

Psychosocial and Cultural Influences on Cardiovascular Health and Quality of Life Among Hispanic Cardiac Patients in South Florida

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This study examined whether psychosocial and cultural factors were related to four dimensions of cardiac-related quality of life (global, physical, emotional, and social functioning) in 120 Hispanic coronary heart disease (CHD) outpatients in south Florida. Survey data were collected on sociodemographic (age, gender, socioeconomic status), psychosocial (depression, social support), and cultural factors (acculturation, familism, fatalism), and quality of life. Medical data on CHD severity (New York Heart Association class, time since diagnosis) were obtained from patients' clinic records. Hierarchical regression analyses revealed that women and patients with more severe CHD had poorer quality of life than men or patients with less severe CHD. Psychosocial and cultural factors were associated with poorer quality of life after controlling for sociodemographic and medical variables: Depression was associated with all four quality of life dimensions ($p < .001$); and fatalism ($p < .05$) was associated with lower social functioning in women. These findings identify Hispanic subgroups with poor cardiac-related quality of life that can benefit from special outreach.

KEY WORDS: heart disease; hispanics; quality of life; depression; acculturation.

Despite encouraging declines in heart disease mortality rates, more people in the United States die from coronary heart disease (CHD) each year than from any other cause, accounting for 20% of all adult deaths, and costing the U.S. economy over \$111 billion per year (American Heart Association, 2002). CHD is also the leading cause of death among Hispanics residing in the United States, regardless of gender or country of origin (American Heart Association, 2002; Moreno *et al.*, 1997). In 2000, 24% of all deaths among Hispanics were as a result of CHD (Anderson, 2002).

For men and women who survive CHD events, the physical and psychosocial sequelae can be signifi-

cant, requiring long periods of recovery and, in some cases, resulting in long-term physical, emotional, and social deficits. Issues related to progression of disease, recurrence of acute illness, and death are universally present for heart disease patients and may be met with reactions ranging from denial to depression and social isolation (Strike and Steptoe, 2004). Given the complicated nature of heart disease and its potentially debilitating impact on physical, emotional, and social functioning, studies have attempted to identify psychosocial and cultural factors that influence quality of life outcomes.

Psychosocial Factors and Cardiac-Related Quality of Life

Psychosocial factors, such as depression and low social support, have been empirically linked to the development, clinical expression, and prognosis of CHD, with approximately 20–40% of CHD patients

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exhibiting depressive symptoms and 18% meeting criteria for current major depression (Carney *et al.*, 2002; Let *et al.*, 2004; Strike and Steptoe, 2004). Forty-two percent of cardiac patients exhibiting depressive symptoms go on to develop major depression (Hance *et al.*, 1996). Patients who meet criteria for major depression following myocardial infarction (MI) are at increased risk of recurrent cardiac events (Barefoot and Schroll, 1996; Frasure-Smith and Lesperance, 2003; Rosengren *et al.*, 2004) and are four times more likely to die of cardiac causes compared with those without depression, even after controlling for other prognostic risk factors (Carney *et al.*, 2002; Frasure-Smith *et al.*, 1993; Let *et al.*, 2004). In addition to impacting physical health outcomes, the presence of depressive symptoms in CHD patients has been associated with a greater reduction in social functioning than seen with either depression or CHD alone (Rumsfeld *et al.*, 2003; Wells *et al.*, 1989). Together, these data demonstrate that depressive symptoms and episodes of major depression are common in CHD patients and affect several areas of patient adjustment.

Low social support, or social isolation, has been related to various manifestations of CHD, including higher prevalence rates of angina pectoris, myocardial infarction, and cardiac death (Stansfeld and Fuhrer, 2002). Social isolation is a more common experience for women, especially elderly women, given their relatively longer lifespan in comparison to men (Berkman *et al.*, 1993), and may in part explain why women with CHD experience higher rates of depression than men even after controlling for age, severity of disease, and co-morbidities (Gottlieb *et al.*, 2004; Orth-Gomer, 1998; Schumaker and Czajkowski, 1993). In contrast to social isolation, the presence of social support has been shown to have a protective effect with respect to CHD morbidity and mortality through increased adherence to medical therapies and lifestyle recommendations, and serving as a buffer to adverse psychological sequelae, such as depression (Krumholz, 1998; Shen *et al.*, 2004).

Although there have been numerous studies examining the impact of psychosocial factors on cardiac-related quality of life, very few have focused specifically on Hispanic cardiac patients. Examining quality of life in this population is needed given recent evidence that outcomes from CHD may be worse for Hispanics than for non-Hispanic Whites, particularly as they relate to cardiovascular treatment, morbidity, and mortality (Hunt *et al.*, 2003;

Pandey *et al.*, 2001; Yarzebski *et al.*, 2004). The few quality of life studies that have been conducted in Hispanics with certain cardiac-related conditions, such as diabetes and angina, have suggested that they have higher depressive symptoms than non-Hispanic Whites with similar conditions (Nanjundappa and Friis, 1985) and healthy Hispanic peers (Portillo *et al.*, 1995). Furthermore, low levels of social support, functional impairment, and socioeconomic status (SES) appear to be associated with high levels of depressive symptoms in this patient population (Nanjundappa and Friis, 1985; Portillo *et al.*, 1995). However, further research is needed to examine the relationship between depression, social support, and quality of life in Hispanic cardiac patients given that existing studies are limited by outdated information and do not include patients with diagnosed CHD.

Cultural Factors and Cardiac-Related Quality of Life

To date, few studies have examined the relationship between cultural factors and health outcomes in chronically ill patient populations, such as those with CHD. Consequently, inferences about the unique impact that cultural factors have on the quality of life of Hispanic cardiac patients are limited. Hispanics entering the U.S. go through a process of adaptation, or acculturation, which manifests in many different ways. Although many adapt well, some Hispanics experience adjustment difficulties that can lead to a number of problems in one's level of physical (e.g., management of CHD), emotional (e.g., depression), and social (e.g., low social support) functioning. Cultural factors, such as level of English language proficiency (behavioral acculturation), having passive or fatalistic views towards one's illness (fatalism), and perceived availability of family or ethnic community support (familism), have been shown to influence quality of life outcomes through medical management of disease, utilization of health care resources, and health outcomes (Perez-Stable *et al.*, 1997; Neff and Hoppe, 1993; Cuellar *et al.*, 1995). Specifically, lower quality of life in Hispanics has been associated with lower levels of acculturation, income, and English language proficiency, and fewer years residing in the U.S. (Perez-Stable *et al.*, 1997; Ailinger *et al.*, 1993; Shetterly *et al.*, 1996; Tran *et al.*, 1996). Therefore, cultural factors are potentially valuable in fully

understanding the quality of life of Hispanic cardiac patients.

Current Study

The purpose of the current study was to examine whether psychosocial and cultural factors were related to four dimensions of cardiac-related quality of life (global, physical, emotional, and social functioning) in a representative sample of Hispanic women and men, diagnosed with CHD, from south Florida. Our primary aims were to: (1) Describe the cardiovascular risk factor profile, psychosocial functioning, and quality of life of Hispanic cardiac patients in this region of the U.S.; and (2) identify sociodemographic, medical, psychosocial, and cultural factors that were most strongly related to quality of life.

METHOD

Design and Procedure

A cross-sectional survey was administered between 1999 and 2000 to 120 consecutive, Hispanic cardiac patients who were attending scheduled visits to a cardiac outpatient clinic in Miami-Dade County, Florida, a coastal region known for its large Cuban, Puerto Rican, and South American population (these groups account for 57% of the total county population; U.S. Census Bureau, 2003). Eligibility criteria were that patients be: (1) 18 years of age or older; (2) have a primary diagnosis of CHD, consisting of coronary artery disease with or without cardiomyopathy; and (3) self-identify as Hispanic, based on whether the patient was born, or whose relatives were born in Cuba, Central America, South America, Puerto Rico, or Spain (Federal Register, 1978). Eligibility criteria were confirmed by review of the patient's clinic records. Following their appointment with the cardiologist, eligible patients were asked to participate in a brief survey that assessed cardiovascular risk factors and adjustment to one's heart condition. To ensure anonymity, subject numbers were used to identify each packet of questionnaires. The Institutional Review Board (IRB) at the University of Florida approved all study procedures. Bilingual, bicultural interviewers offered to administer the survey in Spanish or English, based on patient preference, to ensure high response rates. One

hundred percent of our sample requested to have the survey administered in Spanish.

Definition of Variables

The back translation method (Brislin, 1970) was used to develop the Spanish-language versions of the survey. Study variables of interest consisted of the following:

Sociodemographic Factors

Sociodemographic factors were age (in years), gender, and socioeconomic status (8–66). Socioeconomic status (SES) was calculated utilizing the four-factor Hollingshead index, which takes into account education level obtained, current occupation, gender, and marital status (Hollingshead, 1975). Higher scores are indicative of higher SES.

Medical Factors

Medical factors were New York Heart Association (NYHA) class (classes 1–4), left ventricular ejection fraction (0–100%), time since diagnosis (in years), and a medical co-morbidity index (i.e., positive/negative history of heart failure, lung disease, diabetes, hypertension, angina, myocardial infarction, arrhythmia, or cancer; possible range = 0–8). NYHA class takes into account the etiology, anatomy, physiology, functional classification, and objective assessment for each patient, with higher scores reflecting higher levels of medical severity (Hurst *et al.*, 1999). Medical data on CHD severity (NYHA class, left ventricular ejection fraction, time since diagnosis, medical co-morbidity index) and cardiovascular risk factors were obtained from patients' clinic records.

Psychosocial Factors

Depression. Twenty items from the Center for Epidemiologic Studies-Depression Scale (CES-D) were used to assess affective and somatic symptoms of depression (Radloff, 1977). The total possible score, ranging from 0 to 60, reflects both the number of symptoms reported and their frequency during the past week. Higher scores reflect greater severity

of depressive symptoms. A cut-off score of 16 was used for reporting prevalence of high depressive symptoms. Cronbach's alpha for the current study was .89 and is consistent with previous estimates with the general U.S. and Hispanic populations (Guarnaccia *et al.*, 1989; Zich *et al.*, 1990).

Social Support. Nineteen items from the Medical Outcomes Study-Social Support Survey were used to assess perceived availability of social support (Sherbourne and Stewart, 1991). The total social support standardized score (range = 0–100) was utilized with higher scores reflecting a greater degree of perceived social support (Cronbach's alpha = .95).

Cultural Factors

Behavioral Acculturation. Twelve items from the Short Acculturation Scale for Hispanics were used to assess behavioral acculturation (Marin *et al.*, 1987). The acculturation scale is comprised of three factors (language use, media, and ethnic social relations). Respondents answered each of the items on a 5-point Likert scale (e.g., 5 indicating "only English" and 1 indicating "only Spanish"). The total average acculturation score (range = 1–5) was utilized with higher scores reflecting greater integration into the U.S. mainstream culture (Cronbach's alpha = .89).

Familism. Thirteen items from the Familism scale were used to assess three domains of familism (familial obligations, perceived support from the family, and family as referents) (Sabogal *et al.*, 1987). Respondents answered each item on a 5-point Likert scale (with 5 indicating "completely true" and 1 indicating "not at all true"). The total average score (range = 1–5) across these domains was utilized with higher scores indicating more traditional views of the family as a support system (Cronbach's alpha = .80).

Fatalism. Seven items from the Fatalism/Mastery Scale (Neff and Hoppe, 1993) were used to assess "Personal Fatalism" (perception of one's inability to control events in the world). Respondents answered each item on a 4-point Likert scale (with 4 indicating "strongly disagree" and 1 indicating "strongly agree"). The total score was utilized (range = 1–28) with lower scores indicating having greater fatalistic interpretations towards future events and a sense of low mastery (Cronbach's alpha = .63).

Cardiac-Related Quality of Life

Twenty-seven items from the MacNew Quality of Life after Myocardial Infarction (QLMI) questionnaire were used to assess four dimensions of cardiac-related quality of life—global, physical, emotional, and social functioning (Oldridge *et al.*, 1991; Valenti *et al.*, 1996). A single global index of cardiac-related quality of life (range = 1–7) was derived by combining the patient's responses to all items on the QLMI divided by the number of items (Cronbach's alpha = .90). Although physical, emotional, and social dimensions of cardiac-related quality of life have previously been derived from the global index, these dimensions share overlapping items to compute composite scores that can lead to high interdimension correlations. This was observed between the three dimensions in the current study ($r = .70-.87$, $p < .001$). Therefore, a principal components analysis with varimax rotation was conducted in order to identify possible new dimensions that were more independent of one another. Items that were most heavily weighted towards each new dimension were selected. Following this procedure, a revised physical functioning dimension (QLMI items 17, 20, 27), a revised emotional functioning dimension (QLMI items 1, 3–6, 8, 10, 14–15, 18), and a revised social functioning dimension (QLMI items 12–13, 24–25) were identified and were similar in content to the original three QLMI dimensions but shared no overlapping items. Total scores divided by the number of items for each revised dimension were used (range = 1–7), with higher scores representing better health status. Cronbach's alpha for the current study was .90 (revised physical functioning), .89 (revised emotional functioning), and .71 (revised social functioning). When assessing group differences on the QLMI, a difference of 0.5 has been suggested as a useful indicator of clinical significance between patient groups (Höfer *et al.*, 2004).

Statistical Analyses

Pearson's chi-squared and *t*-tests were conducted for categorical and continuous variables, respectively, to examine gender differences on study characteristics (Table I) and cardiovascular risk factor profile variables (Table II).

Hierarchical multiple regression models were performed to identify which psychosocial and

Table 1. Study Characteristics of Hispanic Cardiac Patients in South Florida, by Gender, 1999–2000

	Total (<i>n</i> = 120)	Women (<i>n</i> = 35)	Men (<i>n</i> = 85)
Sociodemographic factors			
Mean age ($\bar{x} \pm SD$)	65.9 (± 11.1)	66.6 (± 10.6)	65.7 (± 11.5)
Socioeconomic status, unskilled and semiskilled workers (%)	58.0	68.6	53.6
Medical factors			
New York heart association Class I or II (%)	75.7	69.7	78.1
Left ventricular ejection fraction <55 (%)	69.5	48.6***	78.3
Mean time since diagnosis ($\bar{x} \pm SD$)	5.7 (± 5.5)	5.1 (± 5.8)	6.0 (± 5.4)
Mean medical co-morbidity index ($\bar{x} \pm SD$)	3.0 (± 1.3)	3.3 (± 1.4)	3.0 (± 1.3)
Psychosocial factors			
Depression score ≥ 16 (%)	25.8	42.9**	18.8
Depression ($\bar{x} \pm SD$)	11.4 (± 10.5)	15.5 (± 9.7)**	9.8 (± 10.5)
Social support ($\bar{x} \pm SD$)	88.1 (± 17.2)	83.0 (± 20.1)*	90.1 (± 15.6)
Cultural factors			
Behavioral acculturation ($\bar{x} \pm SD$)	1.7 (± 0.6)	1.7 (± 0.6)	1.8 (± 0.7)
Familism ($\bar{x} \pm SD$)	4.0 (± 0.6)	4.1 (± 0.5)	3.9 (± 0.7)
Fatalism ($\bar{x} \pm SD$)	18.9 (± 3.0)	19.0 (± 4.1)	18.9 (± 2.5)
Cardiac-related quality of life dimensions			
Global functioning ($\bar{x} \pm SD$)	5.7 (± 0.8)	5.3 (± 0.7)***	5.9 (± 0.9)
Original physical functioning ($\bar{x} \pm SD$)	5.6 (± 1.0)	5.3 (± 0.8)*	5.7 (± 1.1)
Original emotional functioning ($\bar{x} \pm SD$)	5.8 (± 0.9)	5.4 (± 0.8)***	6.0 (± 0.9)
Original social functioning ($\bar{x} \pm SD$)	5.9 (± 0.9)	5.8 (± 0.7)	6.0 (± 0.9)
†Revised physical functioning ($\bar{x} \pm SD$) ^a	5.3 (± 1.6)	5.3 (± 1.4)	5.3 (± 1.7)
†Revised emotional functioning ($\bar{x} \pm SD$) ^a	5.7 (± 1.1)	5.2 (± 1.0)***	6.0 (± 1.0)
†Revised social functioning ($\bar{x} \pm SD$) ^a	6.4 (± 0.9)	6.3 (± 0.8)	6.4 (± 0.9)

Note. Pearson's χ^2 and *t*-tests were conducted for categorical and continuous variables, respectively.

^aRevised dimensions derived from principal components analysis.

p* < .05; *p* < .01; ****p* < .001.

cultural factors were most strongly associated with the four dimensions of cardiac-related quality of life, after controlling for sociodemographic and medical factors. The 7-point summary score for each quality of life dimension (global functioning, revised dimensions of physical, emotional, and social functioning) was used as the dependent variable. Based on associations found in past studies, the following 12 sociodemographic, medical, psychosocial, and cultural factors were considered as possible independent variables: Age, gender, SES, New York Heart Association (NYHA) class, left ventricular ejection fraction, time since diagnosis, medical co-morbidity index, depression, social support, behavioral acculturation, familism, and fatalism. Inclusion of a medical co-morbidity index, consisting of a positive/negative history of several reported clinical disorders per review of patient clinic records (possible range = 0–8, \bar{x} = 3.0, *SD* = 1.3), yielded no significant differences in the results presented for the four hier-

archical regression models on cardiac-related quality of life. Given that several of the medical conditions within the co-morbidity index are taken into account by the patient's NYHA class, as evidenced by the high correlation between these two indices ($r = .37$, $p < .001$), NYHA class was used as an index for medical severity in the current study, and is consistent with what has been used in prior quality of life studies with non-Hispanic cardiac patients. Similarly, there was no significant correlation between left ventricular ejection fraction and the four dimensions of cardiac-related quality of life, therefore, NYHA class replaced this variable in all four hierarchical multiple regression models.

Exploratory regression analyses were performed to examine whether gender was a moderator for any relationships found in the primary regression analyses for the four dimensions of cardiac-related quality of life. For these exploratory models, gender and significant main effects found in the primary

Table II. Cardiovascular Risk Factor Profile of Hispanic Cardiac Patients in South Florida, by Gender, 1999–2000

	Total (<i>n</i> = 120)		Women (<i>n</i> = 35)		Men (<i>n</i> = 85)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Cardiac risk factors						
Age risk						
Male >45 years	82	68.3	—	—	—	—
Female >55 years	29	24.2	—	—	—	—
Family history of CHD	41	36.9	11	33.3	30	38.5
Current/past smoker	77	64.2	9	25.7**	68	80.0
Diabetes	35	30.2	12	36.4	23	27.7
Hypertension	87	77.0	28	82.4	59	74.7
LDL >130	21	21.6	10	32.3	11	16.7
HDL <35	16	16.7	3	9.7	13	20.0
Hypercholesterolemia	68	57.1	22	62.9	46	54.8
Cardiac history						
Myocardial infarction	63	52.5	13	37.1*	50	58.8
Angina	113	95.8	32	94.1	81	96.4
Valvular disease	60	51.3	19	55.9	41	49.4
Arrhythmia	58	48.3	21	60.0	37	43.5
Vascular disease	14	11.8	7	20.6	7	8.2
Medical procedures						
Bypass surgery	40	33.3	9	25.7	31	36.5
Previous PTCA	40	33.3	8	22.9	32	37.6
Previous stent	30	25.0	4	11.4*	26	30.6
Pacemaker	12	10.0	5	14.3	7	8.2

Note. CHD, coronary heart disease; LDL, low-density lipoprotein cholesterol; HDL, high-density lipoprotein cholesterol; PTCA, percutaneous transluminal coronary angioplasty.

* $p < .05$; ** $p < .001$.

regression analyses were entered in the model, followed by interaction terms of these main effects by gender (e.g., gender by depression). Interaction terms were construed by first centering each main effect variable around its mean value (i.e., subtracting the mean from the main effect variable for continuous variables; recoding binary variables as +0.5 or -0.5) and then multiplying that term by gender, which was also centered (Aiken and West, 1991). The simple effect slopes of continuous variables (e.g., depression, fatalism) were then used to illustrate significant moderation effects by gender. Interaction terms of $p < .01$ were considered significant.

RESULTS

A total of 120 Hispanic women and men participated in the survey, of which 100% had complete data on cardiac-related quality of life. There were high response rates, with 92% of eligible adults (35 women and 85 men) completing the survey. Those who refused to participate ($n = 10$)

did not differ from study participants by age or gender.

Sociodemographic and Medical Factors

Overall, the women and men in the sample were similar on most of the sociodemographic factors (Table I). Participants were 66 years of age on average. A large proportion of participants had private health insurance (56%) and had at least a high school education (50%). Although the majority of participants were married (72%), women had significantly less annual family income than their male counterparts ($\bar{x} = \$11.7K$ versus $\$20.7K$) $t(113) = 2.63$, $p = .01$. Both women and men were long-term residents of the U.S., having lived in the U.S. an average of 28 years ($SD = 13.9$). The majority of participants were U.S. immigrants (99%), with approximately three-fourths of participants being born in Cuba (72%); the remainder were born either in South America (12%), Puerto Rico (8%), or other regions of Latin America (7%).

Women and men were also similar on most of the medical factors (Table I). The majority of participants had a primary diagnosis of coronary artery disease (64%), a New York Heart Association (NYHA) class of I or II (76%), and a mean left ventricular ejection fraction of 45.7% (range 15–70). Approximately half of the women had an ejection fraction less than the normal value of 55% compared to about three-fourths of the men in the sample $\chi^2(1) = 10.27$, $p < .001$. At the time of the study, participants averaged between 5 and 6 years (range = 1 month to 27 years) since the time of their initial diagnosis. The cardiovascular risk factor profile for Hispanic women and men in our sample is presented in Table II. Overall, women and men were similar on cardiac risk factors present, their cardiac history, and medical procedures received.

Psychosocial and Cultural Factors

There were more differences between women and men on psychosocial factors (Table I). For example, when the prevalence of high depressive symptoms was assessed (CES-D score ≥ 16), about 43% of women had an elevated number of depressive symptoms compared to 19% of men $\chi^2(1) = 7.47$, $p < .01$. Overall, 26% of the patient sample reported high depressive symptoms. Women also reported having less social support than men $t(118) = 2.19$, $p < .05$. Of note, no ethnic differences (non-Cuban Americans versus Cuban Americans) were observed for depression or social support.

In contrast to psychosocial factors, there were no differences observed between women and men on cultural factors (Table I). Overall, participants tended to be low acculturated, or less integrated with the U.S. mainstream culture. The majority of participants reported speaking Spanish at home, using Spanish-language media, and mostly interacting with people of Hispanic origin (92%). Women and men also tended to have a strong sense of familism in that they viewed family as an important source of support, they reported feeling an obligation to support other family members should the need arise, and they viewed family members as being an integral part of decision-making ($\bar{x} = 4.0$, out of 5.0). Interestingly, having a higher socioeconomic status was associated with higher levels of acculturation and lower levels of familism (Table III). Higher levels of acculturation were also significantly associated with lower levels of familism. In contrast, being older was

associated with having lower levels of acculturation. Non-Cuban American cardiac patients (e.g., Puerto Ricans, South and Central Americans) tended to be more acculturated to U.S. mainstream culture $F(1, 118) = 15.60$, $p < .001$, and have lower levels of familism $F(1, 118) = 4.29$, $p < .05$, than Cuban Americans. However, they did not differ on levels of fatalism. Approximately 27% of participants reported having some fatalistic views towards future events and believing that these events were out of their control (fatalism; total score > 1 standard deviation below the mean in the current sample). These fatalistic beliefs were associated with greater medical severity (NYHA class), higher depressive symptoms, and lower levels of global, physical (revised), and emotional (revised) cardiac-related quality of life (Table III).

Cardiac-Related Quality of Life

A high proportion of women and men reported moderate to high cardiac-related quality of life (82–92%), with only a subset of patients reporting cardiac adjustment difficulties in the areas of global functioning (13%), and revised dimensions of physical (18%), emotional (17%), and social (8%) functioning, respectively (total score > 1 standard deviation below the mean in the current sample). Women reported lower global and emotional (revised) functioning due to their heart disease than men (Table I), with mean gender scores for both of these dimensions being clinically significant from one another (> 0.5 difference). No ethnic differences (non-Cuban Americans versus Cuban Americans) were observed on any of the quality of life dimensions.

The results of the four hierarchical multiple regression analyses, which identified sociodemographic, medical, psychosocial, and cultural factors that were most strongly associated with each of the four cardiac-related quality of life dimensions (global functioning, revised dimensions of physical, emotional, and social functioning), are shown in Table IV.

Global Functioning

Depression, New York Heart Association (NYHA) class, and time since diagnosis were significantly associated with poor global functioning—characterized by physical, emotional, and social well

Table III. Pearson Correlations of Study Variables for Hispanic Cardiac Patients in South Florida, 1999–2000

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 AGE	—	.04	-.23*	-.06	.14	.03	-.03	.08	-.36***	.15	-.11	-.04	-.09	.10	.06
2 GEN		—	-.30***	.09	.08	-.08	.25**	-.19*	-.07	.10	.01	-.29***	.00	-.35***	-.05
3 SES			—	-.06	-.11	.05	-.17	.02	.49***	-.39***	.03	.21*	.13	.14	.04
4 LVEF				—	-.35***	-.24**	.09	-.01	-.05	.07	-.15	-.01	.17	-.19*	.23*
5 NYHA					—	.20*	.23*	-.08	-.04	-.01	-.20*	-.42***	-.45***	-.24**	-.29**
6 TMDX						—	.04	-.01	.06	-.05	-.02	-.17	-.21*	-.06	-.21*
7 DEP							—	-.47***	.06	-.03	-.29***	-.77***	-.40***	-.81***	-.39***
8 SS								—	-.12	.20*	-.00	.35***	.10	.44***	.19*
9 ACC									—	-.33***	.00	-.04	.02	-.08	-.09
10 FAM										—	-.04	-.01	.01	.04	.10
11 FAT											—	.23*	.20*	.25**	-.05
12 GF												—	.71***	.87***	.60***
13 RPF ^a													—	.40***	.42***
14 REF ^a														—	.38***
15 RSF ^a															—

Note. Lower scores on the fatalism questionnaire represent higher fatalistic beliefs. GEN, gender; SES, socioeconomic status; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association Class; YRDX, time since diagnosis; DEP, depression; SS, social support; ACC, acculturation; FAM, familism; FAT, fatalism; GF, global functioning; RPF, revised physical functioning; REF, revised emotional functioning; RSF, revised social functioning.

^aRevised dimensions derived from principal components analysis.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table IV. Hierarchical Regression Analyses for Variables Associated with Four Dimensions of Cardiac-Related Quality of Life

Variables	Global functioning			Physical functioning ^d			Emotional functioning ^d			Social functioning ^d		
	R ²	Standard error	Standard β	R ²	Standard error	Standard β	R ²	Standard error	Standard β	R ²	Standard error	Standard β
Sociodemographic	0.69			0.37			0.72			0.27		
Age		0.005	-0.047		0.012	-0.072		0.006	0.080		0.007	0.020
Gender		0.112	-0.072		0.296	0.152		0.137	-0.159*		0.179	0.078
SES		0.004	0.064		0.012	0.063		0.005	-0.005		0.007	0.042
Medical												
NYHA class		0.075	-0.213**		0.197	-0.329**		0.091	-0.046		0.120	-0.213*
Time/diagnosis		0.009	-0.129*		0.023	-0.145		0.011	-0.047		0.014	-0.160
Psychosocial												
Depression		0.006	-0.711**		0.015	-0.414**		0.007	-0.749**		0.009	-0.406**
Social support		0.003	-0.025		0.009	-0.101		0.004	0.025		0.005	-0.023
Cultural												
Acculturation		0.089	-0.023		0.235	0.023		0.108	0.019		0.142	-0.031
Familism		0.085	0.006		0.223	0.048		0.103	0.034		0.135	0.074
Fatalism		0.017	-0.011		0.046	0.018		0.021	0.047		0.028	-0.186*

Note. Lower scores on the fatalism questionnaire represent higher fatalistic beliefs.

^dRevised dimensions derived from principal components analysis.

* $p < .05$; ** $p < .001$.

being in relation to CHD. Depression accounted for the greatest increment of variance for global functioning, with 43% explained by its entry into the model; greater symptoms of depression were associated with poor global functioning ($p < .001$). Patients with more severe CHD (NYHA class; $p < .001$) and those that have been diagnosed with CHD for a longer period of time (time since diagnosis; $p < .05$) were associated with poor global functioning, accounting for 15% and 2% of the variance, respectively. The overall variance explained by the final model was 69%. Given the high correlation found between depression and global functioning ($r = -.77, p < .001$), a secondary regression analysis was conducted without depression in the model. When depression was excluded from the regression model, patients with more severe CHD (NYHA class; $p < .001$), those with low social support ($p < .001$), and those who high levels of fatalistic beliefs (fatalism; $p < .05$) were associated with poor global functioning, accounting for 15%, 8%, and 3% of the variance, respectively. The overall variance explained by the final model was 38%. Gender was not found to moderate the relationship between any of the significant main effects observed and global functioning.

Physical Functioning

NYHA class and depression were significantly associated with poor physical functioning—characterized by being restricted or limited in exercise and other activities as a result of having CHD (Table IV). Patients with more severe CHD (NYHA class; $p < .001$) and those with greater symptoms of depression ($p < .05$) were associated with poor physical functioning, accounting for 19% and 12% of the variance, respectively. The overall variance explained by the final model was 37%. No moderation effects by gender were found for physical functioning.

Emotional Functioning

Depression and gender were significantly associated with poor emotional functioning—characterized by feelings of discouragement, anger, low self-efficacy, and fear in relation to CHD (Table IV). Women ($p < .05$) and patients with greater symptoms of depression ($p < .001$) were associated with poor emotional functioning, accounting for 13% and

52% of the variance, respectively. The overall variance accounted for by the final model was 72%. Similar to the regression model for global functioning, a high correlation was found between depression and emotional functioning ($r = -.81, p < .001$). Therefore, a secondary regression analysis was conducted without depression in the model. When depression was excluded from the regression model, women ($p < .05$), patients with low social support ($p < .001$), and those who had high levels of fatalistic beliefs (fatalism; $p < .05$) were associated with poor emotional functioning, accounting for 13%, 12%, and 5% of the variance, respectively. The overall variance explained by the final model was 37%. No moderation effects by gender were found for emotional functioning.

Social Functioning

Depression, NYHA class, and fatalism were significantly associated with poor social functioning—characterized by feelings of being excluded from social events, participating in fewer social activities alone or with family, and perceiving that others do not have the same confidence in you as they did before being diagnosed with CHD. Patients with greater symptoms of depression ($p < .001$) and those with more severe CHD (NYHA class; $p < .05$) were associated with poor social functioning, accounting for 11% and 9% of the variance, respectively. Interestingly, patients who had lower fatalistic beliefs had poorer social functioning than those who had higher fatalistic beliefs (fatalism; $p < .05$), adding an additional 3% of the variance to the model. The overall variance accounted for by the final model was 27%. A significant gender by depression interaction was found such that men who had high depressive symptoms had poorer social functioning than women with high depressive symptoms ($p < .01$; see Fig. 1). Furthermore, a significant gender by fatalism interaction was found demonstrating that women with high fatalism had poorer social functioning than men with high fatalism ($p < .01$; see Fig. 1).

DISCUSSION

Few studies have examined the impact of coronary heart disease on the health and well being of Hispanic cardiac patients. Results from the current study are one of the first, to our knowledge, to

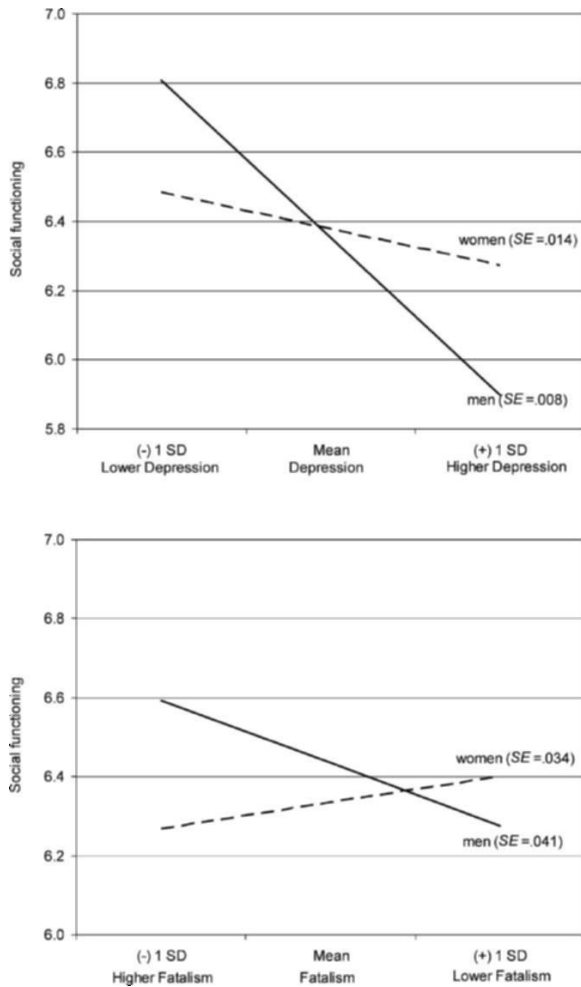


Fig. 1 Descriptive plot illustrating the interaction of gender with depression and fatalism on the social functioning dimension of cardiac-related quality of life. *Note:* Lower scores on the fatalism questionnaire represent higher fatalistic beliefs. The standard errors of the four slopes are listed with each graph

systematically examine what sociodemographic, medical, psychosocial, and cultural factors are associated with the cardiac-related quality of life of Hispanic women and men diagnosed with CHD. Approximately 10–20% of Hispanic cardiac patients, attending a cardiac outpatient clinic in south Florida, reported CHD-related adjustment difficulties in four areas of cardiac-related quality of life: global, physical, emotional, and social functioning. On average, Hispanic women and men in our cardiac sample had higher global, physical, emotional, and social functioning scores (i.e., better quality of life as measured by the original four dimensions of the Quality of Life after Myocardial Infarction ‘QLMI’ ques-

tionnaire) compared to those previously reported for non-Hispanic white cardiac patients ($\bar{x} = 5.0$ for global functioning, $\bar{x} = 4.8$ for physical functioning, $\bar{x} = 5.0$ for emotional functioning, $\bar{x} = 5.2$ for social functioning; Dixon *et al.*, 2002) and a cardiac patient sample from Spain ($\bar{x} = 5.3$ for physical functioning, $\bar{x} = 5.5$ for emotional functioning, $\bar{x} = 5.9$ for social functioning; Brotons Cuixart *et al.*, 2000). Furthermore, observed gender differences in our sample were comparable to those seen in non-Hispanic white cardiac patients, with men generally reporting better quality of life than women (Dixon *et al.*, 2002). These results add to the small body of literature demonstrating higher quality of life scores among Hispanic cardiac patients relative to non-Hispanic white cardiac patients (Riegel *et al.*, 2003). However, factors that could help explain quality of life outcomes in Hispanic cardiac patients have not been previously examined.

Results from the current study provide some insight into factors that may ease or hinder recovery from CHD in Hispanic cardiac patients. In general, Hispanic patients with more severe CHD and high depressive symptoms demonstrated poorer quality of life outcomes. Depression was the only factor that was significantly associated with all four quality of life dimensions and demonstrated its strongest impact on global and emotional functioning. We found that 26% of our patient sample reported high depressive symptoms ($CES-D \geq 16$), with women having significantly higher levels of depressive symptoms (43%) than men (19%). These results are similar to the 20–40% prevalence rate for depression observed in non-Hispanic white cardiac patients (Carney *et al.*, 2002; Let *et al.*, 2004; Strike and Steptoe, 2004). The higher levels of depressive symptoms observed in women, compared to men, suggests that women may be experiencing additional disease-specific or social stressors (e.g., family stressors, social isolation) that might impact their quality of life (Tran, 1997).

Low social support, or social isolation, might help explain the gender differences observed for quality of life and depression. Although Hispanic cardiac patients in our sample reported higher levels of perceived social support (mean total social support standardized score = 88.1 ± 17.2) than that previously reported for non-Hispanic white cardiac patients (mean total social support standardized score = 70.1 ± 24.2 ; Sherbourne and Stewart, 1991; Sherman *et al.*, 2003), Hispanic women tended to report less social support than men. These results are similar to gender differences observed in

non-Hispanic cardiac patients (Sherbourne and Stewart, 1991). In secondary analyses, low social support was found to be associated with poor global and emotional functioning for both women and men. Future studies are needed to further delineate the impact of social support on the quality of life of Hispanic patients with CHD.

Of the cultural constructs assessed in the current study, only fatalism was related to cardiac-related quality of life. Approximately 27% of participants reported having some fatalistic views towards future events and believed that these events were out of their control. However, the majority of our sample tended to have lower levels of fatalism, on average ($\bar{x} = 19.0 \pm 4.1$ for women, $\bar{x} = 18.9 \pm 2.5$ for men; lower scores represent greater fatalism), than that previously reported for Mexican-Americans ($\bar{x} = 14.5 \pm 3.3$ for women, $\bar{x} = 14.4 \pm 2.7$ for men; Neff and Hoppe, 1993). Fatalism tended to be higher in patients with more severe CHD and those with greater depressive symptoms. Fatalism also appeared to affect the quality of life of Hispanic women and men differently, with women with high fatalism demonstrating poorer social functioning than men with high fatalism, thereby suggesting a greater negative impact on Hispanic women with CHD. In secondary analyses, high levels of fatalism were found to be associated with poor global and emotional functioning for both women and men. Fatalism has been associated with a passive coping style, leading to poor health outcomes in Mexican-Americans (Reynolds, 2004). However, to our knowledge, this cultural construct has not been extensively studied in other Hispanic subgroups or those with CHD. Our findings suggest that fatalism can negatively affect Hispanic patients' recovery from CHD.

The findings presented should be regarded with some degree of caution because of several limitations. First, although our sample was largely representative of Hispanic women and men residing in south Florida (Therrien and Ramirez, 2000), our results may not be generalizable or represent the experiences of Hispanic cardiac patients from other regions of the United States. Second, our sample was recruited from one clinic site where most participants were receiving their medical care from a Spanish-speaking cardiologist. Having a language-concordant physician might explain why the majority of women and men in our sample reported moderate to high cardiac-related quality of life. These results might differ in clinics with language-discordant health care providers and patients (Perez-Stable *et al.*, 1997).

Third, given the scarcity of information available on quality of life in Hispanic cardiac patients, our sample was inclusive of all Hispanic cardiac patients receiving health care at our study site, and therefore, included patients who averaged between 5 and 6 years (range = 1 month to 27 years) since the time of their initial diagnosis, possibly accounting for the high quality of life scores in our sample. However, it should be noted that patients who had been diagnosed with CHD for a longer period of time reported poorer global functioning than those diagnosed for a shorter period of time, which may be indicative of patients in the former group also having increased medical severity as CHD progresses (see Table III). A final limitation is that information collected from this survey was cross-sectional by design, and therefore any predictive interpretations between psychosocial and cultural factors and cardiac-related quality of life are not feasible.

Implications

In summary, we recommend two approaches for promoting cardiac-related quality of life in Hispanic cardiac patients. First, community-wide education programs about CHD need to reach Hispanic women and men of all ages because all Hispanics are showing substantial increases in psychosocial and behavioral CHD risk factors the longer they reside in the U.S. (Sundquist and Winkleby, 1999; Vega *et al.*, 1998). Second, tailored strategies that address both psychosocial and behavioral CHD risk factors need to be developed for Hispanic cardiac patients who experience poor quality of life. For Hispanic cardiac patients, interventions that integrate treatments for psychosocial risk factors within traditional cardiac rehabilitation programs may help improve quality of life outcomes and enhance CHD recovery in this population. The lower rates of depression treatment (Miranda and Cooper, 2004) and cardiac rehabilitation (Blackburn *et al.*, 2000; Grace *et al.*, 2002) observed in Hispanic versus non-Hispanic patients, highlight the need for tailored outreach efforts and interventions that address access to health care, fatalistic beliefs towards CHD prognosis, and concerns and misconceptions that Hispanic women and men may have about managing their CHD. Both approaches need to use written and verbal information that take into account language, cultural, and gender-specific needs. Health information provided by bilingual, bicultural health educators

and through Spanish radio or television may be appropriate ways to reach Hispanic cardiac patients, given that 92% of our sample reported speaking Spanish at home, using Spanish-language media, and interacting mostly with people of Hispanic origin. Furthermore, broader policy level approaches that improve health care access are needed to address the growing epidemic of CHD and quality of life concerns among Hispanics in the U.S.

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