Self-care behavior and affecting factors among patients with heart failure in Iran

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ABSTRACT

الأهداف: تقييم سلوكيات الرعاية الذاتية التي يتمتع بها مرضى القصور القلبي، بالإضافة إلى تحديد العوامل المؤثرة على هذه السلوكيات مثل: العمر، والجنس، والحالة الاجتماعية والتعليمية، ومدة المرض، والتدفق الجزئي من البطين الأيسر، والأمراض المزمنة.

الطريقة: أُجريت هذه الدراسة التحليلية الوصفية في 5 مستشفيات بطهران وجامعات إيران للعلوم الطبية، طهران، إيران وذلك خلال الفترة من مارس إلى أبريل 2006م. شملت الدراسة 250 مريض، وقد استخدمنا النسخة الفارسية من الاستبيان الأوروبي لتقييم سلوكيات الرعاية الذاتية. بعد ذلك جُمعت البيانات وحُللت باستخدام التحليل الإحصائي (SPSS) من أجل القيام باختبار التباين الأحادي، واختبار تي للعينات المستقلة، وغيرهم من الاختبارات الملائمة.

النتائج: لقد وجدنا أن 26% فقط من المرضى كانوا يتمتعون برعاية جيدة لأنفسهم، وقد كان السلوك "أنا أتناول الأدوية كما هي موصوفة" من أكثر السلوكيات التي كان المرضى يتمتعون بها. أشارت نتائج الدراسة إلى وجود علاقة عكسية بين العمر وتكرر الدخول إلى المستشفى، بالإضافة إلى علاقة مباشرة بين هذه السلوكيات والعوامل المتغيرة الأخرى (p=0.0001).

خاتمة: أظهرت هذه الدراسة ضرورية استيعاب سلوكيات الرعاية الذاتية التي يقوم بها مرضى الرعاية الذاتية، وعلى ضوء ذلك العمل على تقديم البرامج التثقيفية المتعلقة بهذه السلوكيات. إن توجيه مثل هذه البرامج من قبل الممرضات سوف يرفع من قدرات مرضى القصور القلبي وسيحسن من نوعية حياتهم.

Objectives: To diagnose self-care behavior of heart failure (HF) patients and their correlations with the affecting variables such as age, gender, marriage, educational status, disease duration, left ventricular ejection fraction, and contextual chronic diseases.

Methods: This descriptive-analytical study was conducted in 5 hospitals of Tehran and Iran Universities of Medical Sciences, Tehran, Iran between March to April 2006. After providing written consent, 250 eligible patients participated. We used the Persian version of the European Self-Care Behavior questionnaire to collect information. The gathered data were analyzed by descriptive statistics, one-way ANOVA, independent-t, and other appropriate tests using SPSS software version 11.5.

Results: We found out that only 26% of patients had good self-care and the behavior of "I take my medications as prescribed" was the most performed behavior. These behaviors had a significant reverse relationship with age and re-hospitalization rate, and a direct relationship with other variables (p=0.0001).

Conclusion: It is necessary to understand self-care behaviors of HF patients, and then offer individual and special educational programs regarding these behaviors, and also to follow these behaviors. Administration of these programs by nurses will raise HF patients' capabilities and quality of life.

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Following and performing self-care behaviors is very important for patients with chronic diseases. Patients could improve their overall health and functional abilities, and also decrease side effects of disease by acquainting, and then acquiring self-care skills.[1] Patients with chronic heart failure (CHF), due

to the side effects of the disease, and the process of their treatments are encountered to numerous unwanted changes and challenges in their self-care needs. They need to do proper self-care behaviors to cope with their problems.[2] In recent years, the focus on the supportive and educative treatment of patients with heart failure (HF) has been the subject of interest, and is largely expanded. The focus of these treatments is more on the admission and acceptance of the treatment process and self-care behaviors by patients.[3] Self-care concept in heart failure emphasizes on subjects like nutritional and drug diet, appropriate rest and activity, daily weighing, and seeking and deciding for the proper interventions, when encountering to severe symptoms of disease.[4] The main principles of self-care are the compliance and collaboration of patients in the control of disabilities.[5] Limitations resulted from aging process that is coexisting with other chronic diseases such as respiratory disorders, renal failure, diabetes mellitus, osteoarthritis, visual and auditory imparities, dementia, low economical income, and also misunderstanding of various treatment methods and nutritional diets, make the performance of self-care much more difficult in HF patients.[6] Considering the above information, it is clear that HF patients encountered some serious obstacles in the performance of self-care behaviors, and obviously poor self-care could lead to the decrease in the quality of life, and also increase hospitalization rates.[7] On the other hand, educating and helping patients to adapt with these chronic disabilities and more important, to do the proper and intact self-care behaviors are the vital principles of HF control programs. Health care providers should apply these supportive-educative methods in the discharge plan. They play important roles in the promotion of patients' health and well being, and by realizing self-care needs, they could arrange appropriate interventions and plans to endorse self-care behaviors, and therefore increase the quality of life in patients with HF.[4] The purpose of this study was to determine and measure the level of self-care behavior performance in patients with HF, and also investigate the effect of variables like age, gender, marital status, education, disease duration, hospitalization frequency, and so forth on self-care behaviors. Obviously knowing and diagnosing self-care behaviors are essential for instructing, and improving these behaviors.

Methods. In this study, we used a descriptive-analytical design and investigated self-care behaviors and their correlation with age, gender, marital status, education, disease duration, re-hospitalization rate, left ventricular ejection fraction (LVEF), and other chronic diseases in patients with HF. Research society included HF patients referred to 5 famous reliable hospitals (including heart centers) related to Tehran and Iran Universities of Medical Sciences including: Shahid Rajaei Heart Centre, Firoozgar, Rasoul Akram, Imam Khomeini, and Shariati Hospitals. There were 250 qualified patients who participated during the convenient sampling from March to April 2006. Inclusion criteria were as follows: age ≥18, LVEF ≤40%, patients diagnosed with HF at least 6 month ago, and those who came for treatment follow up. The exclusion criteria included: HF patients with mental and psychiatric problems; patients with physical inabilities; complete dependency to care givers; and patients with heart surgery during the past 6 months. This study was approved by the Ethical Committee of Iran University of Medical Sciences and was conducted according to the principles of Helsinki Declaration.

Data were gathered using 2 questionnaires: the first for demographic (age, gender, marital status, education) and clinical data (length of disease, hospitalization frequency, LVEF), and the second was the Persian version of European Heart Failure Self-care Behavior Scale (EHFSCBS-Q) designed by Jaarsma et al[8] that included 12 questions regarding self care behaviors each with 5 point Likert Scale responses (1 = I completely agree, 5= I do not agree at all). Lower values mean better and higher values mean worse self-care performance. We used content validity for validation and Cronbach's alpha to verify the reliability of this instrument (α=0.68). There were 25 patients who participated for this reason, however, they were eliminated later from the study, and their data were deleted. The researchers went to the medical centers, and after providing informed written consent and explaining the purpose of the study and method of filling the questionnaire, the data were then collected.

The gathered data were analyzed using descriptive statistics, one-way ANOVA, independent-t, chi square and Kruskal-Wallis tests by Statistical Package for Social Sciences version 11.5 (SPSS Inc., Chicago, IL, USA). Under the consultation of a statistician, we used descriptive statistics to depict self-care behaviors and one-way ANOVA to investigate the effect of different sub-groups of age, marital status, disease duration, and LVEF percent variables on the self-care behaviors (mean ± standard deviation). We used independent t-test to determine correlation of self-care behaviors with variables of age and other coexisting chronic diseases, and Chi square and Kruskal-Wallis tests to interpret correlation of education level and hospitalization frequency (**Table 1**). P<0.05 was considered statistically significant.

Results. The demographic and clinical characteristics of 250 participants were as follows: mean age of 57.9

years (male = 68.4%, female = 31.6%), married (78.7%), illiterate (44.8%), occupied (33.2%), moderate financial status (64.4%), and 42% were suffering from other chronic diseases (hypertension and diabetes - 30.5%; diabetes only - 13.4%; hypertension only - 19%; and other chronic diseases - 19%). Mean HF length was 43.2 months, mean of hospitalization frequency due to HF problems was 3.2 times, and mean of LVEF was 34.3% (**Table 1**). According to our results, the self-care behavior of "I take my medication as prescribed" had the lowest score, which means it was the most properly performed behavior (**Table 2**). Our study revealed that only 26% of HF patients had well self-care performance (**Table 3**). Based on **Table 1**, age, hospitalization frequency, and length of disease had significant reverse effect on the self-care behaviors, and quite opposite the other variables had straight significant effects (p=0.0001).

Discussion. According to our results, only 26% of patients had well self-care behaviors and others had moderate to weak. Azarbad[9] in 2006 also revealed that half of patients had moderate, and the others had well self-care behaviors. Unfortunately, in the present study, samples encountered various obstacles such as shortage of medical information, physical disabilities, mal-adaptation with different treatment procedures, sensational problems, and various contextual chronic diseases. Also, a recent qualitative study showed that a lot of HF patients does not believe in the effectiveness of self-care behaviors, and thus had less motivation to accomplish and follow them.[7]

Based on our findings, the behavior of "I spend some specific times to take rest" was well carried out by patients, and it is in accordance to Azarbad's[9] study. The main cause might be the habitual afternoon napping that

Table 1 - Correlation between self care behavior scores and demographic and clinical characteristics.

Variables	n	Self care score (mean ± standard deviation)	Test	*P*-value
Age			One-way ANOVA (F=5.3)	0.0001*
20-39	30	31.3 ± 9.5		
40-59	90	32.4 ± 8.5		
60-79	117	32.4 ± 9.2		
<79	13	42.2 ± 6.7		
Gender		32.4 ± 9.3	T-test (t=3.9)	0.0001*
Male	171	37.1 ± 8.1		
Female	79			
Marital status				
Married	196	34 ± 9.08	One-way ANOVA (F=7.3)	0.0001*
Single	25	28.9 ± 7.6		
Divorced and widowed	28	38.3 ± 9.15		
Education			Kruskal-Wallis (X^2=43.8)	0.0001*
University	20	37.7 ± 8.9		
Upper secondary	27	31.9 ± 9.06		
Lower secondary	91	30 ± 5.4		
Illiterate	112	26.5 ± 6		
Length of the disease (months)			One-way ANOVA (F=9.07)	0.0001*
<12	92	31.1 ± 9		
12-35	33	30.9 ± 7.3		
36-71	67	34.6 ± 9.3		
72-107	22	38.7 ± 8.7		
108-144	36	39.6 ± 7.56		
Hospitalization frequency			Kruskal-Wallis (X^2=51.36)	0.0001*
1-2	134	31.2 ± 9.04		
3-4	67	33.3 ± 7.6		
5-6	16	40.9 ± 6.7		
7-8	21	43.1 ± 5.9		
>8	12	41.6 ± 8.7		
LVEF (%)			One-way ANOVA (F=12.7)	0.0001*
10-20	20	42.15 ± 7.9		
20-30	82	35.2 ± 9.02		
30-40	148	32.1 ± 8.8		
Co-morbidity			T-test (t=7.064)	0.0001*
Yes	105	38.3 ± 8.2		
No	145	30.71 ± 8.56		

*p-values <0.05 were considered statistically significant, LVEF - left ventricular ejection fraction, ANOVA - analysis of variance

Table 2 - Mean heart failure self-care behavior item scores in rank order.

Item	I completely agree				I do not agree at all	Mean score
	1	2	3	4	5	
			Score (%)			
1. I weigh myself every day	8.0	12.8	22.8	16.8	39.6	3.67
2. If I get short of breath, I take it easy	15.2	27.6	24.4	21.6	11.2	2.9
3. If my shortness of breath increases, I contact my doctor or nurse	36.0	24.0	24.8	12.0	3.2	2.2
4. If my feet/legs become more swollen than usual, I contact my doctor or nurse	30.0	22.8	22.4	14.4	10.4	2.52
5. If I gain 2 kg in one week, I contact my doctor or nurse	18.4	14.8	21.6	12.4	32.8	3.3
6. I limit the amount of fluids I drink (not more than 1.5 L/day)	18.0	17.2	24.4	20.0	20.4	3.07
7. I spend some specific times to take rest	60.0	22.8	14.8	1.2	1.2	1.6
8. If I experience increased fatigue, I contact my doctor or nurse	16.4	13.2	19.6	19.2	31.6	3.4
9. I eat a low-salt diet	56.8	14.4	12.0	6.4	10.4	2.0
10. I take my medication as prescribed	77.6	10.0	9.2	2.4	0.8	1.4
11. I get a flu shot every year	10.0	2.4	4.4	11.6	71.6	4.3
12. I exercise regularly	12.4	7.6	24.4	16.8	38.8	3.6

Table 3 - Self-care behavior scores of patients with heart failure.

Score	n (%)
Good (12-28)	65 (26.0)
Moderate (29-44)	141 (56.4)
Weak (45-60)	44 (17.6)
Mean ± standard deviation	33.91 ± 9.22

is customary in the Iranian's culture. The behavior of "I take my medications as prescribed" was also performed appropriately, that is in contrast to Monanem et al's[10] study results in 1994. After a one-year follow up period, they revealed that only 10% of HF patients followed their doctors' drug prescriptions. On the other hand, Tung et al in 2011[2] stated that 70%, and Macabasco O'Connell et al[11] in 2008 stated that 99% of patients took their medications correctly. Artinian et al[12] also found out that HF patients often follow this rule.

In this study, we collected information only by using interview, and there was no observational investigation of behaviors and this could be the major cause of difference between our results with some other studies, also their patients might forget to take some drugs and respond without consideration. The behavior of "I weigh myself everyday" was not carried out well that is in accordance to Tung et al's[2] 2011 study (50% improper performance). Macabasco O'Connell et al[11] (2008) stated that although nurses instructed patients regarding the importance and method of weighing, and gave them weight record sheets, however, only 43% measured themselves suitably. Jaarsma et al in 2000[13] investigated 128 Dutch patients to discover the cause of this problem and established the following results: patients often "did not believe in weighing themselves", "could not interpret the results", "could not stand on the measures tool alone", and "could not correctly read the measure's pointer due to visual weakness".[13] It is really necessary to find out better methods to measure patient's weight, and also better ways to educate them regarding the importance of daily measures, recording data into special sheets, interpreting and choosing appropriate ways to lose weight in the required cases. The behavior of "I get a flu shot every year" was not followed suitably that could be due to less information regarding this vaccine and its necessity. In addition, costs and shortage of flu vaccines augmented the situation. We strongly recommend responsible organizations to provide sufficient amount of vaccines and other requirements for at least high risk-community groups, such as HF patients.

In the present study, age had significant reverse effect on the self-care behaviors that is homogeneous with Azarbad's study.[9] Carlson et al[6] in 2001 also stated that age-related disabilities like visual, auditory, and cognitive impairments could result in self-care insufficiency and also more dependency to others. In this study, men had better self-care behaviors. In contrast, Azarbad[9] in a study in 2006 did not find any relationship, however, Smaeli et al[14] in 2005 showed that hemodialysis undergoing men had more self-competency and self-confidence in doing self-care behaviors. These qualities of men might have affected self-care quality of our studied men. On the other hand, due to Iranian women's heavy roles and workloads, they might have had less time to do these behaviors. Our results showed that married patients had better self-care than widows and widowers, but singles were better than all. In this research, singles had higher education that could affect their awareness and performance. On the other hand, they had less responsibility in the home and had more free time to do these behaviors. Artinian et al[12] in 2002 showed that there is significant relationship between marriage and easing in the day, liquid intake-out put control, and happy life among HF patients. Likewise, Azarbad[9] found out that marriage could improve the consciousness and so is the practice of self-care behaviors.

Like in other studies, we concluded that self-care performance is much better in highly educated patients. Rockwell et al[15] stated that highly-educated patients have more determination in self-care performance. Hajikazemi et al[16] revealed that low-educated or illiterate HF patients had more re-hospitalization rates (42%) that could be result of inappropriate self-care. Despite Azarbad's[9] results, we found out that self-care was incompetence in patients with more re-hospitalization rates. Hajikazemi et al[16] revealed that home visit accompanied with instructions regarding HF disease could decrease the re-hospitalization rates. Therefore, educating these behaviors during hospitalization could lead to better results. Incidentally, this problem could be a result of weak educational programs in the hospitals. They also showed that with increased HF length, self-care abilities decreases. Rockwell et al[15] stated that progression of HF leads to dyspnea, exhaustion, and lack of energy, and thus patients become more disable in doing self-care. Azarbad[9] showed that patients with 30-40% LVEF had better self-care performance. Also, Hajikazemi et al[16] found out that most cases of re-hospitalization were related to low LVEF percent. In the present study, lower LVEF was directly related to frail self-care also. Like in others studies, our study showed significant relationship between self-care behaviors and contextual chronic diseases.[12,16,17] Coincidence of HF with chronic diseases leads to the disturbance of treatment and self-care behaviors.[17]

A limitation of the present research was that the data collection was only carried out through interviews. Self-report method is not always a reliable way to assess self-care behaviors,[18] however, our interviews were not carried out by treatment group members, and this could induce a safe relationship, correct, and reliable answers. As we had investigated the correlation of total self-care behavior scores with mentioned variables, and we suggest to other researchers to assess the coherence of each behavior with these variables to arrive to a more specific and applicable data in the future.

On the basis of these results, it is extremely necessary for treatment groups to instruct and emphasize HF patients regarding self-care behaviors. We also strongly recommend to conduct more research regarding knowledge, attitude, and performance of health care providers on self-care behaviors of HF patients and existing problems.

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