

Brief Report

Brief Report: Patient Activation Among Urban Hospitalized Patients With Heart Failure

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*New York, New York***ABSTRACT**

Background: Patient activation influences patients' ability to meaningfully engage in critical heart failure self-care. The purpose of this study was to identify whether patient activation is associated with patient-reported health outcomes in an urban and racially diverse inpatient sample of patients with heart failure.

Methods: We prospectively recruited patients with heart failure hospitalized at an urban academic medical center from October 2016 to May 2017 and measured patient activation, physical and affective symptoms, physical function, self-care, perceived control, and self-efficacy. Differences in patient-reported health outcomes between low and high activation groups were compared with the use of linear regression models adjusting for age, sex, education, left ventricular ejection fraction, and New York Heart Association functional classification.

Results: A total of 96 patients completed the study (mean age 57 ± 12.4 y); 39% identified as black and 35% as Latino, 35% were female, and 50% reported not having enough income to make ends meet. Based on the 4 levels of activation defined by the Patient Activation Measure-13, 22% of patients reported being "disengaged and overwhelmed," 14% were "becoming aware, but still struggling," 39% were "taking action," and 26% were "maintaining behaviors and pushing further." Higher patient activation was associated with better applied cognitive abilities, self-care behaviors, perceived control, and self-efficacy.

Conclusion: Patient activation can be easily measured in hospitalized patients with heart failure and is associated with clinically meaningful patient-reported health outcomes. (*J Cardiac Fail* 2017;■■:■■-■■)

Key Words: Heart failure, self-care, patient activation, self-efficacy, perceived control.

Heart failure (HF) is a chronic life-limiting syndrome that affects more than 6.5 million Americans and is increasing in prevalence.¹ The optimal management of HF relies on patients being able to participate in their own self-care, including being able to manage progressive symptoms of HF. Patient activation entails having knowledge, skills, and confidence to manage ones' own health, and it positively influences patient outcomes,² disease management,³ and health care utilization.⁴ Patient activation has also been described as one's self-concept of self-management, or the feeling of being in charge of one's own health.⁵ Despite recommendations in clinical

guidelines and the importance of routine patient engagement in self-care, many patients struggle to manage symptoms effectively. More activated patients may be better equipped to handle the complexity of managing symptoms of HF. The purpose of the present study was to identify whether patient activation is associated with patient-reported outcomes (ie, physical and affective symptoms, physical function, self-care, perceived control, and self-efficacy) in an urban racially diverse inpatient sample of patients with HF. The hypothesis was that higher activation would be associated with better patient-reported outcomes.

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Methods**Study Design and Setting**

We conducted a prospective cross-sectional study measuring patient activation and patient-reported outcomes in patients with HF at an academic urban medical center in Upper Manhattan from October 2016 to May 2017.

Participants

Patients were included in the study if they (1) had chronic HF, (2) were currently hospitalized with HF, and (3) were ≥ 20 years old. Patients were excluded if they were incapable of completing the survey questions because of psychosis or dementia. The study was approved by the Institutional Review Board and all of the participants provided written consents to participate.

Patient Characteristics

Demographic characteristics, health literacy, patient activation, and patient-reported outcomes were collected with the use of the Qualtrics web application on a tablet.

Patient-Reported Health Outcomes

Patient activation was measured by means of the Patient Activation Measure (PAM)–13, which has been validated in Spanish⁶ and among hospitalized HF patients.⁷ PAM scores range from 0 to 100 (higher scores indicating higher activation) and are converted to 4 levels and labeled as follows: 1) Disengaged and overwhelmed, 2) Becoming aware, but still struggling, 3) Taking action, and 4) Maintaining behaviors and pushing further.⁸

Consistent with other research,⁷ we categorized patient activation as low (levels I and II) or high (levels III and IV). Self-care behavior related to HF was measured with the use of the European Heart Failure Self-Care Behavior Scale (EHFSC-9), a 9-item measure with scores that range from 9 to 45 (lower scores indicating better self-care).⁹ Self-care management behavior was measured with the use of the Self-Care of Heart Failure Index v6.2.¹⁰ Perceived control was measured with the use of the Control and Attitudes Scale,¹¹ and health status was measured with the use of the Kansas City Cardiomyopathy Questionnaire.¹² Health literacy was measured with 3 health literacy questions that identify patients with “inadequate health literacy.”¹³ Clinical characteristics were abstracted from the electronic health record.

Physical and affective symptoms were collected with the use of a web application, mi.Symptoms, specifically designed for this study. Physical HF symptoms were measured with the use of the Heart Failure Somatic Perception Scale, which has a total score and a dyspnea subscale, both of which are associated with survival in HF.¹⁴ Other patient-reported health outcomes included the Patient-Reported Outcomes Measurement Information System short-form questionnaires for Physical Function, Depression, Anxiety, Fatigue, Applied Cognition, and Sleep Disturbance, many of which have been validated in patients with HF.¹⁵

Statistical Analysis

Descriptive statistics were used to summarize baseline demographic and clinical characteristics by low and high activation (PAM levels I/II vs III/IV). Differences in baseline characteristics between the 2 activation groups were

assessed with the use of *t*, Fisher exact, or χ^2 tests. The differences in patient-reported health outcomes between low and high activation groups were compared with the use of linear regression models with adjustment for confounding factors such as age, sex, education, left ventricular ejection fraction, and New York Heart Association Functional functional classification. Internal consistency (reliability) of the PAM was assessed with the use of Cronbach alpha. All analyses were performed with the use of SAS (v9.3).

Results

Characteristics of the 96 patients enrolled are presented in Table 1. The mean age was 57 years (range 23–77 years), 36% were female, 35% Latino, and 19% completed the study in Spanish. Regarding self-identified race, 39% were black, 28% white, 29% other, and 4% Asian.

The PAM had sufficient internal consistency (Cronbach alpha 0.92). Patient activation scores ranged from 31.7 to 100 (median 55.6, interquartile range (IQR) 51.0–72.5). Overall, 22% of patients reported being “disengaged and overwhelmed,” 14% “becoming aware, but still struggling,” 39% “taking action,” and 26% “maintaining behaviors and pushing further.”

As presented in Table 2, after adjusting for demographic and clinical characteristics in models 1 and 2, we found that patients with higher patient activation self-reported better applied cognition (β coefficient 4.6, standard error (SE) 2.2; $P = .038$) than the lower activation group. Patients in the higher activation group also reported better self-care behavior scores, measured with the use of the EHFSC-9, than the lower activation group (β coefficient -4.8, SE 1.9; $P = .016$). Patients in the higher activation group reported better self-care management (β coefficient 10.5, SE 5.5; $P = .059$). Higher activation was also associated with better self-efficacy (β coefficient: 9.2, SE 4.7; $P = .052$) and perceived control (β coefficient 2.7, SE 1.4; $P = .056$).

Discussion

We performed a prospective study of hospitalized patients with HF to identify patient activation levels in an urban and racially diverse sample of patients with HF. More than one-third of the patients reported having low patient activation. Higher activation was associated with better self-reported cognitive abilities after adjustment for demographic and clinical factors. Patients with impaired cognition may feel less activated to participate in disease self-management. In this study, patients who reported higher activation also reported scoring higher on self-management behaviors, including reducing dietary salt, reducing fluid intake, taking an extra diuretic, or calling a doctor or nurse for guidance in response to worsening symptoms. Higher activation was also associated with better self-care behaviors, including adherence to medication, diet, and exercise, as well as self-management of symptoms. These positive changes in patients'

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