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Poor Social Support is Associated with Increases in Depression but not Anxiety Over 2 Years in Heart Failure Outpatients

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Abstract

Background—Heart failure (HF) is a major health problem in the US affecting 5.7 million American adults. Psychosocial distress, in particular depression, contributes to morbidity and mortality in patients with HF. Little is known about the interrelationship among disease severity, social support, and depression.

Objective—To examine the contributions of social support and disease severity to longitudinal changes in depression and anxiety of outpatients with HF.

Methods—Patients (N = 108) enrolled in the Psychosocial Factors Outcome Study (PFOS) completed the Beck Depression Inventory -II, State Trait Anxiety Inventory, and Social Support Questionnaire-6 at study entry and every 6 months for up to 2 years.

Results—At baseline 30% of the patients were depressed and 42% were anxious. Social support amount contributed to changes in depression ($p=.044$) but not anxiety ($p=.856$). Depression increased over time for patients who had lower initial social support amount. Depression did not increase for those with higher initial social support amount. Neither NYHA class nor treatment group (placebo or ICD) interacted with time to predict depression which indicates that changes in depression were parallel for patients with NYHA class II and class III HF and for those who received ICDs and those who did not. Assessment of patients with HF should include depression and social support. Interventions to enhance social support among patients with HF who have low social support may help alleviate the development of depression.

Conclusions—Reducing psychological distress and increasing social support may improve health outcomes among HF outpatients. It is important for studies of HF to include assessment of depression, anxiety, and social support and evaluate their contributions to health outcomes.

Keywords

Heart failure; anxiety; depression; social support; longitudinal

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INTRODUCTION

A growing body of evidence supports that psychosocial distress contributes to morbidity and mortality in outpatients with HF. Depressive symptoms are a significant predictor of worsening heart failure health status¹⁻⁴ as well as hospitalization⁵⁻⁷ and mortality^{5, 8-10} in patients with HF. Depression is more closely related to patient's perceptions of their heart failure health status as indicated by NYHA classification than by objective measures of HF severity.¹¹ More severe HF was associated with more severe depressive symptoms and clinical depression in most recent studies that examined the relationship of depression to NYHA class,^{1, 2, 12-21} but was not related in two studies.^{22, 23} Both baseline depression and increases in depression predicted greater declines in physical functioning over six months.⁴ Worsening depressive symptoms were associated with death or cardiovascular hospitalization in HF patients.⁷

In the few studies that examined the relationship of anxiety to HF outcomes, greater anxiety was associated with increased HF severity.^{13, 16} Both baseline anxiety symptoms and increases in anxiety symptoms predicted greater declines in physical functioning over six months.⁴ Anxiety also was associated with hospital readmission but not mortality after controlling for the effect of disease severity on these outcomes.²⁴

Little is known about the interrelationship among disease severity, social support, and depression or anxiety. Patients with HF who had a significantly higher level of social support had better outcomes including self-care behavior, more frequent consultation with a health professional for weight gain, adherences to medication, diet, and exercise, as compared to those with lower or medium levels of social support.²⁵ Social factors such as living alone, alcohol abuse, perception of medical care as a substantial economic burden and poor disease related quality of life were predictors of the development of depression.²⁶ A lack of social support was correlated with higher depression in both outpatients¹⁹ and hospitalized patients with HF²⁷ and a lack of remission of depression.²⁷ Tsuchihashi-Makaya and colleagues related alcohol use and low social support to anxiety among outpatients with HF.⁵

The Psychosocial Factors Outcome Study in (PFOS) Sudden Cardiac Death was the first study to simultaneously evaluate depression, anxiety, and social support over 2 years in outpatients with HF. PFOS was an independently funded ancillary study to the Sudden Cardiac Death in Heart Failure Trial (SCD-HeFT), a National Heart Lung and Blood Institute (NHLBI) funded international clinical trial. Psychosocial data were collected in PFOS and health status data were collected in SCD-HeFT.

The purpose of the study was to examine the contributions of social support and disease severity to changes over two years in depression and anxiety of HF outpatients.

METHODS

The PFOS longitudinal observational study was designed to examine changes in psychosocial status over time of patients with HF who did and did not receive implantable cardioverter defibrillators. The current question addresses the contribution of social support and disease severity to longitudinal changes in anxiety and depression of HF outpatients using data from PFOS.

Recruitment

Participation in PFOS was limited to HF patients enrolled in SCD-HeFT, which was the first trial to compare use of medication and implantable cardioverter defibrillators (ICDs) as primary prevention in patients with heart failure. SCD-HeFT inclusion criteria included NYHA class II or III HF and left ventricular ejection fraction of 35% or less and exclusion criteria eliminated patients with a history of ventricular arrhythmias or cardiac arrest. In SCD-HeFT participants were randomized to an ICD or placebo. Complete inclusion and exclusion criteria and recruitment methods were published elsewhere.²⁸

Patients who had been enrolled in the SCD-HeFT clinical trial at 21 sites were invited to participate in PFOS. Since the PFOS study began after SCD-HeFT recruitment began, both patients newly enrolling in SCD-HeFT after PFOS began and patients who returned for SCD-HeFT follow-ups were eligible for recruitment into PFOS if they could read and write English. Each PFOS participant signed a separate informed consent at enrollment.

Data Collection

Demographic, medical history, medication and cardiac data were obtained from SCD-HeFT (see Table 1). Participants in PFOS completed questionnaires to assess psychosocial status including depression, anxiety and social support at PFOS entry, after one month, and at six month intervals for a maximum of three years or until death, whichever occurred first. The staggered enrollment caused variation in length of follow-up. Some participants were enrolled in the study for less than 2 years when it ended due to their time of enrollment, deaths, or failure to complete follow-up. Data obtained during the first two years of participation in PFOS were included in this analysis: completed depression/anxiety scales were obtained from 99/105 participants at intake, 44/46 participants at 6 months, 74/78 participants at 12 months, 60/61 participants at 18 months, and 54/53 participants at 2 years, a total of 331 depression and 343 anxiety assessments.

Instruments

The Beck Depression Inventory-2 (BDI-II) was used to assess depressive symptoms. The BDI is the most widely used tool for self-assessment of depression in clinical research. The BDI-II consists of 21 items rated on a Likert (0–3) scale. Total BDI-II scores range from 0 to 63 with higher scores indicating increased depressive symptoms. The reliability and validity of the BDI is well established.²⁹ Internal consistency of the scale is high 0.86 to 0.88 among psychiatric patients and 0.81 with non-psychiatric patients.³⁰ There is ample evidence of construct, concurrent, and criterion related validity; the BDI is an acceptable tool for screening for significant depressive symptoms in cardiac patients.³¹ The BDI is recommended by the National Heart Lung and Blood Institute Working Group on Assessment and Treatment of Depression in Patients with Cardiovascular Disease for screening depression in cardiac patients.³² Depression severity was categorized according to the BDI-II manual³⁰ as absent (0–12), mild (13–19), moderate (20–28) or severe (>29). When depression was dichotomized, it was categorized as absent (0–12) or present (13 and above).

Spielberger's State Trait Anxiety Inventory (STAI) was used to assess state anxiety,³³ how a person feels at the time, at study entry and each follow-up. The state anxiety scale contains 20 items that ask for a description of how one feels at a specific point in time. Internal consistency ranges from .88 to .94 in older adults.³⁴ The STAI had high concordance in older adults with and without anxiety disorders.³⁵ State anxiety scores range from 20 (none) to 80 (extreme). Cardiac patients with state anxiety scores 40 or above are considered to be anxious.³⁶ When state anxiety was dichotomized it was categorized as absent (0–40) or present (above 40).

The Social Support Questionnaire-6 (SSQ-6) was used to quantify both the amount of and satisfaction with social support. The SSQ-6 provided six circumstances potentially requiring social support and asked the respondent who they could rely on for help in each situation (amount) and how satisfied they would be with the help they received in each situation (satisfaction) resulting in a 12 item instrument. The number of people providing each type of support is summed to obtain the social support amount; scores range from 0 (no support) to 54. In a study designed to identify the extent to which social support is related to resting cardiovascular function in physically healthy women,³⁷ both the short form of the social support amount and the social support satisfaction showed very good internal reliability consistency (Cronbach $\alpha=0.90$ in social support amount and $\alpha=0.87$ in social support satisfaction). The SSQ-6 was validated by negative correlations with scales of lack of social support including the Multiple Affect Adjective Checklist loneliness scale and the Lack of Protection Scale.⁴⁰ High amount of social support obtained with the SSQ-6 predicted survival in post myocardial infarction patients³⁸ and outpatients with HF.³⁹

Analysis

Descriptive statistics including z tests for skew and kurtosis and residual analysis were utilized to examine the normality of the continuous outcomes prior to multivariate analyses. The skewed distribution of depression necessitated square root transformations and of social support necessitated log transformations, which generated normal distributions. The transformed variables were used for parametric statistical analysis. SPSS for Windows 19 (SPSS Inc, Chicago, IL) was used for all analyses.

The randomness of missing data for each dependent variable was examined to confirm that data were missing at random or completely at random. Both logistic regression and pattern-mixture models⁴⁰ provided no evidence that depression or anxiety data were missing systematically.

Chi square tests were used to examine differences in frequency of depression and anxiety between the treatments at each time period. Separate sets of linear mixed models were used to examine changes in depression and state anxiety over two years. Linear mixed models have the advantage of allowing cases with variable numbers of assessments to be included in the analysis and thus do not require replacement of missing data.⁴¹ Thus data from participants who died over the course of the study or who provided data at some but not all points were included in the analysis. The models examined changes in these dependent variables among participants to explore the potential effects of severity (NYHA class), age, social support amount and gender on changes in depression and anxiety after controlling for treatment type (ICD or placebo medication). Unstructured error covariance structure was chosen on the basis of model fit.

Each series of models began with only unconditional means and unconditional growth models. Both random intercept and random slope/random intercept models with several correlation structures were examined.⁴¹ Random intercept models were superior and thus were used for all analyses. All models except unconditional means and unconditional growth models included treatment group to control for its effects. A series of models were conducted that added NYHA class, age, gender, amount of social support and time, and then added the interaction of each predictor with time, and the three way interactions with time. Predictor interaction terms and predictors were then removed to obtain the best predictive model for each outcome based on Akaike's Information Criterion (AIC) and Schwarz's Bayesian Information Criterion (BIC).⁴¹ For analyses of depression, age was dichotomized as 60 years and younger and over 60 to achieve convergence.

RESULTS

Patient Characteristics

A total of 108 patients with HF participated in the current study, 57 who received ICDs and 51 who received placebo medication. The SCD-HeFT sites that participated in PFOS randomized 387 participants in SCD-HeFT: 140 to ICDs and 147 to standard care plus placebo medication. PFOS included 41% of the ICD recipients and 35% of the placebo recipients at these sites (see Figure 1). Patients were largely male and White; ages ranged from 35.5 to 85.1 years. Twelve patients, 6 ICD recipients and 6 placebo recipients, died during follow-up which lasted up to 35.9 months after PFOS enrollment. All cause mortality in PFOS was 11.1%. Demographic, medical history and follow-up information for participants according to treatment group is included in Table 1. The demographics and clinical characteristics of the PFOS participants were comparable to those of the SCD-HeFT participants, except there were more minorities in SCD-HeFT. Most of the PFOS participants (73%) had NYHA class II HF; co-morbidities included diabetes (32%) and atrial fibrillation or flutter (20%). Depression, state anxiety, and social support scores at initial assessment according to treatment group are included in Table 2. Chi square analyses indicated that there were no significant differences in frequencies of co-morbidities or medications between the patients who received ICDs and those who received placebo. There also were no significant differences in average age, left ventricular ejection fraction, length of follow-up, time from SCD-HeFT enrollment to initial psychosocial assessment, baseline state anxiety scores, or baseline social support amount between two groups. Baseline depression scores were slightly higher in ICD patients than those in placebo group [$t(89.3) = 2.02, p = .047$].

At initial assessment 30% of the patients were depressed: 35.8% among those who received ICDs; and 23.9% among those who received placebo. At initial assessment 41.9% of the patients were anxious: 45% among those who received ICDs; and 38% among those who received placebo. Initial state anxiety scores were highly correlated with initial depression scores ($r = .445, p < .001$). At initial assessment, social support amount ranged from 0 to 54 with a mean of 15.6 ($SD = 12.6$) and a median of 12. There are no cut-off points for identifying high or low social support. There were no significant differences in average amount of social support in patients with NYHA class II and class III HF [$t(101) = 0.115, p = .909$] or in the SCD-HeFT treatment groups [$t(101) = 0.762, p = .448$]. At initial assessment, social support amount was not correlated significantly with depression ($r = -.144, p = .158$), state anxiety ($r = -.059, p = .558$), or age ($r = -.144, p = .146$).

Changes in depression

The best model for predicting depression explained 18.5% of the variance in depression. Initial social support amount significantly predicted changes in depression over time as indicated by a significant interaction between social support and time (see Table 3). Depression increased over time for patients who had lower baseline social support amount after controlling for age, treatment group, and disease severity. The lower the social support amount at the initial assessment, the greater the increase in depression over time. Estimated depression scores according to initial social support amount are included in Figure 2. Depression did not increase for those with higher initial social support amount. Neither NYHA class nor treatment group interacted with time to predict depression which indicates that changes in depression were parallel for patients with NYHA class II and class III HF and for those who received ICDs and those who did not.

Changes in anxiety

The best model for predicting state anxiety explained 7.4% of the variance in anxiety. It included the impact of social support amount, NYHA, and age and interactions among the three variables. Social support did not make a significant independent contribution to changes in state anxiety. Changes in state anxiety did not depend on NYHA class, initial amount of social support, ICD intervention, or age as indicated by a lack of significant interactions of these variables with time (see Table 4).

Discussion

This study examines the contributions of social support and disease severity (NYHA class) to long term changes in depression and state anxiety in outpatients with HF. It was conducted within the PFOS⁴² and SCD-HeFT trials.²⁸

There are no other available data on social support scores with the SSQ in patients with HF. Social support scores of patients with HF in the current study are comparable with those of patients with MI enrolled in similar clinical trial substudies. In the psychosocial substudy of the CAST clinical trial,³⁸ the average social support amount of 424 post MI patients with ventricular arrhythmias was 17.1 (SD = 14.0) and in the psychosocial response substudy of the HAT clinical trial,⁴³ mean social support amount of 460 post MI patients who lived with a spouse or companion was 18.69 (SD = 13.3). The average of social support amount of the patients with HF in the current study was significantly lower (mean=13.49 and SD=10.8) than in the two groups of post-MI patients (p-values < .02, corrected for multiple comparisons).

Social support significantly predicted changes in depression over time. Depression increased over time for patients who had lower initial social support amount. The finding that social support contributed to longitudinal changes in depression over two years in outpatients with HF extends findings relating living alone and other social factors to development of depression.²⁶ Other social factors and the individual's perception of quality of life not examined in the current study may also influence changes in depression in patients with HF. This finding compliments the finding that illness intrusiveness, which includes disruption in social/family/work activities, mediated the relationship between illness severity and depression in a cross-sectional study of older veterans with HF. Both studies indicate that modification of social support may be useful in reducing the influence of HF on the development of depression.⁴⁴

In the current study, HF severity, as indicated by NYHA classification, was not related to changes in depression or anxiety. This finding goes beyond the vast majority of the studies of patients with HF that find the relationship of depression^{1, 2, 11–17, 44} or anxiety^{13, 16} to HF severity. The current study addresses change in depression and anxiety while the previous studies examined a cross-sectional relationship.

Overall state anxiety did not change over two years in the current study. None of the potential moderator variables, social support, age, NYHA class, predicted changes in anxiety. Almost one third (32%) of the HF patients remain anxious over the two year period of study. It is important to identify other patient characteristics such as poor coping and increased stress which might be related to anxiety and evaluate their potential for targeting to reduce anxiety in this vulnerable population.

The current study provided evidence that social support amount predicts changes in depression symptoms in patients with HF. Lower social support at baseline was associated with increases in depression symptoms in patients with HF although the change was small.

High levels of social support may protect patients from the negative prognostic consequences of depression. The continued high levels of depression symptoms even after two years may continue to have a negative impact on health outcomes. In a recent study worsening depressive symptoms were associated with death or cardiovascular hospitalization in patients with HF.²⁰

Medication may not be the best approach to reduce the contribution of depression symptoms to mortality in patients with HF. Recent clinical trial data⁴⁵ and clinical data from hospitalized patients with HF⁴⁶ indicate that antidepressant use does not improve outcomes in patients with HF.

The relationship of social support to changes in depression suggests that social support enhancement has the potential to moderate changes in depression. It is important to consider whether intervention to improve psychosocial status in this group of HF patients will have a positive impact on depression and thus on health outcomes. A variety of modalities may be useful for decreasing depression and anxiety and increasing social support for HF patients. Support groups, exercise, and self management interventions can enhance social support, improve psychological status and change health behaviors.^{47, 48}

Successful management of HF requires the active involvement of the patients in his/her own care. In HF self management or self care includes adherence with medication, regular exercise, and dietary restrictions on salt as instructed by the health care provider as well as monitoring and interpreting signs and symptoms to assess disease status and seeking care when indicated. Poor self management is associated with psychosocial distress.^{48, 49} Based on a randomized intervention study in HF patients, Jaarsma et al concluded that general disease management programs are not effective for HF patients who are depressed and recommend identification of depressive symptoms prior to initiation of a disease management program.⁵⁰ Poor social support inhibits the development and use of HF self management skills.^{25, 48}

No large clinical trials of education or self management interventions demonstrate the effectiveness of these interventions to improve social support, or reduce depression or anxiety in HF patients.^{51, 52} In a small treatment group only pilot study in HF patients (N=26), depression and social support were significantly improved one year after baseline.⁵³ A larger study with a comparison group found lower depression and a tendency for better social functioning in the self management intervention than in the control group at 3 months but not at one year.⁵⁴ Education and self management interventions may increase perceptions of control and decrease depression and anxiety. Future studies are needed to assess the effectiveness of self management interventions with depressed and anxious HF patients.

LIMITATIONS

The findings are based on use of self-report symptom questionnaires to assess depression and anxiety. Although both the Beck Depression Inventory and the State Trait Anxiety Inventory are widely used in studies of cardiac patients and are preferable to single item reports of mood, they do not provide clinical diagnoses of anxiety or depression.^{31, 55} The current study was limited to symptoms of depression and anxiety expressed by the patients at specific times and did not include evaluation of the effect of treatment for these or other psychiatric disorders. The generalizability of the current study is limited by the lack of diversity in race and gender among the cohort studied. The participants in this study were a subgroup of the SCD-HeFT sample and their experience of psychological changes may not represent those of the entire cohort. In the current study the range of HF severity is limited to patients with NYHA class II or III HF. Patients with NYHA class IV HF have

significantly more depressive symptoms than those with classes I-III HF⁵⁶ and the findings cannot be generalized to them. This longitudinal study could not identify individuals who were depressed or anxious prior to study entry. Another major limitation was that use of anti-depressant and anti-anxiety medication was not available from the parent trial (SCD_HeFT) and thus the influence of medication on levels of or changes in anxiety and depression could not be ascertained.

The amount of missing data is of potential concern. It is possible that more depressed or anxious participants refused to participate in the study, withdrew from the study, or died. Our analyses indicated that data were missing at random, which means that initial status (depression scores, anxiety scores, social support, NYHA class, age, gender) does not predict missing data at subsequent data collection points or patterns of missing data. The linear mixed models statistical technique used in the current study uses all data points and allows different numbers of measurements for each case. Data that are missing at random are expected and do not compromise the analysis.^{40, 41} Only a small proportion of variability in outcomes was explained by the variables assessed in the current study. Additional variables may help to explain changes in depression and anxiety in this population.

CONCLUSIONS

Low social support at baseline was associated with worsening depression, and even patients with higher social support did not experience great reductions in depression over two years. Anxiety in outpatients with HF remains high over two years. Reducing psychological distress and increasing social support may improve health outcomes among HF outpatients. Longitudinal studies of more diverse population are necessary to extend the generalizability of the findings. It is important for studies of HF to include assessment of depression, anxiety, and social support and evaluate their contributions to health outcomes.

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Clinical Pearls (summary of the important clinical points of the article)

- In outpatients with heart failure (n = 108) 30% were depressed and 42% were anxious
- Higher social support contributed to decreases in depression but not anxiety over two years
- Neither severity of illness (NYHA Class) nor having an ICD were associated with changes in depression
- Assessment of depression and anxiety should be conducted in outpatients with heart failure
- Interventions to improve social support may reduce depression in patients with heart failure

What's New?

- Little is known about the interrelationship among disease severity, social support, and depression or anxiety. This study showed that low social support at baseline was associated with worsening depression, and even patients with higher social support did not experience great reductions in depression over two years.
- Implanted cardioverter defibrillators (ICDs) in patients with heart failure were not related to increased depression or anxiety this is unlike what occurs in patients who receive ICDs for ventricular arrhythmias.

Figure 1.
Consort diagram showing the relationship of enrollment in PFOS to enrollment in SCD-HeFT

Figure 2.

Estimates of changes in depression over time according to amount of social support (Soc Sup; SSQ-6 score).

Estimates of depression are for a patient with an SSQ score 1 SD below (Low) and 1 SD above (High) the mean SSQ score. BDI-II Depression scores of 13 (the horizontal line in the graph) and above are indicative of depressed mood.

Table 1

Demographic and cardiovascular health-related characteristics of the participants who received ICD therapy and those who received medication

Characteristic	ICD Therapy (n=57)	Placebo (n=51)	All Participants (n=108)
Age-years Mean (SD)	59.8 (11.8)	61.4 (10.6)	60.5 (11.2)
Female -no. (%)	10 (17.5)	10 (19.5)	20 (18.5)
Nonwhite -no. (%)	7 (12.3)	6 (11.8)	13 (12)
Ejection fraction Mean (SD)	25.3 (6.9)	25.4 (7.2)	25.4 (7.0)
Diabetes-no. (%)	20 (35)	14 (27.5)	34 (31.5)
NYHA class II-no. (%)	43 (75)	36 (70.6)	79 (73.1)
Sinus rhythm type-no. (%)	52 (91)	50 (98)	102 (94.4)
Atrial fibrillation/flutter-no. (%)	15 (26)	7 (13.7)	22 (20.4)
Medication			
ACE inhibitor	47 (82)	42 (82.4)	89 (82.4)
Beta-blocker	50 (88)	41 (80.4)	91 (84.3)
Statin	32 (56)	23 (45.1)	55 (50.9)
Aspirin	40 (70)	35 (68.6)	75 (69.4)
Digoxin	34 (60)	33 (64.7)	67 (62)
Follow up – months Mean (SD)	41.1(14.9)	41.9 (14.9)	41.5 (14.8)
Died Number (%)	6 (10.5)	6 (11.8)	12 (11.1)

Table 2

Psychosocial characteristics of participants at initial assessment according to treatment group

Characteristic	ICD	Placebo [†]	All participants
	(n [*] =57)	(n [*] =51)	(N [*] =108)
	Mean (SD)	Mean (SD)	Mean (SD)
Depression Score (BDI-II)	11.8 (9.6)	8.6 (6.1)	10.3 (8.3)
State Anxiety (STAI)	36.5 (12.0)	34.8 (11.2)	35.7 (11.6)
Social Support Amount (SSQ-6)	14.7 (11.1)	16.6 (14.1)	15.6 (12.6)
	n (%)	n (%)	n (%)
Depression Level			
No depression (BDI ≤12)	34 (64)	35 (76)	69 (70)
Mild (13 ≤BDI ≤19)	11 (21)	7 (15)	18 (18)
Moderate (20 ≤BDI ≤28)	3 (6)	4 (9)	7 (7)
Severe (BDI ≥29)	5 (9)	0 (0)	5 (5)
Anxiety Level			
Not Anxious (STAI <40)	30 (55)	31 (62)	61 (58)
Anxious (STAI ≥40)	25 (45)	19 (38)	44 (42)

* number of patients differs for each variable due to missing data;

[†] patients randomized to active or placebo medication

Table 3

Best Growth Curve Model Predicting Changes in Depression^a over 2 Years

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	2.000	.271	119.628	7.369	.000	1.463	2.538
Treatment (ICD=1)	.666	.241	129.524	2.756	.007	.188	1.143
Class	1.575	.423	139.662	3.721	.000	.738	2.412
Age	-.044	.225	97.769	-.196	.845	-.492	.403
Socsup	.404	.278	127.936	1.453	.149	-.146	.953
Class * Socsup	-.862	.561	134.011	-1.537	.127	-1.970	.247
Time	.105	.069	241.919	1.511	.132	-.032	.241
Treatment * Time	-.083	.067	238.086	-1.250	.213	-.215	.048
Class * Time	.022	.160	264.730	.138	.891	-.294	.338
Socsup * Time	-.156	.077	240.590	-2.026	.044	-.307	-.004
Class * Socsup * Time	.082	.184	256.355	.443	.658	-.281	.444

^a depression: square root of score on the BDI; time: months after initial assessment, age: 0 = 60; 1 = > 60 years; class: 0 = NYHA class II, 1=NYHA class III; treatment: 0= medication, 1= ICD; socsup: natural log of social support amount (SSQ-6) at initial assessment

Table 4

Best Growth Curve Model Predicting Changes in State Anxiety over 2 Years

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	32.256	1.972	110.150	16.357	.000	28.348	36.164
Class	4.669	3.560	108.061	1.311	.193	-2.388	11.725
Socsup	1.167	2.361	100.667	.494	.622	-3.517	5.851
Age	1.801	1.843	95.057	.977	.331	-1.858	5.461
Class * Socsup	1.877	4.729	103.153	.397	.692	-7.501	11.256
Time	-.069	.605	69.708	-.114	.909	-1.275	1.137
Socsup *Time	.140	.768	61.955	.182	.856	-1.395	1.674
Class * Time	-.641	1.496	81.432	-.429	.669	-3.617	2.335
Class * Socsup *Time	.029	1.755	73.164	.017	.987	-3.467	3.526

time: months after initial assessment, age: 0 = 60; 1 = > 60 years; class: 0 = NYHA class II, 1=NYHA class III; treatment: 0= medication, 1= ICD; socsup: natural log of social support amount (SSQ-6) at initial assessment