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# Anxiety and Depression in Ethnic Minorities With Chronic Heart Failure

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## ABSTRACT

**Background:** Considerable evidence confirms the high prevalence of anxiety and depression in the patients with heart failure (HF). However, little is known about the relationship of race/ethnicity to psychosocial variables in this population. The purpose of this study was to examine and compare the incidence of anxiety and depression in a cohort of non-Hispanic blacks, Hispanics, and non-Hispanic whites with advanced systolic HF.

**Methods and Results:** Two-hundred forty-one patients (7% non-Hispanic blacks, 22.8% Hispanics, 60.7% non-Hispanic whites) mean age  $56.7 \pm 13.0$  years, male (70%), married (81%), retired (75%), New York Heart Association (NYHA) Class III (53.9%), and mean ejection fraction  $31.2 \pm 5.4\%$  from a single heart transplant facility were asked to complete a series of questionnaires to assess anxiety, depression, perceived control, social support, and financial stability. Non-Hispanic blacks had higher levels of anxiety ( $P = .048$ ) and depression ( $P = .026$ ) compared with Hispanics; a similar trend was noted when comparing non-Hispanic blacks and non-Hispanic whites, but these differences were not statistically significant. Perceived control was highest among Hispanics and lowest among non-Hispanic whites ( $P = .046$ ). In a multivariate model race/ethnicity, perceived control, and social support accounted for 30% of the variance in anxiety while race/ethnicity, NYHA Class, perceived control, and social support accounted for 41% of the variance in depression.

**Conclusions:** Our findings reveal that non-Hispanic blacks are more likely to be anxious and depressed than their counterparts. Because patient perceptions of control and social support are related to dysphoria known to influence morbidity and mortality, clinicians should regularly assess patients' concerns and assist in accessing appropriate services and treatments tailored to individual needs. Non-Hispanic blacks warrant increased scrutiny. (*J Cardiac Fail* 2009;15:572-579)

**Key Words:** Social support, financial stability, perceived control, confide.

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Anxiety and depression are common psychological comorbidities that have been linked to and received considerable attention in heart failure (HF) research.<sup>1-3</sup> The prevalence rates of anxiety and depression in patients with HF have been estimated at 9.3%<sup>4</sup> to 63%<sup>5</sup> and 13.9%<sup>6</sup> to 77.5%,<sup>7</sup> respectively. Despite the high prevalence of psychological distress in adult patients with HF,<sup>3</sup> relatively little is known about racial/ethnic differences in the prevalence of anxiety and depression in this population.

Some investigators studying non-HF patients have found that the prevalence of psychological distress does indeed differ by race/ethnic backgrounds,<sup>8-10</sup> yet findings have been mixed and thus no definitive conclusions can be drawn. In a community study of adults seeking care in a primary care setting with minority backgrounds, 16% (n = 3536) showed a high prevalence of depression.<sup>8</sup> Non-Hispanic blacks and Hispanics had the highest rates of depressive symptoms compared to non-Hispanic whites and Asian Americans.<sup>9</sup> In an investigation of ethnic differences in satisfaction and quality

of life in veterans with ischemic heart disease, quality of life scores were higher among non-Hispanic blacks compared with non-Hispanic whites even after adjusting for demographic characteristics, comorbid conditions, clinic site, and site-ethnicity interactions.<sup>10,11</sup>

A better understanding of factors that are associated with psychological distress is imperative given substantial evidence linking both anxiety and depression to increased morbidity and mortality in the HF population.<sup>12–15</sup> Although remarkable strides have been made to explain risk factors associated with anxiety<sup>3,4,16</sup> and depression,<sup>7,17–21</sup> all avenues have not been adequately explored. To date, racial/ethnic differences in psychological distress among adult patients with HF have received little research attention and are therefore poorly understood. Although community epidemiological studies have found little variation by ethnicity in prevalence of anxiety and depression among individuals without chronic illness,<sup>8</sup> there are very few studies documenting racial/ethnic differences in psychological distress in patients with chronic HF, where rates are very high. Riegel and colleagues found that in a sample of patients with HF, the likelihood of adults from minority groups (non-Hispanic blacks and Hispanics) reporting lower quality of life at baseline was higher than non-Hispanic whites. However, over time, statistically significant improvements in quality of life were noted among Hispanics.<sup>22,23</sup> A controlled randomized trial by the same group of researchers showed that changes in quality of life and depression scores were not significantly different after a telephone case management intervention in a homogeneous group of Hispanics.<sup>24</sup> Unfortunately, these 3 studies are not sufficient to conclude racial/ethnic differences in adult patients with HF because of either a lack of representativeness of the sample or the absence of a comparison group. Clearly, it is important to identify race- or ethnic-related differences in psychological distress in patients with HF, because any differences may have implications for the development and delivery of health care.

The purpose of this study was to examine and compare the incidence of anxiety and depression in a cohort of non-Hispanic black, Hispanic, and non-Hispanic white adults with advanced systolic HF. Because psychological distress is a common phenomenon in patients with HF, the current study was also conducted to test the hypothesis that low levels of perceived control, social support (ie, presence of someone in whom to confide), and perceptions of financial stability were associated with the development of anxiety and depression. These data could help target clinicians' efforts aimed at prevention of anxiety and depression through early identification of specific populations of patients with differing racial/ethnic backgrounds.

## Methods

### Study Design and Patient Population

Using a cross-sectional study design, study participants were enrolled from a single outpatient HF clinic located within

a tertiary, university-affiliated medical center between March 2004 and August 2005. The study was approved by the Institutional Review Board and written informed consent was obtained from study participants before enrollment. Participants were eligible if they had established HF, were  $\geq 18$  years of age, and able to read, write, and speak English. Participants were excluded from the study if they lacked cognitive capabilities or psychiatric stability to adequately respond to the data collection procedures.

### Procedures and Instruments

Patients who expressed an interest and consented to participate in the study were given a packet of questionnaires to fill out and return. Participants were allowed to complete the questionnaire during their clinic visit or at home, in which case they were provided with a prestamped, preaddressed envelope to mail back to the data collection center. On average, the self-administered questionnaire took approximately 10 to 15 minutes to complete. The questionnaire packet included the following instruments.

#### Patient Health Questionnaire—Depression Scale

Depression was assessed using the 9-item Patient Health Questionnaire (PHQ); each of the 9 items describes 1 symptom corresponding to 1 of the 9 Diagnostic and Statistical Manual of Mental Disorders-IV diagnostic A criteria for major depressive disorder.<sup>25</sup> Using a scale of 0 to 3, 0 indicating "not at all" and 3 indicating "nearly every day," participants were asked to rate if during the previous 2 weeks they have been bothered by any of the specified problems (ie, little interest or pleasure in doing things, feeling depressed, trouble falling/staying asleep or sleeping too much, feeling tired, poor appetite or overeating, suicidal thoughts).<sup>26</sup> The sum of the scores of the PHQ-9 (range, 0 to 27) was used to compute the overall depression score; higher scores denoted higher measures of depression severity.<sup>27</sup> In a population-based study of healthy adults, the mean depression score was  $3.56 \pm 4.08$ .<sup>28</sup> A positive depression screen was determined when  $\geq 2$  of the 9 depressive symptoms were indicated at least "more than half the days" and at least 1 of the 2 main diagnostic symptoms for major depressive disorder (loss of interest or depressed mood) were endorsed by the patient.<sup>29</sup> The reliability and validity of the PHQ-9 as a diagnostic tool in assessing depression severity has been well documented.<sup>30,31</sup> Cronbach's alpha for the tool for the current study was 0.89.

#### Brief Symptom Inventory—Anxiety Subscale

The Brief Symptom Inventory-Anxiety subscale is a 6-item tool that is deemed useful in measuring the average score of a person's overall level of state anxiety, because it is sensitive, brief, reliable and valid, and does not rely on clinical symptoms to indicate feelings of anxiety.<sup>5</sup> Participants rated their level of distress from 0 (not at all) to 4 (extremely).<sup>32</sup> The scores for the 6 items were summed and averaged. The averaged score quantifies the patient's level of anxiety and can range from 0 to 4, with higher scores denoting higher levels of anxiety. Researchers have used this 6-item tool in patients with chronic HF and acute myocardial infarction and have reported average anxiety scores of 0.98 and 0.52, respectively,<sup>5</sup> which is substantially higher than the reported average of  $0.35 \pm 0.45$  in healthy adults.<sup>33</sup> The Cronbach's alpha for the Brief Symptom Inventory-Anxiety subscale was 0.92 for the current study; a normative cutoff point of 0.98 was used to distinguish "anxious" versus "non-anxious" patients based on previous HF research.<sup>42</sup>

### Control Attitude Scale

The Control Attitude Scale is a 4-item questionnaire used to measure perceived control. This measure was developed to assess the degree to which participants felt they had control or felt helpless about their cardiac disease.<sup>34,35</sup> Participants were asked to rate the degree to which they agreed or disagreed with a given statement and responses were scored on a Likert scale from 1 (not at all) to 7 (very much). The scores were summed and averaged (range, 4 to 28) after scoring was reversed for 2 items; higher scores denoted higher feelings of control. Patients with scores below the median score of 21 were placed in the low control group and patients with scores above the median score were placed into the high control group.<sup>34,35</sup> Although the instrument has been revised since data were collected and analyzed, the validity and reliability of original 4-item questionnaire have also been documented.<sup>36</sup> The Cronbach's alpha for the instrument for the current study was 0.78.

Social support for this study was established by asking participants whether they had someone to confide in. This single-item question was adapted by the investigators because of increasing evidence that the presence of a confidant is strongly associated with both dimensions of instrumental and emotional support; the availability of roles and attachment (ie, marital status, number of living children and siblings) is not.<sup>37</sup> Research also shows that a person's appraisal of social support may be even more important than actual interpersonal contacts<sup>38</sup>; that perceived availability of social support can be a source of general positive affect, enhanced self-esteem, and feelings of belonging and security.<sup>39</sup> Furthermore, the belief that there are people available to care about an individual and who would try to help if help were needed maybe the key factor in the efficacy of social support in promoting physical and psychological health.<sup>40</sup>

To measure perceived financial stability participants were asked "how well their household income allowed them to make ends meet." Responses were coded on a 3-point Likert scale (1, comfortable; have more than enough to make ends meet; 2, have enough to make ends meet; and 3, do not have enough to make ends meet). This single-item question was adapted based on the premise that a person's appraisal of financial stability may be more important than actual income.<sup>41</sup> Furthermore, income is a less stable measure of socioeconomic status and is often a sensitive area of inquiry that leads to high nonresponse rates, which often introduces bias in studies examining racial/ethnic differences on health outcomes.<sup>42</sup>

Demographic information was collected through a simple self-administered form. The form asked participants about their age, race/ethnicity, marital status, education, current employment status, and annual income. Information pertaining to medical history (eg, etiology of HF, medications, comorbidities) was obtained through self-reports and verified by chart reviews. Information related to the participant's current clinical status (eg, New York Heart Association [NYHA] class, ejection fraction) was obtained from participants' medical records.

### Data Analysis

Data were analyzed using SPSS for Windows (version, 13.0, SPSS, Inc, Chicago, IL).<sup>43</sup> Descriptive statistics including means, ranges, and standard deviations were used to describe sociodemographic and clinical characteristics and levels of anxiety, depression, and perceived control. Comparative analyses of

demographic and clinical characteristics and psychosocial variables were computed for non-Hispanic blacks, Hispanics, and non-Hispanic whites using analysis of variance or chi-square, depending on the levels of measurement.

Univariate analysis (Pearson product moment or Spearman rho correlation) was used to determine the relationships between demographic (eg, age, gender, race/ethnicity) and clinical characteristics (eg, NYHA class, HF etiology, number of comorbidities), anxiety, depression, perceived control, and other variables of interest. Hierarchical multiple linear regression using forced variable entry was used to determine the predictors of anxiety and depression among patients with HF. Variables that achieved univariate significance of  $<0.10$  or variables that were considered theoretically important were included in a multivariate analyses in a hierarchical fashion. Demographic characteristics (age, gender, race/ethnicity) were included as covariates and were entered first. Next, to depict the impact of clinical variables on patients' anxiety and depression, NYHA classification, HF etiology, and number of comorbidities were entered as a second step. Antidepressant use was included in the second block for depression but not anxiety. Perceived control, social support, and perceptions of financial stability were added as the third and final step in the model. Criteria for entry and removal of variables were based on the likelihood ratio test with enter and remove limits set at  $P \leq .05$  and  $P \geq .100$ .

### Results

The patient characteristics for the 241 participants in the sample showed a mean age of  $56.7 \pm 13.0$  years, with the majority being married (81%), male (70%), and retired (75%). The sociodemographic (age, gender, education, employment status) and clinical characteristics (ejection fraction, number of comorbidities, HFSA etiology, HF class, and medications) of participants was comparable among non-Hispanic blacks (7%), Hispanics (22.8%); and non-Hispanic whites (60.7%) (Table 1). Likewise, perceptions of social support and financial stability were similar in all 3 ethnic groups.

Overall, 40% ( $n = 97$ ) of the sample were anxious and 20% ( $n = 48$ ) were depressed. Racial/ethnic differences in mean scores on anxiety, depression, and perceived control were statistically significant ( $P < .050$ ; Table 2). Post-hoc analysis revealed that the difference in anxiety and depression scores were statistically significant between non-Hispanic blacks and Hispanics, whereas perceived control scores were statistically significant for non-Hispanic whites and Hispanics.

The correlational matrix for key variables in the study is presented in Table 3. The analyses revealed that race/ethnicity, perceived control, and social support were correlated with anxiety and depression; a perception of financial stability was only correlated with depression. In a multivariate analysis, race/ethnicity, perceived control, and social support accounted for 30% of the variance in anxiety while race/ethnicity, NYHA Class, perceived control, and social support accounted for 41% of the variance in depression (Tables 4A, 4B).

**Table 1.** Demographic and Clinical Characteristics of Non-Hispanic Blacks, Hispanics and Non-Hispanic Whites (n = 241)

	Non-Hispanic Blacks (n = 18)	Hispanics (n = 55)	Non-Hispanic Whites (n = 168)	P Value
Ejection fraction, % (mean ± SD)	25.44 ± 6.50	27.35 ± 8.41	26.40 ± 6.52	.184
Comorbidities, number (mean ± SD)	2.5 ± 1.8	2.6 ± 1.6	2.4 ± 1.6	.417
HF etiology, n (%)				.279
Ischemic	9 (50.0%)	21 (38.2%)	69 (41.1%)	
Nonischemic	9 (68.0%)	34 (61.8%)	99 (58.9%)	
NYHA Class, n (%)				.111
Class II	3 (16.7%)	25 (45.4%)	57 (33.9%)	
Class III	13 (72.2%)	24 (43.6%)	93 (55.4%)	
Class IV	2 (11.1%)	6 (10.9%)	18 (10.7%)	
Anxious, n (%)				.042
Yes	11 (61.1%)	18 (32.7%)	68 (40.5%)	
No	7 (38.9%)	37 (67.3%)	100 (59.5%)	
Depressed, n (%)				.048
Yes	6 (33.3%)	7 (12.7%)	35 (20.8%)	
No	12 (66.7%)	48 (87.2%)	133(79.2%)	
Medications, n (%)				.888
Angiotensin-converting enzyme inhibitor	13 (72.2%)	43 (78.2%)	136 (80.9%)	
β-blocker	13 (72.2%)	37 (67.3%)	117 (78.5%)	
Diuretics	14 (77.7%)	43 (78.2%)	127 (75.5%)	
Digoxin	10 (55.5%)	26 (47.2%)	82 (58.2%)	
Antidepressants	5 (27.8%)	18 (32.7%)	82 (48.8%)	

## Discussion

The study results confirm that psychological distress was a common phenomenon in patients with HF. In an integrated review of research findings on anxiety and depression, Konstam and colleagues reported close to 40% of patients with HF suffer from anxiety, and overall anxiety levels are 60% higher than levels seen in healthy elders.<sup>3</sup> Similarly, our data showed that 40% of the study sample was anxious, which is congruent with an earlier study examining panic disorders in a sample of patients with idiopathic cardiomyopathy.<sup>16</sup> Surprisingly, the percentage of study participants reporting high levels of anxiety were slightly lower in the current study compared with an earlier study that reported anxiety in 63% of the HF population; however, mean anxiety scores for both samples using the same instrument were comparable.<sup>5</sup> Differences in prevalence rates of anxiety between the 2 studies is most likely attributable to the fact that the study conducted by De Jong and colleagues measured anxiety in a subgroup of patients acutely hospitalized for HF, whereas our sample was derived from patients seen in an outpatient HF clinic;

hospitalizations in and of itself predicts higher levels of anxiety.<sup>5</sup>

Depression was reported by 20% of the patients in our sample which is closer to the lower limits of depression reported in previous studies.<sup>7,17–20,44</sup> However, it is important to note that the instrument used to measure depression in these earlier studies actually measured “depressive symptoms” and not clinical depression. Investigators who used the PHQ-9 to measure depression found that the mean depression scores of their study sample of Hispanic patients was  $8.7 \pm 5.4$ , which was fairly similar to the depression scores reported by the non-Hispanic blacks in the current study<sup>24</sup>; the mean depression scores were significantly lower among Hispanics and non-Hispanic whites. Again, the lower depression scores we report for the current study can be ascribed to fact that we examined and reported depression rates in a sample of patients receiving follow-up care in the outpatient setting; the length of time since their most recent hospitalization was  $\geq 6$  months.

Notably, our findings demonstrated that the overall reports of anxiety and depression in adult patients with HF differed by their racial/ethnic backgrounds. As with

**Table 2.** Differences in Anxiety and Depression between of Non-Hispanic Blacks, Hispanics, and Non-Hispanic Whites (n = 241)

	Possible Range	Non-Hispanic Blacks (n = 18)	Hispanics (n = 55)	Non-Hispanic Whites (n = 168)	F Statistic	P Value	Group Comparisons <sup>§</sup>		
							NHB-NHW	NHB-H	NHW-H
Anxiety*	0 – 4	1.42 ± 1.39	0.72 ± 0.87	0.98 ± 1.11	3.107	.040	.290	.048*	.351
Depression <sup>†</sup>	4 – 28	9.28 ± 4.93	5.49 ± 4.44	6.25 ± 5.28	3.544	.030	.063	.026*	1.000
Perceived Control <sup>‡</sup>	0 – 27	17.94 ± 5.24	18.20 ± 4.39	16.35 ± 4.96	3.432	.034	.567	1.000	.046*

NHB, non-Hispanic blacks; NHW, non-Hispanic whites; NHB-H, non-Hispanic blacks-Hispanics; NHW-W, non-Hispanic whites-Hispanics.

\*Measured with the Brief Symptom Inventory, Anxiety Sub-scale; higher scores indicate greater anxiety levels.

<sup>†</sup>Measured using the Patient Health Questionnaire-9; higher scores indicate increased (worse) depression.

<sup>‡</sup>Measured using the Control Attitude Scale; higher scores indicate increased levels of perceived control.

<sup>§</sup>Post-hoc analyses (Bonferroni) were done to determine paired group differences.



**Table 3.** Correlational Matrix for Key Variables (n = 241)

	1	2	3	4	5	6
1. Race/ethnicity						
2. Gender	-0.157*					
3. Anxiety	-0.156*	0.000				
4. Depression	-0.145*	0.049	-0.526 <sup>†</sup>			
5. Perceived Control	0.085	-0.034	-0.232 <sup>†</sup>	-0.333 <sup>†</sup>		
6. Perceived financial stability	-0.043	-0.033	.100	-0.147*	-0.079	
7. Social support	0.027	-0.124	-0.148*	-0.163*	0.041	-0.176 <sup>†</sup>

\**P* < .05.<sup>†</sup>*P* < .001.

previous studies suggesting a high propensity for psychological distress among individuals of color or from non-Western backgrounds,<sup>8,9</sup> we found that non-Hispanic blacks had a higher tendency to experience anxiety and depression. However, contrary to previous research,<sup>8,9</sup> Hispanics reported lower levels of anxiety and depression than their counterparts. Our data echo the findings from a study by Riegel and colleagues,<sup>22,23</sup> who indicated that after controlling for demographic, clinical, and treatment group differences, Hispanics had better health related quality of life compared with non-Hispanic whites and non-Hispanic blacks.

Some explanations of this paradox include cultural differences that help Hispanic patients better cope with illnesses and variations in interpreting and responding to chronic illness. For instance, when comparing response and management of chronic illness in Hispanics, Blacks, and Filipino participants, investigators found that Hispanics believed that reduction of symptoms was a cure and that the occurrence of exacerbation of symptoms was an isolated illness unrelated to previous events.<sup>45</sup> This alternative perception of chronic illness may be a type of defense and coping mechanism that is used by Hispanic patients as a way to deal with chronic illness. Further, it has been previously reported that although Hispanics age 65 and older have higher rates of disability than their white counterparts, Hispanics were less likely to report activity limitations caused by their chronic health conditions.<sup>46</sup> This underreporting of limitations might explain why our Hispanic patients were less anxious and depressed compared to non-Hispanic blacks and non-Hispanic whites.

Lower rates of anxiety and depression among Hispanics may also be influenced by rates of acculturation; foreign born individuals have a lower risk of being diagnosed with or report mental health problems. Such findings have also been reported in studies using data from the Hispanic Health and Nutrition Examination Survey.<sup>46</sup> Because rates of HF increases with age, the fact that Hispanics are generally younger when they develop HF may partially explain our findings.<sup>47</sup> However, baseline age between the 3 ethnic groups was not statistically significant for our study.

In assessing levels of anxiety and depression, our study results confirm that higher perceived control and social support as reported by Hispanics were inversely associated with the development of anxiety and depression. Perceived control among cardiac patients was associated with fewer anxious and depressive symptoms,<sup>34,35</sup> higher self-esteem, and overall greater satisfaction with life.<sup>48</sup> Higher perceived control was also associated with an increased likelihood that a patient will proactively interact and manage their environment in an effort to improve the outcomes of unpleasant situations or events.<sup>3</sup>

The novel finding of this study was that having someone to confide in influences coping mechanisms among HF patients. To our knowledge, few investigators have assessed this phenomenon as a form of social support. As previously reported, social support can be seen as a medium by which patients can experience a sense of well-being and help reduce the incidence and prevalence of anxiety and depression.<sup>20</sup> In addition, adequate social support can help individuals counteract unhealthy behaviors, such as denial and behavioral disengagement, which are said to perpetuate

**Table 4A.** Full Multiple Regression Model of Anxiety (n = 241)

Dimension	Adjusted R <sup>2</sup>	Beta	<i>P</i>
Demographic	Gender	-0.068	.296
	Age	-0.071	.289
	Race	-0.144	.025
	New York	0.070	.294
Clinical	Heart Association Class		
	HF etiology	0.083	.204
	Number of comorbidities	0.065	.432
Psychosocial	Perceived control	-0.195	.002
	Social Support	-0.133	.034
	Perceived Financial Stability	0.039	.546

**Table 4B.** Full Multiple Regression Model of Depression (n = 241)

Dimension	Adjusted R <sup>2</sup>	Beta	<i>P</i>
Demographic	Gender	-0.034	.582
	Age	-0.100	.119
	Race	-0.153	.020
Clinical	New York	0.195	.002
	Heart Association Class		
Psychosocial	HF etiology	0.021	.740
	Number of comorbidities	0.055	.536
	Use of antidepressants	0.104	.094
	Perceived control	-0.290	<.001
	Social support	-0.132	.032
	Perceived financial stability	0.047	.450

poorer outcomes.<sup>3,49</sup> However, evidence on the impact of social support in HF patients is inconsistent; some investigators find a lack of association between social support and outcomes and others display strong, independent relationships.<sup>49–51</sup> Variations in defining and measuring social support do exist in the literature; some studies conceptualize it as having a partner or spouse, and others, as living alone or with someone. Clearly, measuring levels of social support is complex and should go beyond the assessment of marital status and living arrangements. Many individuals with a spouse or partner report receiving no social support or are less likely to confide their innermost fears to their partner. Thus, irrespective of marital status, having someone to openly confide in is as important as measuring various forms of social support. As seen in our study, those individuals who had someone to confide in were less likely to be affected by depression or anxiety.

Last, studies have predominately focused on the physical symptom recognition and management of anxiety and depression, rather than the patient's perspective on the effects of HF on his or her daily life. Our study results confirm the association between patient's perception of control over their condition and presence of someone to confide in and anxiety and depression. Although the direction of the relationship can not be determined because of the nature of the study design, our findings infer that psychosocial outcomes are just as important as the physical manifestation of disease. The investigators of this study support the potential usefulness of nonpharmacologic interventions to alleviate the progression, reduce feelings of anxiety and depression, and ultimately help improve outcomes in this vulnerable population. Successful nonpharmacologic interventions will need to focus not only on patient education and reinforcing personal control, but also on building and maintaining the structure of networks of support and attachment.<sup>48</sup>

Clearly, some racial/ethnic groups are at increased risk for anxiety and depression. Given the potential deleterious effects of anxiety and depression on morbidity and mortality in patients with HF, it is important that healthcare providers assess patients for anxiety and depression; non-Hispanic blacks warrant increased scrutiny. It is clear that researchers working with patients with HF will need to comprehend not only sociodemographic characteristics, but also their cultural values and norms. Additional research examining the unequal burden of HF experience by various racial/ethnic groups is needed to better understand factors that contribute to racial/ethnic differences in levels of anxiety and depression. To help patients successfully adhere to complex regimens and to provide optimal care, conducting culturally competent research with all patients is warranted. Such practices can hold promise in improving the care of HF minority patients and helping eliminate health care disparities. Each patient brings unique cultural patterns to his or her health care experience, and this experience must be recognized to help diminish disparities and advance quality health care for all.

### Limitations of the Data

Certain limitations must be considered when interpreting the results from this study. First, the study used a cross-sectional study design. Certain psychological conditions may have been unnoticed, underreported or unreported by the patient (ie, recall/reporting bias). As with any cross-sectional study, causation cannot be inferred. Our findings merely support the association between anxiety and depression and several demographic and psychosocial variables. Second, having a fairly homogeneous sample from a single tertiary care clinic also limits generalization to all patients with chronic HF. Additionally, Hispanic participants accounted for 22.8% of our study sample and were assessed as a monolithic group. The small sample size might not be representative of the overall Hispanic population affected with HF. This is a methodological concern that will be noted for future studies as it limits what researchers can demonstrate is unique to each group. Despite a shared language, marked differences in culture, history, lifestyle, and health care outcomes among Hispanics exist and should be considered when conducting research with Hispanic Americans.<sup>52</sup> It is also important to note that many non-English speaking participants, including Hispanics, were disqualified from the study because questionnaires were administered in English, thus limiting participation of only English-speaking Hispanics to the study. Hence, the prevalence of anxiety and depression and the significance of ethnic differences in expression/response to anxiety and depression in this study may be underreported. Finally, we recognize the limitations associated with the use of a single-item question to measure social support over other valid social support instruments that examine various contextual definitions of social support. However, the intent was to assess the impact of whether the presence of a confidant, which is highly related to instrumental and emotional support, was associated with anxiety and depression. Data from our study support the usefulness of this single-item measure in predicting psychological distress.

### Conclusions

Our findings confirm findings from previous studies that psychological distress was a common phenomenon in patients with HF. We also found that anxiety and depression were mediated by other factors. Patients with low perceived control and absence of someone to confide in were more likely to be more anxious and depressed. Because patient perceptions of control as well as social support (that is, the presence of someone in whom to confide in) are related to psychological distress known to influence morbidity and mortality, clinicians should regularly assess patients' concerns and assist in accessing appropriate services and treatments that are tailored to individual needs. Attention toward medical and behavioral interventions is warranted to not only curtail the financial costs and burden of this

disease, but also to continue to improve the quality of care and better meet the needs of this growing population. Coupling this with an increasingly diverse population in the United States, it is equally important to further explore racial/ethnic differences influencing anxiety and depression in an effort to further understand and target culturally appropriate and gender-specific interventions to those with the greatest need.

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