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The Effect of Nurse-Led Group Discussions by Race on Depressive Symptoms in Patients with Heart Failure

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Abstract

Background—African Americans with heart failure (HF) have the highest rates of depression among all ethnicities in the United States.

Objectives—To compare the effects by race on depressive symptoms and topics discussed in the first clinic appointment after HF hospitalization.

Methods—This study is a secondary analysis of data obtained from a randomized clinical trial that tested a patient group discussion of HF self-management intervention with 93 Caucasians and 77 African Americans.

Results—The reduction in depressive symptoms was significantly greater among African American patients within the intervention group ($F = 3.99$, $p = .047$) than controls. There were significant differences by race in four topics (dietitian referral, appointment date, help preparing discussion questions, and what to do about worsening HF symptoms) concerning patient-physician discussions.

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Conclusion—The intervention groups had a greater effect in reducing depressive symptoms among African Americans than Caucasians. Preparing patients for discussions at physician appointments on diet, depressive symptoms, and HF symptoms is recommended.

Keywords

African American; heart failure; depressive symptoms; nurse-led group discussion

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Background

Heart failure (HF) affects 6.5 million Americans, and an estimated 700,000 new cases are diagnosed each year.[1] Projections show that the prevalence of HF will increase by 46% from 2012 to 2030.[2] Annually 60,000 deaths are directly attributed to HF, and HF contributes to nearly 300,000 additional deaths in the United States. Nationally, HF results in one million hospitalizations each year with an annual cost of $37.2 billion.[1] African Americans are 1.5 times more likely to develop HF than Caucasians.[1,3] HF disproportionately affects African Americans due to early onset hypertension and diabetes, limited health care access, and frequent delays in seeking treatment compared to other races or ethnic groups.[4] African Americans have a higher prevalence of HF at a younger age[5] more frequent rehospitalization,[6] and higher health care expenses than other races or ethnic groups.[7]

Over 45% of people with HF experience repeated episodes of depressive symptoms[8] and patients with HF who have depression are at greater risk for rehospitalization and death.[9] Depressive symptoms double the risk for mortality and other cardiac events in patients with HF.[10] Notably, a four-fold increase in these negative HF outcomes occurs among depressed HF patients compared to those with no depression.[11] Also, HF patients who are depressed perform poorer self-management[12,13,14] Additionally, those with depression often report reduced quality of life.[15] Further, depressive symptoms may interfere with patient-physician discussions in clinic appointments.[16]

Depressive symptoms are known to impact mortality in all patients with HF.[11] African Americans with HF have the highest rates of depression among all ethnicities in the United States.[13] A meta-analysis of 27 large controlled studies found that the percent of depressive symptoms in HF patients was higher on average in all minority groups, including African Americans, than in Caucasians.[11] Mentz and colleagues compared HF patients by race and found that elevated baseline depressive symptom scores were associated with significantly greater HF-related rehospitalizations and mortality at 3 months in African Americans versus Caucasians.[17] Other studies found that African Americans with HF were more likely to have anxiety along with their depressive symptoms than other ethnic groups.[18] African American HF patients with depression or other psychiatric conditions had significantly higher readmission rates for HF.[19] Yet, minorities may disclose their depressive symptoms less often and often have poor access to mental health services. [12,20,21]

HF patients, regardless of race, may have several risk factors for depression including low level of education, lack of health literacy, lower socioeconomic levels, functional limitations, and less access to mental health services.[11,14,15,22] Thus, an intervention is critically needed

to empower all patients to identify and manage depression symptoms and develop skills for interacting with health providers during their clinic visits.

The theoretical framework that guided the clinical trial and the intervention was the Chronic Care Model (CCM).[23] The CCM emphasizes that a multidisciplinary healthcare team should support patient self-management and patient-centered communication.[24,25] The intervention addressed the CCM component of "supporting self-management" by using discussions with a multidisciplinary healthcare team. Briefly, the intervention included 4-weekly and one 6-month post-hospitalization patient group session where multidisciplinary HF experts facilitated discussions on HF self-management. Across these discussions patients were engaged in identifying, and reporting HF and depressive symptoms. Patients practiced how to maintain a positive mood, seek supportive peers, and participate in available community mental health resources. Further, our intervention included repeated discussions and practice preparing for appointments or telephone calls with their physicians so patients would engage in discussions about their conditions. The detailed intervention objectives, discussion topics, and tables of strategies used by professionals in these group discussions have been published.[26] All patients enrolled in the trial had been recently hospitalized for an exacerbation of HF and all had received standard HF hospital care. Standard care included discharge teaching on HF self-care management, medication prescriptions, and scheduling the patients' first post-hospital physician appointment.

Purpose

The primary aim of this secondary analysis was to compare the effects by race on depressive symptoms between baseline and 6 months after the intervention. Another aim was to compare by race the topics discussed during these patients' first post-hospital physician clinic appointment.

Methods

Design

This study was a secondary analysis of data obtained in a randomized clinical trial of an intervention using nurse practitioner (NP)-led HF self-management patient group discussions.[27,28] The original clinical trial design and procedures were consistent with the CONSORT standards[29,30] and included a control group receiving standard care. The primary objective of the clinical trial was to compare effects of the group discussion intervention on HF-related rehospitalizations. The reason for each rehospitalization was determined by two physicians blinded to patient group assignment as resulting from HF or not resulting from HF. In the clinical trial, there were no significant baseline differences by race in gender, length of HF diagnosis, number of comorbidities or pre-intervention depressive symptoms scores between the randomized to groups.[27]

Sample

Adult patients with New York Heart Association (NYHA) Functional Classification III or IV who were hospitalized for a HF exacerbation and able to read English were enrolled.[31] Excluded were patients who had received or were on a waiting list for a heart transplant and

HF patients with a terminal illness or medical diagnosis of dementia that might hinder their ability to participate. Exclusion for this secondary analysis also included the data from the few Hispanic/Latino patients (N=14) who enrolled in the clinical trial. This number was judged as too small for adequate statistical comparison. In this sample, the African Americans were significantly younger (by 10 years on average) and had a lower level of education than the Caucasians (See Table 1)

Procedure

Group Discussion Intervention—A total of five group discussion sessions (1.5 to 2 hours each) were held, the first four occurring weekly after the patient's hospitalization for HF exacerbation. The fifth session was held 6 months later to review the HF self-management previously discussed. Four multidisciplinary health professionals were present at each group discussion session: (1) a HF nurse practitioner (NP); (2) a psychiatric mental health clinical nurse specialist board-certified (PMHCNS-BC); (3) a social worker; and (4) a dietician. This multidisciplinary team was trained to facilitate, practice attentive listening, and engage all participants in the group discussions. Prior to starting each discussion, the group of patients were shown one of the short HF self-management DVD series.[32] The DVDs were based on AHA national guidelines for HF patient education,[33] used laymen's language, and had large graphics and multiple video scenes of patient home HF management.[34,35,36] Further, the DVDs included videos of patients, families, and multidisciplinary health professionals from 13 different ethnic backgrounds.

Across the entire intervention at all the sessions, the PMHCNS-BC guided patients in mood elevating activities to manage discouragement, depressive symptoms, and the loss of social activities due to their HF.[37] Examples of mood elevators discussed were listening to music, telephoning friends, engaging in hobbies, praying, and other activities these patients suggested had improved their moods. The PMHCNS-BC also led practice in contacting healthcare providers to discuss low mood.

Patients brought in their weekly worksheets sharing the ways they used their selected mood improving activities. Also, the intervention worksheets were used at each group discussion to assist patients in preparing questions for discussing with their physician (MD). In addition, patients were encouraged to ask their significant others for assistance in preparing questions for their MD appointments. The detailed intervention materials and the guided discussion topics in each session were published.[26]

Standard Care Content—The standard care objectives for HF patients randomized to the control group were based on the Joint Commission (formerly the Joint Commission on Accreditation of Healthcare Organizations (JCAHO)) required discharge HF information.[38] This required information included home care medication use, fluid and sodium restrictions, daily weight measurement to access fluid retention, reporting signs and symptoms of a worsening HF condition, the patients' follow-up medical plans, and scheduling their future physician appointments.[27] This standard HF home care information was delivered by trained HF nurses on the day of hospital discharge in an individual patient session and during one

post-hospital telephone call to reinforce HF self-management.[26] This same information was provided throughout the intervention discussions.

Variables and Measures

This secondary analysis included two measures: depression symptoms questionnaire and a checklist that patients completed about topics discussed in their first physician appointment collected at 6 months. The Center for Epidemiologic Studies Depression (CES-D) was collected at baseline and after the discussion sessions were completed 6 months after the intervention. Each measure has previously been used with diverse populations, chronically ill patients and patients with HF. These questionnaires were easily completed within 10 to 15 minutes.

Depressive symptoms questionnaire—The CES-D is a short version, 10-item Likert-type scale.[39] Questions included how often (ranging from less than 1 day to 7 days a week) the person had experienced the listed symptoms during the previous 4 weeks. Sample items are "I felt depressed," "I felt that everything I did was an effort." A total CES-D score was calculated per scale guidelines; higher scores indicating greater depressive symptoms. The Cronbach's alpha in the study sample was 0.86.

Post intervention physician appointment checklist—The 11-item checklist was designed to have patients indicate what topics were discussed with their physician in their first post-hospitalization appointment.[40] The topics listed for patients included HF home management problems, medications, what to do about diet and fluid restrictions, and HF symptoms becoming worse. Also, patients checked whether or not they had prepared a list of questions to bring to their appointment and if anyone had helped them prepare those questions. Patients were also asked if they obtained the date of their next physician appointment. The Kuder-Richardson 20 (KR20) reliability score in the study sample was 0.64, which is not unexpected for a binary checklist (Yes/No).

Data Analysis

The Statistical Package for the Social Sciences (SPSS, version 24) was used for data analysis. Descriptive statistics were used to summarize the demographic data and numbers of comorbidities. An analysis of variance was used to detect a significant change score in depressive symptoms between baseline and 6 months and between study groups by race. The mean change score analysis was used as this approach takes into account the patients' baseline score of depressive symptoms. Thus, this approach controls for the baseline score. [41]

Results

The sample included 77 (45.3%) African Americans, and 93 (54.7%) were Caucasians (See Table 1). Average age was 61.78 years (range 24 to over 89 years) with African Americans significantly younger than Caucasians by 10 years on average. Education ranged from less than high school to some college and higher. African Americans completed significantly lower education levels compared to Caucasians. There was no significant difference in the

number of comorbidities by race. The patients had a median of three comorbidities (ranging from 1 to 7), with hypertension, diabetes mellitus, and chronic lung diseases being the most common. At baseline, there were no significant differences between African Americans and Caucasians on average length of HF diagnosis, which was 5.96 years.

Depressive symptom scores

There was no significant difference on depressive symptoms scores between African Americans and Caucasians at baseline. The 2×2 analysis of variance, as shown in Table 2, found improvement on depressive symptoms scores at 6 months among all patients regardless of race. Yet, African Americans in the intervention discussion groups had a significantly greater average reduction of 4.19 points in their depressive symptoms scores compared to Caucasians ($F(1, 166) = 3.99$, $p = .047$). This analysis of change in depressive symptoms scores from baseline to 6 months post-intervention revealed a differential effect of the group discussions by race in African American patients.

Post intervention physician appointment checklist

Of the 11 checklist items, there were differences on four items between African Americans and Caucasians (See Table 3). Significantly more African Americans than Caucasians reported that their physicians talked to them about seeing a dietitian and indicated that someone had helped them write questions to ask their physician. In contrast, fewer African Americans than Caucasians indicated that their physician talked to them about what to do if their HF symptoms became worse and the date for the next appointment. There were no significant differences by race on the topics of exercise, medication problems or changes, daily weights, and bringing a list of questions.

Discussion

There was a significantly greater decline in depressive symptoms change scores among African Americans than Caucasians in the intervention discussion groups. This mean difference was clinically significant since a reduction of 4 to 5 points can move the patient from the severe or moderate category of symptoms to mild depressive levels.[11] The mild level depressive symptoms typically resolve on their own whereas these higher levels would warrant a referral to mental health professionals.[12,42,43]

All patients in the groups encouraged each other to share feelings and to speak with their family members and friends as a way of managing HF depressive moods. Support from persons in similar situations consistently results in patients' improved confidence, adherence to treatments, and lower incidence of depressive symptoms.[44] Peer support is known to be acceptable to African Americans.[45,46] Other clinical trial results of peer discussion groups reported improved self-care competence, social integration, greater use of community services, and lower depression levels.[47] Our previous research found "learning from other patients", was highly rated by patients and family members in previous focus groups that included 50% African Americans.[48,49]

It was noted from the appointment checklist that more African American patients requested assistance of family or friends in preparing questions to ask physicians than the Caucasians.

During the group discussions, all intervention patients used worksheets to keep track of their HF symptoms and practiced how to report signs of worsening depressive symptoms. Yet, in this sample, African American patients indicated at the post-hospital appointment there was less discussion of what to do if HF symptoms become worse than Caucasians. The checklist does not list if the patient or if the physician brought up the topic, only if the topic was discussed.

During standard HF care, information on HF and depressive symptoms is often provided close to hospital discharge or at the early post-hospitalization physician appointment, at a time when the patients' emotional stress may inhibit learning. Further, the hospital discharge instructions and the first post-hospital clinic appointment can be overwhelming for patients, thus the focus is limited to specific topics and not often depression.[50,51] However, limited time for appointments, physicians and health providers use of medical terms, and teaching that focuses on medications and fluid and sodium restrictions, may limit discussion of depressive symptoms.[9,40] Physicians' listening qualities have been shown to enable patients to disclose their depressive symptoms.[52,53]

Based on recommendations by the American Heart Association Prevention Committee, all patients with heart disease should be screened for depressive symptoms.[15,50] Any patients found to have depressive symptoms according to screening instruments should be referred to a mental health professional for further assessment and proper treatment to avoid exacerbation of their depressive symptoms. Short depressive symptoms assessments could also be completed during the clinic appointments.

Implications for further research are to engage African American populations in comparative effectiveness clinical trials testing various types of discussion interventions (i.e. peer groups, individual sessions with professionals, telephone conversations) for effects on depressive symptoms scores. In practice, it is important to seek better strategies to maintain excellent provider-patient communications. Thus, in future research, interventions helping patients to prepare for and bring questions to their clinic appointments should be tested. Also, any future checklists about the topics discussed in clinic appointments should include assessing depressive symptoms.

Conclusion

There was a differential effect by race on depressive symptom reduction among African American HF patients who were in patient group discussions with multidisciplinary professionals. Empowering patients to prepare and ask questions at their physician appointments may promote discussion of depressive symptoms monitoring, and reporting signs of worsening HF condition to their health care providers.

Acknowledgments

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Table 1

Demographics and Clinical Characteristics of the Samples by Race (N=170).

Demographic	Total n=170	African Americans (n = 77)	Caucasians (n = 93)
Age (*M, SD*)	61.78 (13.33)	56.65 (13.03)[*]	66.02 (12.09)[*]
Sex			
Male	101 (59.4%)	39 (50.6%)	62 (66.7%)
Female	69 (40.6%)	38 (49.4%)	31 (33.3%)
Education			
Less than high school	30 (17.6%)	20 (26%)	10 (10.8%)
High School	51 (30%)	24 (31.2%)	27 (29%)
Some college or higher	89 (52.3%)	33 (42.9%)	56 (60.2%)[**]
Length of HF diagnosis (years)	5.96 (7.49)	4.76 (6.49)	6.95 (8.13)
Numbers of comorbidities	*M*=3 (range 1–7)	*M*=3 (range 1–7)	*M*=3 (range 1–7)

[*] $t = -4.86$, $p < .001$ (African American sample is younger)

[**] $\chi^2 = 8.02$, $p = .02$ (African American sample is less educated)

Table 2

Comparison of Mean CES-D Scores at Baseline, 6-months, and Mean CES-D Score Reduction by Group and Race.

Group	African Americans (n=77)		Caucasians (n=93)	
	Intervention (n=32)	Control (n=45)	Intervention (n=46)	Control (n=47)
Baseline Mean (SD)	10.38 (6.17)	9.58 (7.49)	8.22 (5.90)	8.43 (6.77)
6-month Mean (SD)	6.19 (5.18)	7.58 (6.88)	6.30 (5.74)	5.21 (5.49)
Mean Score Reduction (SD)	**−4.19** [*] (5.33)	−2.0 (5.51)	−1.92 (5.38)	−3.21 (6.13)

[*] The African Americans in the intervention group had an average significantly reduction of 4.19 points in their depressive symptoms scores at 6-month compared to baseline ($F = 3.99$, $p < .05$).

Table 3

Comparison of Post-Intervention Physician Appointment Checklist Percentage Responses by Race.

Checklist Items (Yes or No Response Choices)	African Americans	Caucasians	χ^2	*p*-value
	Percentage of "Yes" Responses			
1. Did your doctor talk to you about seeing a dietitian to discuss your diet or salt?	17%	13.1%	3.80	.037[*]
2. Did your doctor tell you what to do if your heart failure symptoms get worse?	39%	41.2%	3.34	.05[*]
3. Did you receive an appointment for your next doctor visit?	38.4%	39%	4.82	.02[*]
4. Did someone help you write these questions?	17.2%	12.5%	5.66	.02[*]

[*]
$p < .05$