.^{1, 2} Patients with HF need self-care behaviors so as to be able to deal with their illness. Self-care encompasses a series of informed and goal-oriented acquired behaviors that individuals do to maintain their own health as well as that of their family and children.^{3, 4} Self-care is a process whereby patients apply their awareness and skills to perform recommended behaviors. Therefore, not only are patients expected to have the required knowledge of their disease and how to take care of themselves but also they need to apply what they know to different conditions. Compliance with healthy behaviors and acquisition of self-care skills are necessary for patients with chronic diseases in that they can have an impact on their comfort, functional abilities, and disease processes.⁵ Self-care in HF refers to particular dietary and medical habits, restricted consumption of sodium and liquids, levels of activities allowed, daily balance, and decision-making to take appropriate therapeutic measures when the disease emerges severely.³ To practice self-care and disease management, patients need to gain accurate and valid information in order to understand their status, participate in therapeutic decision-making, and contribute to self-care programs. The primary source of information for patients should be healthcare professionals and physicians. Nonetheless, these professionals are not always able to meet patients' needs due to time constraints. Moreover, there has been a rise in mass media popularity, followed by the fast sharing of knowledge via the Internet, which has facilitated public access to information of all types. Still,

patients must have certain skills to access, comprehend, and apply the information. These skills are known as "health literacy". In definition, health literacy refers to one's capacity of acquiring, processing, and comprehending health-related information and services required to make right healthcare decisions.⁶

Health literacy is defined at 3 levels: functional, communicative, and critical. The first dimension is the most basic part and comprises reading and writing skills, which allow individuals to function effectively in daily affairs. The second dimension involves a set of advanced skills that allow individuals to derive appropriate information and meanings from the related channels and use them practically in changing situations. The third dimension deals with the advanced skills needed for data analysis for the purposes of exerting more control over living conditions and events.⁷

A body of research has revealed that patients suffering from HF with inadequate health literacy not only have a lower knowledge about their disease and are unable to accept health-related responsibilities but also fail to follow the provided advice and instructions related to self-care by professionals, which leads to repeated hospitalizations.^{3, 8, 9}

Self-care is of great significance among patients afflicted with HF. What is more, HF is a self-management disease that requires control on the part of the patient. So as to be capable of taking care of oneself and controlling the disease, one is expected to enjoy adequate health literacy, which helps to make the right decision under different circumstances about the disease. The present research aimed to explore health literacy in the 3 domains of performance, communication, and criticism and its effect on self-care behaviors.

METHODS

The present descriptive cross-sectional correlational research was conducted on patients with HF in Shahid Mohammadi Hospital, Bandar Abbas, Iran. HF among the study population was confirmed by a specialist. The inclusion criteria were age above 18 years and HF of at least 6 months' duration. The sample size was 192 patients with HF selected randomly. The instruments used in this research were an HF health literacy questionnaire and the European Heart Failure Self-care Behavior scale to measure self-care behaviors. The former consisted of 14 items in the 3 domains of performance (5 items), communication (5 items), and criticism (4 items). These items were to be rated on a Likert scale (never = 1, sometimes = 2, often = 3, and always = 4). The score for each item, thus, ranged between 1 and 4 and the overall score of the scale was maximum 56. The score ranged between 14 and 56, with a higher score denoting a higher level of health literacy. Two independent qualified translators translated and retranslated the Persian translated version of the scale. A panel of experts (n=10) was consulted to test the content validity of the scale. Required adaptations were made subsequently. Eventually, all the items were rated for clarity, relevance, and simplicity from 0 to 8. The reliability of the scale was tested and confirmed using the Cronbach alpha.

The European Heart Failure Self-care Behavior scale was developed by Jaarsma et al in 2003. This instrument contains 12 items each to be rated on a 5-level Likert scale, ranging from "not agree at all" scored as 1 to "completely agree" scored as 5. The overall score ranged between 12 and 60, with a low score denoting better self-care. The rating was interpreted at the 3 levels of adequate (a score of 1–20), moderate (21–

40), and inadequate (41–60). The patients' demographic information was simultaneously collected. The data were eventually analyzed statistically through descriptive and inferential statistics using SPSS, version 23. The independent samples *t*-test, one-way ANOVA, the Pearson correlation coefficient, and regression analyses were utilized. The significance level was set at a *P* value of less than 0.05 in all the tests.

RESULTS

The study population was comprised of 200 patients, of whom 83 (41.5%) were female. In terms of academic qualifications, 124 (62%) subjects were illiterate and only 7 (3.5%) had a university degree. Seven subjects did not mention any information about their education. The mean age of the study population was 64.6 ± 16.3 years, with an age range of between 15 and 96 years. Of all the patients, 157 (78.5%) subjects were married and the rest were single, widowed, or divorced and, thus, lived alone. The mean frequency of hospitalizations was 3.6 ± 3.3 . The related details are provided in Table 1.

Concerning self-care ability, the results revealed that the mean total self-care score was 30 ± 7.3 , with the scores ranging between 13 and 55, indicating a moderate level of self-care among the patients. Moreover, 100 (50%) participants had a moderate level of self-care, 89 (44.5%) had an adequate level of self-care, and 11 (5.5%) had a low level of self-care. The results also showed that the best self-care behaviors were associated with compliance with the required medical and dietary habits and the least self-care behaviors were related to daily weight control and exercise.

Table 1: Participants' demographic information and the mean difference in health literacy in terms of this information

Variable		f.	%	Health Literacy Level			Mean Health Literacy Score±SD	Min. Score	Max. Score	P value
				f.						
				Inadequate	adequate	ideal				
Gender	female	83	41.5	39	37	4	34.2±.67	21	49	.618
	male	116	58	45	51	10	35.1±.59	24	52	
Marital status	single	13	78.5	63	71	12	35±.48	24	52	.296
	married	157	6.5	8	5	0	32.1±1.5	21	41	
	widowed/divorced	29	14.5	14	11	2	34.9±1.4	21	49	
Education	uneducated	124	62	63	48	6	37.9±.53	21	52	.042
	below diploma	49	24.5	16	26	3	36.4±.85	28	49	
	diploma	13	6.5	0	10	2	37.9±1.1	34	45	
	university degree	7	3.5	2	2	3	39±3	25	46	
Age (y)	<25	8	4	5	3	1	32.7±1.7	29	41	.418
	25-44	16	8.1	5	4	7	35±1.7	29	45	
	45-64	62	31.4	25	31	6	35.2±.8	21	49	
	>65	111	56.3	45	44	12	34.6±.5	21	52	

Table 2: Multiple regression analysis of the clinical factors and health literacy explaining self-care behaviors

Variable	B	Standard error	β coefficient	T	P value	R (correlation coefficient)	R ² (coefficient of determination)	Adjusted R ²
Constant	38.348	4.052		9.463	.000	.375	.128	109.0
Age	.041	.034	.098	1.224	.223			
Duration of disease	.022	.008	.230	2.798	.006			
Functional health literacy	-.361	.099	-.3.650	-3.650	.000			

The mean health literacy scores in terms of the demographic features are presented in Table 1, which indicates that the mean health literacy was adequate. As the mean scores show, the frequency of patients with a high level of health literacy was low. The mean total score of health literacy among the patients with HF was 34.6 ± 5.8 , ranging from 20 to 52. The mean scores for the different dimensions of health literacy were, respectively, 16.7 ± 3.6 , 9.5 ± 3.7 , and 8.4 ± 3.3 for the functional, communicative, and critical dimensions. More details are provided in Table 2.

Table 3: The mean score of health literacy, as well as its dimensions, and self-care

	Min.	Max.	Mean	SD
Overall health literacy	20	52	34.6	5.8
Performance	5	20	16.7	3.6
Communication	5	17	9.5	3.7
Criticism	4	16	8.4	3.3
Self-care	13	55	30	7.3

The mean score of health literacy varied significantly across the different levels of education. The mean score of health literacy among the illiterate subjects was 33.6 ± 0.5 , while that of the subjects with a university degree was 39 ± 3 . Moreover, a statistically significant correlation was found between the duration of the disease and the mean health literacy score. A longer duration of the disease was associated with a higher score of health literacy ($P = 0.02$).

DISCUSSION

In the present study, 50% of the patients had a moderate or low level of self-care. This finding agrees with the result of a study by Khoshtarash et al,¹⁰ who reported that only 6.1% of their subjects with HF adhered to self-care behaviors well.¹⁰ Huyen et al¹¹ in 2011 found that 50.9% of their subjects with HF suffered from a low level of self-care behaviors. It appears that patients' low to

moderate levels of self-care behaviors result from a complicated process that requires the determination of different dimensions and the reinforcement of facilitating factors.

We found that the functional dimension of health literacy was able to explain self-care abilities among our patients with HF. Therefore, skills related to functional health literacy were one of the essential components for promoting self-care among these patients. In other words, our patients with a higher level of functional health literacy exhibited more desirable self-care behaviors, which is consistent with the findings previously reported in the literature. Wu et al⁹ showed that patients with a low level of health literacy not only had lower awareness of HF and adherence to treatment but also received more sodium. Chen et al¹² found a positive correlation between health literacy, awareness, and self-care behaviors in their sample of patients with HF. Dennison et al⁸ concluded that patients with adequate levels of health literacy had higher knowledge and awareness about HF and self-care behaviors. Son et al¹³ found that health literacy facilitated the promotion of self-care behaviors in their patients with HF. Matsuoka et al¹⁴ concluded that health literacy, especially its critical dimension, affected self-care behaviors among their sample of patients with HF. Additionally, they reported that their patients with a low level of health literacy were less successful in performing self-care behaviors than those with a high level of health literacy. Chen et al¹⁵ reported that, contrary to previous studies claiming that patients with higher levels of health literacy are more self-confident in performing self-care behaviors, their patients with lower levels of health literacy performed more self-care behaviors. In concordance with our finding, Farghadani et al¹⁶ found that health literacy was a key predictor of self-care behaviors in their sample of patients suffering from HF. Some

other researchers have investigated the correlation between health literacy and self-care in other chronic diseases. The findings reported by Lee and Shin¹⁷ indicated that diabetic patients with a higher level of health literacy were more successful in performing self-care activities. The results reported by Raeesi et al¹⁸ showed a positive relationship between the communicative and critical dimensions of health literacy and performing self-care behaviors. In contrast, the results reported by Abbaszadeh and Karimi¹⁹ showed no statistically significant correlation between health literacy and self-care behaviors.

CONCLUSIONS

The results of the present study indicated inadequate compliance with self-care behaviors among our sample of patients with HF. According to our findings, functional health literacy was a key factor in the self-care behaviors exhibited by the study population. It is, therefore, essential that interventional programs aimed at promoting health literacy and decision-making in self-care activities among patients with HF be devised. We recommend that the clinical team members in patient education programs pay more attention to the promotion of health literacy in all 3 dimensions, not least the functional dimension. First and foremost among the limitations of the present study is its limited sample size. Indeed, the non-inclusion of patients from different centers limits the generalizability of our results. Another weakness of note is our use of a subjective process of self-care assessment rather than an objective one. Future investigations with larger samples should be able to arrive at more generalizable and precise conclusions. It would also be advisable to compare subjective and objective monitoring techniques of self-care in patients with HF.

Ethical Approval

This study was approved by the Research Ethics Committee of Hormozgan University of Medical Sciences (HUMS.REC.1395.47). All the participants signed the consent form, and they were ensured of the confidentiality of data collection prior to the study.

Conflict of Interest

The authors declare that they have no conflict of interest.

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