

Heart Failure Self-care in Developed and Developing Countries

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ABSTRACT

Background: Heart failure (HF) self-care is poor in developed countries like the United States, but little is known about self-care in developing countries.

Methods and Results: A total of 2082 adults from 2 developed (United States and Australia) and 2 developing countries (Thailand and Mexico) were studied in a descriptive, comparative study. Self-care was measured using the Self-Care of HF Index, which provided scores on self-care maintenance, management, and confidence. Data were analyzed using regression analysis after demographic (age, gender, education), clinical (functional status, experience with the diagnosis, comorbid conditions), and setting of enrollment (hospital or clinic) differences were controlled. When adequate self-care was defined as a standardized score $\geq 70\%$, self-care was inadequate in most scales in most groups. Self-care maintenance was highest in the Australian sample and lowest in the Thai sample ($P < .001$). Self-care management was highest in the US sample and lowest in the Thai sample ($P < .001$). Self-care confidence was highest in the Mexican sample and lowest in the Thai sample ($P < .001$). Determinants differed for the three types of self-care (eg, experience with HF was associated only with self-care maintenance).

Conclusion: Interventions aimed at improving self-care are greatly needed in both the developed and the developing countries studied. (*J Cardiac Fail* 2009;15:508–516)

Key Words: Self-management, treatment adherence, hispanic, minority groups.

Heart failure (HF) is the most common and expensive chronic illness among older people in developed countries. In the United States alone, the prevalence of HF is 5,700,000, with 1 in 8 deaths attributable to HF.¹ Australia also is caring for a large number of cases, with HF accounting for 2.0% of all deaths in 2002.² In developing countries, the epidemiology of HF is becoming increasingly similar to that

of industrialized nations. After communicable diseases and malnutrition are controlled, population aging, hypertension, and ischemic heart disease contribute to a rising prevalence of HF.^{2–5} For example, in Thailand, heart disease is the primary cause of death and 70% of all cardiac deaths in Thailand in 2003 were attributed to HF.⁶ The prevalence of HF in Latin American countries is undocumented, although the increase in publications on HF from these countries suggests a rising prevalence of HF.⁷

Several studies have demonstrated that poor self-care is associated with admission to the hospital with worsening HF.^{8–12} Self-care refers to the naturalistic decision-making process that patients use in the choice of behaviors that maintain physiologic stability—symptom monitoring and treatment adherence—and the response to symptoms when they occur.¹³ Self-care is poor in US and European samples,^{14–16} but little is known about the adequacy of self-care in developing countries. Exploring HF self-care in developed and developing countries can improve the planning of public health initiatives in countries with increasingly diverse populations. Therefore, the purpose of this study was to describe and compare self-care in 2 developed—the United States and Australia—and 2 developing countries—Thailand and Mexico.

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Methods

This study was a descriptive, comparative study of 2082 adults with chronic HF. The samples had been recruited for other studies between 2002 and 2007. Self-care was measured in each group using the Self-Care of HF Index (SCHFI), a 15-item measure of self-care maintenance, management, and confidence described in the following section.¹⁷ All participants had a diagnosis of chronic HF confirmed using objective criteria and all resided in a private residence where self-care was a reasonable expectation. Subtle differences in inclusion and exclusion criteria are shown in Table 1. All studies had been approved by the local institutional review board overseeing research. Each study conformed to the principles outlined in the Declaration of Helsinki and all participants provided informed consent.

Sampling

A team of collaborating HF investigators gathered 6 samples of HF patients from the United States (2 samples), Australia (2 samples), Thailand, and Mexico. All available subjects were used in the analysis except for 3 Hispanic patients enrolled in the US sample who were deleted from the database to avoid confounding the comparison with the Mexican sample.

United States

Two samples of adults with HF were enrolled from 4 states in the eastern United States. In the first sample, 131 patients were enrolled from either an outpatient HF clinic (71%) or during an acute hospitalization in Pennsylvania. These patients were prescreened by staff, so the number screened is not available, but of those eligible and referred, 85% were enrolled. In the second sample, 322 patients were enrolled from outpatient settings in Kentucky, Indiana, and Georgia; 65.5% of those eligible to participate agreed to do so.

Australia

Two samples of HF patients were enrolled from Australia. The first sample of 1045 patients was recruited from HF disease management programs across the continent of Australia. Forty-nine of the 65 programs existing in 2006 and 2007 participated in the study (74% program participation rate). Each of these outpatient programs enrolled a consecutive sample of at least 20 patients; 66.1% of eligible patients agreed to participate. This was the only sample that had received an intervention (ie, disease management) before self-care was measured. The second sample of 50 consecutive patients was drawn from HF patients hospitalized in Melbourne, Australia, between June and December 2005. In this sample, 52% of eligible patients agreed to participate.

Thailand

A consecutive sample of 400 Thai HF patients was enrolled from 4 tertiary care hospitals and 2 smaller community hospitals randomly selected from 12 hospitals in southern Thailand; 91% were enrolled while hospitalized. In this sample, 98.5% of eligible patients agreed to participate. In Thailand, most persons invited to participate in research conducted by students seeking a higher academic degree agree to participate.

Mexico

A consecutive sample of 134 self-identified Hispanics of Mexican descent was enrolled during a hospitalization at 2 participating

community hospitals in Southern California close to the United States–Mexico border.¹⁸ Although these patients were technically living in the United States, few had acculturated, defined as the extent to which they had adapted to the US culture.¹⁹ Acculturation was measured using the 5-item Short Acculturation Scale for Hispanics,²⁰ with possible scores ranging from 5 to 25; lower scores indicate less acculturation. More than half (52%) of the patients in the sample were completely unacculturated (score = 5). The average score was low ($X = 8.2 \pm 5.4$) and only 8 (6%) had a score of 25 indicating full acculturation into US society. Most (55%) completed all data collection in Spanish. There were no significant differences in age, gender, or self-care scores between those acculturated and those not acculturated, so the full sample of 134 was retained for analysis. Although these patients used the US health care system, no disease management programs were available in the area at the time this study was conducted. Most were treated in free neighborhood clinics or by Hispanic providers; many routinely returned to Mexico for care that was not urgent.

Measurement

Sociodemographic variables were measured using investigator-designed surveys. Clinical information was obtained primarily from medical record review. Comorbid illnesses were measured using the Charlson Comorbidity Index.²¹ Scores can range from 0 to 36, but every study participant had a score of at least 1 because all had HF. Responses are summed, weighted, and indexed into 1 of 3 categories (low, moderate, or high) according to the published method. Validity was demonstrated by the instrument authors when comorbidity category predicted mortality, complications, health care resource use, length of hospital stay, discharge disposition, cost.

In each study, HF self-care was quantified using the SCHFI.¹⁷ Except for the Australian sample obtained from disease management programs, only baseline data obtained before the receipt of any planned intervention were used in this analysis. The 15-item SCHFI uses a 4-point Likert scale to gather information used to form 3 scales: self-care maintenance, management, and confidence. Maintenance and management are the essential elements of self-care; confidence is thought to be a mediator or moderator of the relationship between self-care and outcomes.¹³ For this reason, the 3 scale scores are calculated separately.

Self-care maintenance items assess treatment adherence behaviors and self-monitoring performed to prevent an acute exacerbation of HF (eg, daily weighing). Self-care management items assess ability to recognize symptoms when they occur, evaluate symptoms, make decisions about treatments (eg, take an extra diuretic for weight gain), and evaluate the effectiveness of the treatments implemented. Items measuring self-care confidence address the patient's perceived ability to engage in each phase of self-care (eg, recognize symptoms). Scores on each of the scales are standardized to 100; higher scores reflect better self-care. In this study, the internal consistency of the SCHFI scales were 0.61 (maintenance), 0.67 (management), and 0.88 (confidence). The SCHFI has been shown previously to be valid and sensitive to subtle behavioral changes in a variety of HF samples.^{22–24}

Translation

The SCHFI was translated into both Thai and Spanish for the studies used in this analysis. The Thai process of translation and back-translation was guided by the methods of Brislin.²⁵ Decentering and back translation techniques were used to ensure culturally equivalent versions in the Thai language. Decentering refers to a process by which

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