BRIEF REPORT

Use of the European Heart Failure Self-care Behaviour Scale (EHFScBS) in a Heart Failure Unit in Spain

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Self-care is important for patients with heart failure. Recently, the European Heart Failure Self-care Behaviour Scale was developed for its assessment. We evaluated 335 patients using the Spanish version of the scale and assessed whether self-care was influenced by sex, age, etiology, or follow-up duration at a heart failure unit. Possible scores on the scale range from 12 to 60, with a low score indicating good self-care. We observed a mean (SD) score of 24.2 (7.7). There was no significant correlation between the score attained and the value of any of the parameters analyzed, except for follow-up duration at the unit (r=–0.37; P<.001). The score was 28.1 (1.9) in patients evaluated at first visit, 23.1 (6.1) at 3 months, 24.1 (6.6) at 6 months, 23.3 (8.2) at 9 months, 22.8 (7.3) at 12 months and, finally 20.0 (5.5) in patients evaluated 15 months after their first visit.

Key words: *Heart failure. Self-care. Education. Age. Gender.*

Aplicación de la escala europea de autocuidado en insuficiencia cardíaca (EHFScBS) en una unidad de insuficiencia cardíaca en España

El autocuidado es importante para los pacientes con insuficiencia cardíaca. La European Heart Failure Self-care Behaviour Scale o escala europea de autocuidado en insuficiencia cardíaca ha sido recientemente desarrollada para evaluar el autocuidado de los pacientes. Evaluamos a 335 pacientes con la versión española de la escala y analizamos si el autocuidado se relacionaba con la edad, el sexo, la etiología y el tiempo de seguimiento en la unidad. La puntuación en la escala es de 12 a 60, y los valores inferiores son los que indican un mejor autocuidado. La media de la puntuación obtenida fue de 24,2 ± 7,7. No hubo correlación estadística entre los resultados y los parámetros analizados, excepto para el tiempo de seguimiento en la unidad (r = –0,37; p < 0,001). La puntuación fue 28,1 ± 1,9 en los pacientes evaluados en la primera visita; 23,1 ± 6,1 a los 3 meses; 24,1 ± 6,6 a los 6 meses; 23,3 ± 8,2 a los 9 meses; 22,8 ± 7,3 a los 12 meses y, finalmente, 20,0 ± 5,5 en los pacientes evaluados 15 meses después de la primera visita en la unidad.

Palabras clave: *Insuficiencia cardíaca. Autocuidado. Educación. Edad. Sexo.*

INTRODUCTION

Self-care is an important aspect of treatment of heart failure (HF). Most of HF management program emphasize that improvement of self-care behaviour is the key to success in order to improve the outcome of HF patients.[1] It is important to have validated instruments to measure patients' self-care in order to evaluate both their initial level of care and the role of patient education in increasing their level of self-care. Jaarsma et al[2] have recently developed the European Heart Failure Self-care Behaviour Scale (EHFScBS). The scale has been tested and validated in 442 patients in 6 European centres from the Netherlands, Sweden, and Italy. The scale has been subsequently translated to several languages. The objective of this study was to assess the level of self-care of our patients and to analyze if self-care was influenced by sex, age, etiology of heart failure, and the time of follow-up at the unit, using for this purpose the Spanish version of the EHFScBS.

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Received September 24, 2004.
Accepted for publication February 17, 2005.

ABBREVIATIONS

HF: heart failure.
EHFScBS: European Heart Failure Self-care Behaviour Scale.
SD: standard deviation.

PATIENTS AND METHOD

The Spanish version was approved by the original scale authors after translation and back translation procedures; translation to Spanish was done by us and back translation was done by one independent person. The original scale authors gave their permission for using it in our patients. The scale is a 12-item self-administered questionnaire that addresses several items concerning self-care behaviour of patients. Every item is scored from 1 (I completely agree) to 5 (I completely disagree), with the global score ranging from 12 (better self-care behaviour) to 60 (worse self-care behaviour).

We analysed the results obtained by age, gender, aetiology, and by the time of follow-up at the unit. Once admitted to the unit, patients were visited by the nurse at least every three months. So "time of follow-up at the unit" means that patients evaluated with the EHFScBS at the first visit have not been previously visited by the nurse and have not received previous educational intervention and patients evaluated at month 3 have been visited at least once by the nurse. While at the other extreme, patients evaluated at month 15 have been visited by the nurse at least 5 times. Each patient was evaluated with the EHFScBS only once.

Statistical analysis was performed using SPSS Version 10.0 for Windows. Two-sided $P<.05$ was required for statistical significance. Spearman correlation was used to analyze the possible relationship between the score and age and the time of follow-up. Kruskal-Wallis test was used to analyze gender and etiology differences. Although non-parametric tests were used for statistical analysis, all data are presented as mean±SD, as we believe this is more descriptive than medians and interquartile ranges, mainly used for single item scores.

The investigation conforms with the principles outlined in the Declaration of Helsinki. All patients gave oral informed consent.

RESULTS

We transversally studied 335 patients. Patient demographic and clinical characteristics are summarized in Table 1. There were no differences in age, sex, etiology HYHA functional class, or left ventricular ejection fraction among patients evaluated at different follow-up points.

TABLE 1. **Demographic and Clinical Characteristics (N=335)***

Gender	
Men	245 (73%)
Women	90 (27%)
Age, years, mean+SD	64.9±10.8
Range	35-86 years
Etiology	
Ischemic heart disease	202 (61%)
Dilated cardiomyopathy	34 (10%)
Hypertensive cardiomyopathy	31 (9%)
Alcoholic cardiomyopathy	21 (6%)
Valvular heart disease	20 (6%)
Other	27 (8%)
NYHA functional class	
I	17 (5%)
II	184 (55%)
III	126 (38%)
IV	8 (2%)
LVEF, mean±SD	32±13%
<45%	283 (85%)
Time of follow-up at the unit	
First visit	107 (32%)
3 months	29 (9%)
6 months	23 (7%)
9 months	37 (11%)
12 months	83 (25%)
15 months	56 (16%)

*SD indicates standard deviation; NYHA, New York Heart Association; LVEF, left ventricular ejection fraction.

The mean score of the EHFScBS in our patients was 24.2±7.7. In Table 2 mean±SD scores in every item compared with those obtained in the original work of Jaarsma et al[2] are depicted.

There was no correlation between global score and age, sex (women, 25.4±7.9; men, 23.8±7.6), or etiology. A significant negative correlation was found between EHFScBS score and the time of follow-up at the unit ($r=-0.376$; $P<.001$). The highest scores, indicating worse self-care behaviour, were obtained in patients evaluated at the first visit and the lowest in patients evaluated at 15 months after their first visit (Table 3). This correlation was remained significant ($P<.001$) after adjustment for age, sex, time since HF symptoms onset, and aetiology. When individually analysed, the majority of items showed a significant correlation with the time of follow-up at the unit (Table 3).

DISCUSSION

Self-care is an important aspect for patients with HF. Instructing and improving behaviour of patients with HF is one of the main purposes of patient education. It is important to have valid instruments to

TABLE 2. **Mean Scores of All Items of the Scale in the Original Paper (Jaarsma et al[2]) and in Our Sample**

Item	Original paper Jaarsma et al[2] (N=442)*	Present Study (N=335)*
1. I weigh myself every day	3.1±1.7	3.5±1.2
2. If I am short of breath, I take it easy	1.5±1.1	1.2±0.6
3. If my shortness of breath increases, I contact my doctor or nurse	2.4±1.7	1.9±1.1
4. If my feet/legs become more swollen than usual, I contact my doctor or nurse	2.3±1.7	2.0±1.1
5. If I gain 2 kg in 1 week, I contact my doctor or nurse	2.6±1.8	2.1±1.2
6. I limit the amount of fluids I drink (not more than 1.5-2 L/day)	2.3±1.6	2.0±1.1
7. I take a rest during the day	1.8±1.4	1.1±0.5
8. If I experience increased fatigue, I contact my doctor or nurse	2.8±1.7	2.0±1.1
9. I eat a low salt diet	2.2±1.4	1.6±0.9
10. I take my medication as prescribed	1.2±0.9	1.1±0.5
11. I get a flu shot every year	2.4±1.9	2.2±1.7
12. I exercise regularly	3.1±1.6	3.0±1.1

*Mean value ± standard deviation.

measure self-care of our patients in order to evaluate both their initial level of care, the influence of our educational component in this level of self-care, and the influence of self-care behaviour in the outcome of the disease. With the purpose of measuring self-care behaviour of patients with HF, Jaarsma et al[2] recently developed the EHFScBS. Although other instruments that measured several aspects of compliance, self-

TABLE 3. **Mean Scores of All Items According to Time of Follow-Up**

Item	First Visit (N=107)	3 Months (N=29)	6 Months (N=23)	9 Months (N=37)	12 Months (N=83)	15 months (N=56)	*r*	*P*
1. I weigh myself every day	4.0±1.3	3.2±1.2	3.5±1.1	3.3±1.2	3.3±1.1	3.1±1.1	–0.28	<.001
2. If I am short of breath, I take it easy	1.3±0.8	1.3±0.5	1.3±0.7	1.2±0.5	1.3±0.7	1.1±0.3	–0.08	NS
3. If my shortness of breath increases, I contact my doctor or nurse	2.4±1.3	1.8±0.9	2.0±1.1	1.9±1.2	1.8±1.1	1.5±0.8	–0.26	<.001
4. If my feet/legs become more swollen than usual, I contact my doctor or nurse	2.5±1.3	1.8±0.9	1.9±1.1	1.9±1.1	1.8±1.0	1.6±0.9	–0.28	<.001
5. If I gain 2 kg in 1 week, I contact my doctor or nurse	2.7±1.3	1.8±0.9	1.9±1.1	2.1±1.1	2.0±1.1	1.5±0.8	–0.31	<.001
6. I limit the amount of fluids I drink (not more than 1.5-2 L/day)	2.6±1.3	1.8±1.0	1.9±1.1	1.9±1.1	1.9±1.0	1.5±0.8	–0.30	<.001
7. I take a rest during the day	1.0±0.2	1.2±0.6	1.2±0.6	1.2±0.7	1.2±0.7	1.0±0.1	0.04	NS
8. If I experience increased fatigue, I contact my doctor or nurse	2.4±1.2	1.9±0.9	1.8±1.0	2.0±1.1	1.8±1.1	1.5±0.8	–0.28	<.001
9. I eat a low salt diet	1.8±1.1	1.4±0.6	1.9±1.2	1.5±0.7	1.4±0.7	1.4±0.7	–0.12	.02
10. I take my medication as prescribed	1.1±0.6	1.0±0.2	1.2±0.5	1.1±0.6	1.2±0.6	1.0±0.2	0.03	NS
11. I get a flu shot every year	2.5±1.8	2.5±1.9	2.3±1.8	1.9±1.5	2.0±1.7	1.7±1.5	–0.17	.002
12. I exercise regularly	3.5±1.0	3.0±1.1	2.9±0.9	2.8±1.1	2.7±1.1	2.8±0.9	–0.28	<.001
Global score	28.1±1.9	23.1±6.1	24.1±6.6	23.3±8.2	22.8±7.3	20.0±5.5	–0.37	<.001

All data mean ± standard deviation.
For each item, from 1 (completely agree) to 5 (completely disagree).

management, and self-care behaviour have been reported,[3,4] the EHFScBS describes the actual self-care behaviour of patients in a easy self-reported manner.[2] As the EHFScBS is an instrument developed in a European population, we decided to use it in our patients. We have previously evaluated several aspects of knowledge and behaviour of our patients[5] with a personal questionnaire. Similary to others,[6-8] we found that self-care behaviour of our patients needed to improve.

Our patients showed a moderate level of self-care, with a mean score of 24.2±7.7. Fifty percent of patients obtained scores between 14 and 22. Comparing item by item with the original work of Jaarsma et al[2], the scores are quite similar in most of the items (Table 2), maybe and per haps slightly better in our patients except for weighing every day. This was the item on which our patients scored higher and one of the items in which a greater difference was observed between patients evaluated at first visit and patients evaluated at 15 months of follow-up (Table 3). The item on which our patients showed a higher improvement along follow-up was reporting if weight gain occurred. We have previously noticed a significant improvement in the frequency of weight control in ours patients with educational nurse intervention.[9,10]

The most important finding of our study is the correlation found between the score obtained in the EHFScBS and the follow-up time at the unit. This correlation was independent to age, sex, time since HF symptoms onset, and etiology. Although results can be influenced by the fact that data were collected transversally, we observed that the longer the time patients have been received education about HF from nurses, the better the self-care behaviour score obtained. This is in agreement with the results observed by Jaarsma et al in their original paper[2] thatd demonstrated better self-care behaviour among patients who had extra HF care. Howaves, we can not completely exclude, however, that some bias exists due to the transversal collection of data. Howaves that patients who turn up for visits 12 and 15 were not those with better fulfilment, although the 90%-93% of our living patients do up for these visits.

The fact that scores improved progressively suggests that education should be continuous and persistent. Several factors may have influenced this self-care improvement. Firstly, as we have previously observed,[9,10] the education provided by nurses can improve several aspects of knowledge about heart performance, HF, and its treatment. The improvement in knowledge may have subsequently influenced the improvement in self-care behaviour over follow-up visits in those items addressing contacting a health professional, such as when an increase in weight occurred. Secondly, improvement in contacting a health professional may have been influenced by the greater support that the HF Unit offers to patients. The greater the perceived accessibility is, the more likely it is for patients to seek help from the health professional. Thirdly, to facilitate weight control, a weight chart was kept by each patient and reviewed at every visit. This, in conjunction with flexible diuretic dosing, often led to fewer emergency room visits. If patients perceive that their behaviour is effective, they are more likely to engage in positive self-care behaviour. Finally, increased involvement of patients' families in the education provided by nurses could also have played an important role in improving patients' self-care behaviour. We tried to reinforce the face to face education with printed leaflets for patients and their families, and with posters in the waiting-room reminding them of signs of HF worsening.

We have previously found gender differences in knowledge and understanding of HF and its treatment,[5] but not in several aspects of behaviour, such as treatment compliance, weight controls and diet adherence. The results obtained now with the EHFScBS are consistent with our previous work.[5]

We have insufficient information at this moment to affirm if better self-care behaviour will lead to fewer unplanned readmissions, will improve quality of life or even will imply a better prognosis, but others have already shown that education and support can reduce adverse clinical outcomes.[11]

In conclusion, the use of the EHFScBS in a HF Unit in Spain demonstrated better self-care behaviour in patients with longer follow-up in the unit, believed to be due to the educational efforts of nurses. No differences were found in overall self-care assessment according to age, gender or aetiology of HF.

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