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Prevalence and Characteristics of Multiple Psychiatric Disorders in Cardiac Rehabilitation Patients

Dr. Eva R. Serber, PhD, Dr. John F. Todaro, PhD, Dr. Peter L. Tilkemeier, MD, and Dr. Raymond Niaura, PhD

Centers for Behavioral and Preventive Medicine, The Miriam Hospital & Department of Psychiatry and Human Behavior, Warren Alpert Medical School of Brown University (Drs Serber and Todaro), The Miriam Hospital and Division of Cardiology, Warren Alpert Medical School of Brown University (Dr Tilkemeier), and Transdisciplinary Research Group, Butler Hospital & Department of Psychiatry and Human Behavior, Warren Alpert Medical School of Brown University (Dr Niaura), Providence, Rhode Island

Abstract

PURPOSE—Anxiety and depressive disorders have been established as independent risk factors for the development of and recovery from coronary heart disease (CHD). However, few studies have reported on the prevalence and personal characteristics of comorbid psychiatric disorders (PD) among cardiac populations. This project examined the prevalence of comorbid depressive and anxiety disorders among men and women with CHD commencing cardiac rehabilitation (CR) and the demographic, medical, and psychosocial characteristics among those meeting multiple PD criteria.

METHODS—Participants were 143 CHD patients (*M* age, 61 years; *SD*, 11.2; 70% men, 91% Caucasian, 64% married) entering CR who were evaluated via a semistructured, psychiatric interview to assess both current and lifetime prevalence rates of PD. Demographic, medical, and psychosocial variables were also assessed.

RESULTS—Approximately 45% met criteria for at least 1 anxiety disorder, and 20% met criteria for either major depressive disorder or dysthymic disorder either at the time of evaluation or in their lifetime. Across all participants, 26% met criteria for ≥ 2 PD. Of those with a depressive disorder, 76% also met criteria for at least 1 anxiety disorder. Participants with comorbid PD were of younger age and female and reported less education ($P < .01$). Comorbidity was also associated with self-reported overall diminished physical, emotional, and social quality of life, depression, and anxiety.

CONCLUSION—Comorbid PD are highly prevalent in the CR setting and are associated with specific demographic characteristics and reduced quality of life. These data offer additional support that routine screening for PD is warranted in outpatient cardiac settings.

Corresponding Author: Eva R. Serber, PhD, Centers for Behavioral and Preventive Medicine, CORO Bldg, Ste 500, One Hoppin St, Providence, RI 02903 (eserber@lifespan.org).

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Keywords

anxiety; cardiac rehabilitation; comorbidity; depression

Depression and anxiety are associated with increased risk for the development, prognosis, and recovery of coronary heart disease (CHD). Prevalence rates for major depression in CHD patients have ranged from 16% to 25%¹⁻⁴ and for anxiety disorders from 10% to 29%.⁵⁻⁸ Post-myocardial infarction depression has also been acknowledged as an independent risk factor of mortality.^{1,9} Furthermore, risk of myocardial infarction and sudden death is 3 to 6 times more likely among highly anxious individuals.¹⁰

To date, only a few studies have been published examining the prevalence of comorbid psychiatric disorders (PD) among cardiac populations. Most recently, Frasure-Smith and Lesperance¹¹ found comorbidity between major depressive disorder and generalized anxiety disorder at 20% to 25% among patients with coronary artery disease. In an earlier study, Bankier et al⁵ found a high prevalence of PD among stable CHD patients seen in an outpatient clinic. Using the Structured Clinical Interview for the *Diagnostic and Statistical Manual for Mental Disorders* (SCID), a broad range of PD was examined, documenting comorbid PD with the most frequent diagnoses including, mood, anxiety, alcohol abuse, binge eating, and primary insomnia.⁵ The mean number of comorbid clinical PD was reported at 1.7, and 52% of participants had from 2 to 6 Axis I and/or Axis II disorders (additional 16% met criteria for 1 Axis I diagnosis). The results among stable CHD patients were consistent with findings among acutely ill CHD patients.

Major depression and panic receive much attention within cardiac populations; however, Bankier et al⁵ found also a high prevalence of dysthymia disorder, as well as remarkable overlap of generalized anxiety disorder, posttraumatic stress disorder, and the depressive disorders. Notably, they did not identify individuals with panic disorder with or without agoraphobia. The study strength was use of the SCID for PD. Limitations included use of a highly select sample of stable CHD patients recruited from an outpatient clinic of 1 cardiologist. In addition, CHD patients with PD are high users of clinics and therefore add to the selection bias.⁵ The selection bias limits external validity such that replication in broader patient samples is necessary. The range of PD present in this sample provides rationale for further inquiry, and the authors encouraged psychological assessment to be implemented in other cardiac clinics, for example, cardiac rehabilitation (CR).⁵

To extend the findings of Bankier et al,⁵ the current study examined the prevalence of psychiatric comorbidity in CHD patients seen in an outpatient CR program and how these psychiatric comorbidities may be differentially associated with patient characteristics. Participants were recruited from a CR program that receives referrals from 2 separate hospitals (private and community-based), providing a broader population source than Bankier et al.⁵ The aims of the current study were 2-fold: to examine prevalence rates of comorbid anxiety and depressive disorders in men and women with CHD initiating CR and to examine differences in demographic, medical, and psychosocial characteristics among cardiac patients with multiple PD.

METHODS

All new CHD patients enrolling in the phase II CR program were invited to participate in the study. Following a standard physical examination conducted at the phase II CR program, patients were asked about their interest in participating in a research study examining the prevalence of psychiatric conditions among CHD patients. If patients were interested, a CR case manager introduced them to a research associate who provided an overview of the study and completed an initial eligibility screen. Eligibility screening was conducted in a brief face-to-face meeting with a research associate in which patients were queried about their medical history and other factors that might interfere with participating in this study (eg, ability to read and write in English).

Study participation required that patients met the following inclusion criteria: history of CHD (ie, myocardial infarction, angina pectoris, and significant coronary artery disease necessitating coronary revascularization); 18 years of age or older; and medically eligible for CR. Patients were excluded if they were non-English-speaking or evidenced significant cognitive impairment (ie, stroke and dementia) or other medical impairments impeding participation in the psychological assessment. On the basis of the eligibility criteria, 177 men and women were eligible to participate during the study period (July 1, 2002, to September 1, 2004) and 150 (84.7%) agreed to participate in the study. The institutional review board at the Miriam Hospital approved this study, and signed informed consent was obtained from all patients prior to their participation. The current investigation included 143 participants due to missing data on some of the variables under investigation.

Measures

Psychiatric diagnoses—Depressive and anxiety disorder diagnoses were evaluated using the *Anxiety Disorders Interview Schedule-IV (ADIS-IV)*.¹² The *ADIS-IV* is a semistructured interview designed to assess both current and lifetime episodes of depression, anxiety, and affective disorders. Good reliability for the major disorders covered has been established in previous studies.^{13,14} The diagnoses examined for the present study included 2 depressive disorders (major depression and dysthymia) and the anxiety disorders (panic disorder, agoraphobia, social phobia, generalized anxiety disorder, obsessive-compulsive disorder, specific phobia, and posttraumatic stress disorder). Diagnostic criteria defined by the current edition of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, were used to establish each of the depressive and anxiety disorder diagnoses.

Two clinical psychologists, with extensive clinical training, administered the *ADIS-IV*. After psychiatric interviews were completed, the psychologists engaged in blind review of the interview data to adjudicate psychiatric diagnoses. When diagnostic discrepancies were observed, the 2 psychologists discussed the case and came to a consensus diagnosis. In some cases, both psychologists met with the participant a second time to clarify diagnostic discrepancies with the patient. Individuals endorsing the onset of depression or anxiety symptoms shortly after their cardiac event or during hospitalization and subsiding within 3 months were not classified as meeting criteria for an anxiety disorder, since these symptoms are better represented by an adjustment reaction.

Quality of life—The Short-Form Health Survey–36 (SF-36) was used to assess health-related quality of life (QOL).¹⁵ The SF-36 is a generic measure consisting of 36 items that are divided into 8 subscales: physical functioning, role limitations due to physical functioning, role limitations due to emotional functioning, mental health, vitality, social functioning, bodily pain, and general health. The score range for each subscale is converted into a score from 0 to 100, with higher score indicating better QOL. A high score on the bodily pain subscale represents the absence of pain. The SF-36 is a reliable measure, as indicated by the Cronbach α ranging from .65 to .96 for all subscales.¹⁶

Depression—The Cardiac Depression Scale (CDS) was used to assess self-report depressive symptoms. It is a 26-item self-rating scale designed to reliably measure depressed mood in cardiac populations by incorporating questions considered by authors to represent symptoms specific to depressed cardiac patients.¹⁷ High internal consistency (Cronbach α = .90) and test-retest reliability ($r = 0.86$) have been reported.^{17,18} The CDS has also demonstrated acceptable correlations with the Beck Depression Inventory ($r = 0.73$). Hare¹⁸ recommends a cutoff score of 100 or above for distinguishing individuals with more severe depression.

Anxiety—The Taylor Manifest Anxiety Scale¹⁹ was used to assess the extent of chronic anxiety reactions. This self-rated questionnaire consists of 65 items, scored on a scale from 0 (*no*) to 1 (*yes*). Possible total scores range from 0 to 50.

Data Analyses—All analyses were performed with the statistical software package SPSS (version 14.0, SPSS Inc, Chicago, Illinois). Descriptive analyses were first conducted to describe the sample and estimate prevalence rates. Categorical variables are reported as percentages and continuous variables are reported as means and standard deviations.

To better understand how demographic and psychosocial characteristics may differ across comorbid PD diagnoses, participants were divided into groups on the basis of the number of diagnoses they met according to the *ADIS-IV* (0, 1, 2+). Diagnoses were coded as dichotomous variables for past or current episode. To examine prevalence rates across diagnostic groups, proportions were calculated for presence of both past and current anxiety and depressive disorders. Lifetime prevalence rates, which combine both past and current episodes, were used to examine group differences across diagnostic groups. Specifically, the number of depression and anxiety diagnoses was totaled into a composite continuous variable, which was then recoded into a categorical variable of 3 groups: participants with no PD, 1 PD, and 2 or more PD. A series of cross-tabulations (Pearson r chi-square) or multivariate analyses of variance were conducted, depending on whether the dependent variables were categorical or continuous, to determine whether there were demographic, QOL, and physiologic and medical differences across the groups of patients presenting with comorbid PD. For all sets of analyses, a priori follow-up contrasts were conducted if the omnibus test was significant ($P < .05$). Special contrasts were conducted to determine which groups were significantly different from each other (0 and 1 PD, 1 and 2+ PD, and 0 and 2+ PD). For these contrasts, Bonferroni α adjustment was applied to each set of contrasts (ie, $P = .05/3 = .017$).

RESULTS

Participants were 143 CHD patients entering a 12-week CR program. They were on average, 61.1 ± 11.2 years of age (range, 35–85 years), 70% male, 89% Caucasian, and 64% married. The majority of these CR patients had a history of myocardial infarction (47%), percutaneous coronary intervention (40%), and coronary artery bypass graft surgery (34%). Complete demographic information and medical history are presented in Table 1.

Depression and Anxiety Prevalence and Comorbidities

The prevalence rates of past and current episodes depressive and anxiety disorders are listed in Table 2. The range of PD observed in the population spanned 0 to 6 diagnoses across all participants. Nearly half of the study participants met criteria for at least 1 depressive or anxiety disorder ($n = 71$, 49.7%), and 26% ($n = 37$) met criteria for 2 or more diagnoses in their lifetime. See Table 3 for prevalence rates of past and current episodes of comorbid depressive and anxiety diagnoses.

Patient Characteristics Associated With Psychiatric Comorbidity

Sociodemographic characteristics—Demographic variables that were examined were age, gender, race (ie, white, minority group membership), religion, marital status, education, employment status, and occupation. Summary of statistical results of omnibus and a priori contrasts for sociodemographic characteristics and psychosocial variables are presented in Table 4. After applying the Bonferroni correction ($P < .017$), individuals in the 2+ PD group were younger than those in the no-PD or 1-PD group. In addition, there were more women compared with men in the 2+ PD group compared with the no- or 1-PD group. There were no statistically significant sociodemographic differences between no-PD and 1-PD groups.

Psychosocial differences—Psychosocial variables examined were the 8 subscales of the SF-36, the CDS, and the Taylor Manifest Anxiety Scale. The omnibus F was significant (Wilks $\Lambda F_{24,252} = 4.484$, $P < .001$), as well as each variable was significantly different across groups. After applying Bonferroni α adjustment ($P < .017$), all psychosocial variables indicated significantly worse psychological well-being comparing the 2+ PD group to the no-PD group and several other variables were worse between 2+ PD and 1 PD. There were no statistically significant psychosocial differences between no-PD and 1-PD groups.

Physiologic variables and medical conditions—Physiologic variables examined for group differences between multiple PD were traditional cardiovascular risk factors such as lipid panel, body mass index, and blood pressure. None of these variables significantly differed across the 3 groups. In addition, none of the cardiac medical conditions significantly differed across groups of multiple PD.

DISCUSSION

The current study sought to examine the prevalence of comorbid anxiety and depressive disorders in men and women with CHD and to examine differences in demographic, psychosocial, physiologic, and medical characteristics that might be associated with psychiatric comorbidity. Depressive and anxiety disorders were highly prevalent in the

sample of cardiac out-patients and have been previously reported.^{20,21} Psychiatric comorbidity was associated with being younger, female, and less educated, which is consistent with the literature regarding demographic characteristics and psychological distress.^{22–25} Specifically, in the National Comorbidity Survey Replication, Kessler et al²² reported that women had a significantly higher lifetime risk of anxiety and mood disorders than men. The researchers also found that correlates of highly comorbid major depression included being female, having low education, or less than high income. Largely unaffected groups included being male, non-Hispanic black or Hispanic, married, having a college education, high income, and residing in a rural area.²³

In this study, psychiatric comorbidity was also associated with diminished QOL of all measured dimensions (eg, social, occupational, mental health, and general health). This is also consistent with previous research. In a sample of CHD patients, Hevey et al²⁶ compared patients provided with CR services with those who did not receive CR. They found that there were no group differences on functional levels at baseline, and after the CR intervention, the CR group reported significantly higher levels of functioning as well as reductions in depression and anxiety, which the comparison group did not. Health-related QOL was also significantly improved overtime in the CR group among those who had reported initially high levels of psychological distress.²⁶ In the Heart and Soul Study²⁵ participants scoring clinically relevant depressive symptomatology were more likely to report *at minimum* mild levels of symptom burden, physical limitation, reduced QOL, and fair or poor overall health. When measured on a continuum, as depression worsened, reports of symptom burden, physical limitation, QOL, and overall health also worsened.²⁵ Authors concluded that their findings demonstrated that depressive symptoms are at least as important as cardiac function in terms of health-related QOL of patients with CHD.²⁵

With respect to cardiovascular risk factors (eg, cholesterol) and cardiac diagnoses (eg, myocardial infarction), no statistical differences were observed across groups in the current investigation. Past research has found inconsistent associations between psychological constructs (eg, depression, anxiety) and cardiovascular risk factors (ie, diabetes mellitus, hypercholesterolemia). Kronish et al²⁴ found significant relationships, whereas Frasure-Smith and Lesperance¹¹ did not, congruent with the current study. There may be several reasons for the current nonsignificant findings. This was a select, cross-sectional sample of CHD participants who were initiating a multidimensional CR program. Therefore, they may have already begun engaging in health behaviors such as smoking cessation, activity, and adherence to medications. The range of these cardiovascular risk factors may have been narrow. In addition, other research has found similar findings in regard to associations, or lack of, between physiologic variables and psychosocial and QOL variables.^{27,28} For example, Ruo et al²⁵ found relationships between depression and health status but did not find any associations between depression and physiologic measures of disease severity (ie, left ventricular ejection fraction, ischemia).

The prevalence of psychiatric comorbidity observed in this study is consistent with the findings among acutely ill and stable CHD patients.^{5,26} In the Bankier et al⁵ study, they observed comorbidity across the spectrum of PD. This study focused on depression and anxiety, because Bankier et al⁵ demonstrated that major depressive, dysthymia, generalized

anxiety, and posttraumatic stress disorders were all highly prevalent and comorbid with each other. Depressive and anxiety disorders are critical aspects of health that should be regularly assessed and treated not only for improving patient well-being but because they are also related to cardiovascular disease prognosis,²⁹ cardiac events,³⁰ behavioral compliance in CR and other treatment programs,³¹ and in long-term outcomes and mortality.^{1,9,11,32}

The prevalence of posttraumatic stress disorder observed in this study was lower compared with that in previous research that has demonstrated prevalence rates ranging between 10% and 24%.³³ One possible explanation for the lower than expected prevalence of posttraumatic stress disorder might be the behavioral avoidance of stimuli or environments that remind patients about their cardiac-related trauma. Cardiac patients may avoid attending CR because it may trigger increased anxiety and stress, which, in turn, may influence their decision to enroll in CR.^{33–35}

There were limitations to the study. First, the current study implemented a cross-sectional, single-group design; therefore, treatment outcomes were not assessed, nor were there comparisons to patients not in CR. Second, the sample represents a small cohort of cardiac patients who elected to participate not only in CR but also in this study. It is possible that these prevalence rates or comorbidity patterns may not generalize to a broader sample of cardiac outpatients. Third, it was not a diverse sample such that results may not extend to other racial or cultural groups.

Clinical Implications

The current investigation suggests preliminary evidence of sociodemographic and QOL differences as individuals increase their number of comorbid PD. Commencement of a CR program is an opportune time to assess for psychosocial distress and comorbid PD diagnoses because it may then allow for appropriate interventions targeting those symptoms, help patients engage in and maintain the CR and other treatment programs, and possibly have a positive effect on their health status and recovery.^{26,36} Hevey et al²⁷ recommended that providing psychological treatment to everyone may not be the most cost-effective but very beneficial for those who report relevant levels of distress. Similarly, an exercise trial among patients with heart failure noted that treating depression before commencing an exercise program might be useful to optimize benefits from exercise.³⁷

Ascertaining the *best* time to screen and identify patients for prevention and treatment continues to be important.³⁸ There may be multiple times to screen, as was suggested by Spitzer et al,³⁹ suggesting screening on an annual basis, in addition to time of intake. Present findings suggest that identifying psychological symptoms and diagnoses is critical at CR initiation. However, because these data are only cross-sectional, we can only extrapolate from the current data that follow-up assessments would be beneficial, which has been shown in other research.³⁸

Research Implications

These findings point to the critical need for future research on these high at-risk cardiac populations (eg, lower education, female, younger age). It is vital for these patients to be

identified early so that they can receive appropriate intervention: psychological, medical, or both. The National Heart, Lung, and Blood Institute Working Group recommend simpler screening methods for depression.⁴⁰ Structured interviews require training and time, which may not be readily integrated into practice, despite the strong validity and arguments to employ them.

In addition, CR referral and/or participation is underutilized and research is needed to discern predictors for not only success in CR but also predictors of who is referred and/or participates so that all patients who could benefit from 1 or all components of CR receive the care they need. Longitudinal research is needed to determine how psychiatric comorbidity may impact patient behaviors, physiologic processes, and medical status in the short and long terms.

In summary, this study provides further evidence of psychiatric comorbidity among cardiac patients. There is an ongoing need to screen psychiatric illness among these individuals using either diagnostic interviews or self-report measures in the CR setting. Previous research has highlighted that, at the very least, treating psychological distress will improve the QOL of cardiac patients⁴¹ and, perhaps, positively influence longer-term cardiac intervention outcomes.²⁵

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Table 1

DEMOGRAPHIC CHARACTERISTICS AND MEDICAL HISTORY OF CHD PATIENTS ENTERING
CARDIAC REHABILITATION ($N = 140$)

Variable	<i>n</i>	%
Gender (men)	100	69.9
Race		
White/Caucasian	127	88.8
Black/African American	4	2.8
Asian/Pacific Islander	3	2.1
Hispanic/Latino	3	2.1
Mixed ethnic/other	3	2.1
Marital status		
Married	92	64.3
Living with significant other	6	4.2
Divorced/separated	22	15.4
Single (never married)	15	10.5
Widowed	8	5.6
Education		
<High school	16	11.2
High school diploma/general education development	20	14.0
Technical or trade school	7	4.9
Some college	38	26.6
College graduate	34	23.8
>4 y of college	28	19.6
Employment status		
Full time	73	51.0
Part time	7	4.9
Retired	44	30.8
Disabled	11	7.7
Unemployed/volunteer	8	5.6
Medical history		
Ejection fraction (%) ($M \pm SD$)	102	51.1 \pm 11.6
Body mass index ($M \pm SD$)	143	29.4 \pm 5.9
Family history of CHD	75	52.4
Myocardial infarction	67	46.9
Percutaneous coronary intervention	57	39.9
Coronary artery bypass surgery	48	33.6
Arrhythmias	19	13.3
Heart failure	7	4.9
Type 2 diabetes	41	27.4
Hypertension	105	73.4
Health behaviors		

Variable	<i>n</i>	%
Past smoker	87	60.8
Current smoker	9	6.3

Abbreviation: CHD, coronary heart disease.

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Table 2

CRITERIA MET FOR PSYCHIATRIC DISORDER DIAGNOSES (*DSM-IV*), PAST AND CURRENT EPISODES, BASED ON THE *ADIS-IV* ($N = 143$)

Mental disorder diagnosis	<i>n</i> (%)	
	Past	Current
Depressive disorders		
Major depressive disorder	14 (9.8%)	5 (3.5%)
Dysthymic disorder	6 (4.2%)	6 (4.2%)
Anxiety disorders		
Panic disorder	1 (.7%)	7 (4.9%)
Agoraphobia	2 (1.4%)	5 (3.5%)
Social phobia	7 (4.9%)	29 (20.3%)
Generalized anxiety disorder	10 (7.0%)	25 (17.5%)
Specific phobia	1 (.7%)	20 (14.0%)
Obsessive-compulsive disorder	1 (.7%)	0
Posttraumatic stress disorder	2 (1.4%)	1 (.7%)

Abbreviations: ADIS, Anxiety Disorders Interview Schedule; DSM, Diagnostic and Statistical Manual for Mental Disorders.

Table 3

COMORBID PAST AND CURRENT EPISODES OF DEPRESSIVE (MAJOR DEPRESSION OR DYSTHYMIA) AND ANXIETY DISORDERS IN CARDIAC REHABILITATION PATIENTS ($N = 143$)

Comorbidities	<i>n</i> (%)	
	Past	Current
Depression (overall) ^a	18 (12.6%)	11 (7.7%)
Major depression and dysthymia	2 (1.4%)	0
Anxiety (overall) ^a	21 (14.7%)	51 (35.7%)
Comorbid depression and anxiety (1 of each)	7 (4.9%)	11 (7.7%)
1 Depression and 1 anxiety disorder	7 (4.9%)	5 (3.5%)
1 Depression and 2 anxiety disorders	0	3 (2.1%)
1 Depression and 3 anxiety disorders	0	1 (.7%)
1 Depression and 4 anxiety disorders	0	1 (.7%)
1 Depression and 5 anxiety disorders	0	1 (.7%)

^aMet criteria for at least 1 disorder.

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MEANS AND STANDARD DEVIATIONS OF GROUPS OF PATIENTS WITH MULTIPLE PSYCHIATRIC DISORDER DIAGNOSES^a

Table 4

	Mean (Standard Error)/%				Omnibus $F_{2,137}$ /Pearson r	Omnibus P
	0 Diagnoses	1 Diagnosis	2+ Diagnoses			
Sociodemographic variables						
Age	61.49 (1.31) ^a	65.15 (2.05) ^a	54.50 (1.89) ^b		$F_{2,136} = 9.739$.001
Gender (% men)	82.7% ^a	58.8% ^a	48.8% ^b		$r = 15.690$	<.001
Marital status (% single)	6.7% ^a	2.9% ^a	22.0% ^a		$r = 10.186$.037
Employment (% working full time)	58.7% ^a	35.3% ^a	43.9% ^a		$r = 19.404$.013
Psychosocial variables						
SF36 physical functioning	71.69 (2.70) ^a	61.29 (3.87) ^{a,b}	56.72 (3.76) ^b		5.937	.003
SF36 role limitations due to physical problems	39.29 (4.30) ^a	34.56 (6.17) ^{a,b}	13.89 (6.00) ^b		6.067	.003
SF36 bodily pain	76.36 (2.84) ^a	70.00 (4.07) ^{a,b}	58.17 (3.95) ^b		6.993	.001
SF36 general health	71.67 (2.21) ^a	65.77 (3.17) ^{a,b}	56.92 (3.08) ^b		7.626	.001
SF36 vitality	57.00 (2.43) ^a	49.79 (3.48) ^{a,b}	42.75 (3.38) ^b		6.041	.003
SF36 social functioning	80.17 (2.99) ^a	77.92 (4.29) ^a	42.75 (3.38) ^b		10.107	<.001
SF36 role limitations due to emotional problems	86.66 (4.15) ^a	76.12 (5.96) ^a	37.81 (5.79) ^b		23.899	<.001
SF36 mental health	82.03 (1.99) ^a	73.65 (2.87) ^a	54.11 (2.79) ^b		33.185	<.001
Cardiac Depression Scale	65.49 (2.67) ^a	70.03 (3.82) ^a	93.64 (3.71) ^b		19.601	<.001
Taylor Manifest Anxiety Scale	2.54 (.45) ^a	4.85 (.65) ^a	9.33 (.63) ^b		38.163	<.001

Abbreviation: SF-36, Short Form Health Survey-36.

^aThere were significant differences between 0 and 2+ PD groups, and between 1 and 2+ PD groups with some variables, with Bonferroni α adjustment ($P < .017$). There were no significant differences between 0 and 1-PD groups with any of the variables. Groups that have the same superscript (a) and/or (b) are not statistically significantly different from one another. Groups that have different superscripts from each other are statistically significantly different from each other. For example, SF36 physical functioning, groups 0 and 1 PD and 1 and 2+ PD are not significantly different; however, groups 0 and 2+ PD are significantly different.