

# Variables Contributing to Distress in Male Cardiac Patients

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*Fifty-five male subjects attending a cardiology clinic were examined using a structured interview keyed to a 12-item Hamilton Anxiety Scale (HAS). Sixty-five percent scored in the range of moderate to severe distress with highest mean scores on the following subscales: anxious mood, tension, insomnia, muscular complaints, and global behavioral distress. Two-way analysis of variance revealed the following factors to be significantly associated with higher total HAS scores: greater number of medical diagnoses (P = .007), taking more medications (P = .001), history of psychiatric treatment (P = .007), being declared disabled (P = .002), and living with others (P = .025). Each of these variables might contribute to greater psychological or physical discomfort, increased medical utilization, and difficulty with cardiac rehabilitation. The complexity of psychosocial factors in determining distress is addressed, since subjects living with others scored higher than those who were socially isolated (HAS mean score = 17.9 ± 8 vs 10.7 ± 5.5, respectively, P = .025). J FAM PRACT 1990; 30: 43-48*

It is estimated that one third of the annual \$17 billion in Social Security payments is accounted for by the morbidity and mortality associated with cardiovascular disease.<sup>1</sup> Millions more with coronary artery disease stop working by way of early retirement or other disability programs.<sup>2</sup> Chronic physical illness, especially heart disease, results in symptoms of depression and anxiety, which often lead to impaired functioning.<sup>3,4</sup> Because somatic symptoms of depression and anxiety are frequently interpreted as worsening of a preexisting chronic physical illness, such patients are high users of medical care facilities.<sup>5</sup> The role of psychosocial factors in disability among patients with coronary artery disease is highlighted in a study by Hlatky et al,<sup>1</sup> which found that psychological and social factors may be more important than medical factors in determining work disability.

This paper examines the prevalence of distress, as measured by a modified Hamilton Anxiety Scale (HAS),<sup>6</sup> in a population of male veterans attending an outpatient car-

diology clinic. For the purpose of this paper, "distress" is defined as a collection of painful signs and symptoms (psychological or physical or both) that are experienced by the patient. The HAS gives equal weight to psychological and somatic complaints, and the present study does not attempt to identify the cause of the complaint; that is, a particular symptom complex could be due solely to physical illness. Hence, patients who attained a high HAS score do not necessarily have a psychiatric disorder. Patients scoring in the moderate to severe range on the HAS (see Methods), however, are expected to be experiencing a level of discomfort (distress) that could lead to at least minimal impairment in social, interpersonal, or occupational functioning.

The following major hypotheses were tested in this study: (1) patients with a high number of different medical diagnoses and those treated with the greatest number of medications should have higher HAS scores, (2) presence of psychosocial support should result in lower HAS scores, (3) patients who were declared disabled for benefits purposes and those who had received previous psychiatric treatment should have a higher HAS score than those who were negative for these variables, and (4) older male cardiac patients should have a higher HAS score than younger patients.

The purpose of this paper was to use the results of this

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study to address variables contributing to distress in ambulatory male cardiac patients. Although these results may not generalize to all cardiac patients because of the design, the findings should serve to raise the consciousness of primary care physicians with respect to variables that contribute to psychological and physical discomfort in select patients. Moreover, literature related to the findings will be discussed in an attempt to place the results in perspective.

## METHODS

The subjects were male veterans attending an outpatient cardiology clinic at the New Orleans Veterans Administration (VA) Hospital. This project was approved by an institutional review board. All patients attending the clinic were asked by one or more cardiology fellows during their cardiac clinic visit whether they were interested in a project studying the presence of anxiety in cardiac clinic patients. Interested patients were invited to participate, and informed consent was obtained. All patients were interviewed by the same senior resident in psychiatry performing a research elective. Patients were examined over a period of 10 months. Direct supervision of interviews and ratings was provided by one of the authors (E.A.B.) for the first 20 enrolled patients and for random patients throughout the study.

A structured interview using questions keyed to the HAS was utilized.<sup>6,7</sup> Administration of this structured HAS interview requires only 10 to 15 minutes. Because cardiac patients were anticipated to have higher ratings on cardiovascular and respiratory complaints, these two items on the HAS were eliminated. Hence, the 12-item HAS surveyed the following signs and symptoms of distress: anxious mood, tension, fears, insomnia, intellectual (cognitive) dysfunction, depressed mood, somatic (muscular) complaints, somatic (sensory) complaints, gastrointestinal symptoms, genitourinary symptoms, autonomic symptoms, and behavior at interview (global distress). With each item rated from 0 (none) to 4 (disabling, occurring every day), the range of possible total scores was 0 to 48.

The following demographic characteristics were determined at the time of interview: age, race, marital status, living arrangements, number of others in household, type of housing, disability status, and source of income. An assessment of medical diagnoses, prescribed and over-the-counter medications, and current or previous psychiatric treatment were recorded based on the interview and a review of the medical record. Current medical diagnoses were grouped into the following major categories: genitourinary, gastrointestinal, muscular, cardiovascular, neurological, lung, head, eyes, ears, nose, and throat, skin, endocrine, infections, joint or bone, and other. Psy-

**TABLE 1. DEMOGRAPHIC CHARACTERISTICS OF 55 MALE CARDIAC CLINIC PATIENTS**

Characteristic	Number	Percent
Race		
White	35	63.6
Black	20	36.4
Marital status		
Married	39	70.9
Single	6	10.9
Divorced	7	12.7
Widowed	2	3.6
Separated	1	1.8
Partner situation		
Lives alone	7	12.7
Lives with others	48	87.3
Housing		
Single-family house	48	87.3
Apartment	6	10.9
One-room apartment	1	1.8
Disability*		
Yes	38	69.1
No	17	30.9
Income source		
Job	7	12.7
Pension	4	7.3
Disability	27	49.1
Retirement	4	7.3
More than one source	12	21.8
No income	1	1.8

\*Defined as being officially declared disabled for purposes of benefits from Social Security, Veterans Administration, etc.

chiatric disorders (if documented in the medical record) were grouped as follows: anxiety, affective, schizophrenia, organic, substance abuse or dependence, and other. It was not the purpose of this survey to make a psychiatric diagnosis based on the interview. The design of the study required that patients sign a consent form before any data were collected. Thus, demographic characteristics of those refusing to consent were not recorded. This design precluded any comparisons with those who declined interviews and clearly focuses on a special group—namely, consenting male veterans. The study primarily examines those variables found to be correlated with distress in this subgroup.

## RESULTS

Complete data were collected on 55 male patients with a mean age ( $\pm 1$  SD) of 60.1 ( $\pm 6.6$ ) years (range 38 to 71 years). Table 1 is a summary of the demographic charac-

**TABLE 2. CLINICAL CHARACTERISTICS OF 55 MALE CARDIAC CLINIC PATIENTS**

Characteristic	Number	Percent
HAS score (mean = 17 ± 8.0)*		
<15	19	34.5
15-20	18	32.7
>20	18	32.7
Breakdown by number of medical diagnoses (mean = 3.7 ± 1.8)		
1-3	27	49.1
4-6	24	43.6
7-9	4	7.3
Previous psychiatric treatment		
None	39	70.9
Hospitalized	5	9.1
Outpatient	9	16.4
Hospitalized + outpatient	2	3.6

*HAS—Hamilton Anxiety Scale*  
*\*A score of 15 on the 12-item HAS was equivalent to 18 on the 14-item HAS (moderate distress) and a score of 21 equivalent to 25 (severe distress).<sup>7</sup>*

teristics of this group. The predominate characteristics were as follows: white 35 (63.6%); married 39 (70.9%); living with others 48 (87.3%); living in a single family house 48 (87.3%); declared disabled 38 (69.1%); drawing

disability income 27 (49.1%); having more than one source of income 12 (21.8%).

The clinical characteristics of these 55 men are displayed in Table 2. By extrapolating the scores of the 12-item HAS to those of the full 14-item scale, a score of 15 on the 12-item scale is equivalent to 18 (moderate distress) and a score of 21 is equivalent to 25 (severe distress) on the 14-item HAS. About two thirds (65.4%) of the patients examined were experiencing a moderate to severe degree of distress at the time of sampling. The mean score (±1 SD) of 17 (±8.0) was well within the moderate range of distress. Noteworthy is that the majority of the subjects (70.9%) had not received any psychiatric intervention, and only three (5.5%) carried a psychiatric diagnosis in the medical record. Sixteen (29%) were receiving a psychotropic medication, however. The number of different medical diagnoses listed ranged from 1 to 9 (mean ± 1 SD = 3.7 ± 1.8). The mean (±1 SD) number of different medications prescribed (including over-the-counter drugs) was 6.7 (±2.9), with a maximum of 14.

Table 3 displays the results of a two-way analysis of variance examining those variables contributing to the total HAS distress score. Neither age, race, nor marital status contributed significantly to higher scores. Although 39 subjects were married, only 7 subjects actually lived alone. When the scores of all subjects living with someone

**TABLE 3. TWO-WAY ANALYSIS OF VARIANCE (ANOVA) TO DETERMINE VARIABLES CONTRIBUTING SIGNIFICANTLY TO TOTAL DISTRESS SCORE**

Dependent Variable	Number	Mean Scores (± 1 SD)	ANOVA F Test (df = 1,53)	P Value
Living alone	7	10.7 ± 5.5		
Living with others	48	17.9 ± 8.0	5.29	0.025
Age (years)				
≤59	27	16.3 ± 7.6		
≥60	28	17.7 ± 8.5	0.43	NS
Number of medications				
≤6	29	13.7 ± 7.4		
≥7	26	20.6 ± 7.2	12.24	0.001
Declared disabled				
Yes	38	19.1 ± 7.8		
No	17	12.2 ± 6.5	10.37	0.002
Married	39	18.0 ± 8.2		
Not married	16	14.6 ± 7.3	2.10	NS
Past psychiatric treatment				
Yes	16	21.4 ± 7.7		
No	39	15.2 ± 7.5	7.83	0.007
Number of medical diagnoses				
≤3	27	14.1 ± 8.1		
≥4	28	19.8 ± 6.9	7.86	0.007
Race				
White	35	17.6 ± 7.3		
Black	20	15.9 ± 9.2	0.6	NS

*NS—Not significant*

(married or not) were analyzed, however, this group had significantly higher scores than those living alone. Also contributing to higher distress scores were taking more medications, being declared disabled, experiencing a greater number of medical problems, and having a history of past psychiatric treatment.

## DISCUSSION

In this study, the term *distress* rather than *anxiety* is used because the HAS rates a variety of somatic and psychic signs and symptoms that are uncomfortable (distressing) to the patient. Individual items on the HAS are rated from 0 to 4 (none to disabling), and the mean scores for the following signs or symptoms were near or at a moderate level (defined as a score of 2 or greater): anxious mood (1.7), tension (2.2), insomnia (1.6), muscular complaints (1.7), and behavior at interview (global distress) (1.7). Except for muscular complaints, these particular target signs and symptoms suggest the presence of a high level of overall psychological distress.

The observation that 65.4%—almost two thirds—of cardiac clinic outpatients were experiencing significant distress is consistent with previous reports. For example, 22% to 58% of unselected patients with myocardial infarctions are reported to be depressed during hospitalization.<sup>8,9</sup> Between one half and two thirds of these patients remain distressed at the 1-year follow-up.<sup>8,10</sup> Of interest, even though high HAS scores were prevalent among the cardiac outpatients in the study reported here, only 29% had ever seen a psychiatrist or mental health worker, and only three (5.5%) carried an active psychiatric diagnosis in the medical record. On the other hand, a high total HAS score does not necessarily mean that a psychiatric disorder is present, or that more patients should have been referred for psychiatric treatment. In fact, primary care physicians can provide therapeutic interventions such as supportive counseling and symptomatic pharmacotherapy (eg, low-dose sedating antidepressants for chronic insomnia; benzodiazepines for uncomfortable anxiety).

The importance of knowing a patient's psychiatric history is demonstrated by subjects with a history of psychiatric interventions being significantly more distressed (score =  $21.4 \pm 7.7$  vs  $15.2 \pm 7.5$  for subjects with a negative psychiatric history,  $P = .007$ , Table 3). Hence, psychiatric intervention during attempts to rehabilitate such patients could potentially improve overall functioning. Support for this hypothesis comes from Wells et al,<sup>11</sup> who demonstrated that ambulatory patients with chronic medical disorders combined with an anxiety or depressive disorder perceived their general health status to be poorer

than those without psychiatric disorders. Also, patients with the combination of psychiatric distress and chronic medical disorders were more likely to have spent time in bed than those without psychiatric distress.

In the study reported here neither age nor race were correlated with higher HAS scores, probably because both patient groups (older vs younger and white vs black) were equally affected with respect to severity of their medical illnesses.

Those patients taking a greater number of medications were significantly more distressed (Table 3). This finding is consistent with a report by West and Evans,<sup>12</sup> who studied 10-year survivors of uncomplicated myocardial infarction. Survivors reported higher drug use than controls, not only of heart-related drugs, but also of other drugs such as nonsteroidal anti-inflammatory drugs, major and minor tranquilizers, and a miscellaneous group containing other analgesics, antiasthmatics, and drugs for digestive disorders. Moreover, anxiety and depression scores revealed residual psychological morbidity 10 years after myocardial infarction. Hence, the higher degree of drug use could have been a reflection of survivors' generally poor state of physical or psychological health. The data collected from VA cardiac outpatients are consistent with the hypothesis that those with a greater number of different medical diagnoses are more distressed (Table 3). Psychiatrically distressed patients have also been shown to demonstrate an increased rate of medical utilization.<sup>13,14</sup> Hence, appropriate psychological or pharmacological intervention can reduce patients' preoccupation with somatic distress, real or imagined.<sup>15</sup>

Those men who had been declared disabled recorded significantly higher HAS scores than those not officially disabled (score =  $19.1 \pm 7.8$  vs  $12.2 \pm 6.5$ , respectively,  $P = .002$ , Table 3). Hlatky et al<sup>1</sup> studied the medical, psychological, and social factors that independently affect employment in patients with coronary artery disease. The most striking differences between disabled and nondisabled patients with coronary artery disease were higher levels of anxiety, depression, and hypochondriasis among the disabled group. These authors concluded that social and psychological factors are as important as and perhaps more important than medical factors in determining work disability among patients with coronary artery disease.

The relationship between interpersonal relationships and physical and psychosocial health status is a complex one. Kannel and Eaker<sup>16</sup> summarized data from the Framingham Heart Study and reported that marital status, employment status, and educational level were not related to risk of coronary heart disease. On the other hand, Ruberman et al<sup>17</sup> reported that survivors of acute myocardial infarction had more than four times the risk of death when they were socially isolated and had a high degree of life stress. Finding higher distress levels in

cardiac patients living with others (Table 3) seems contrary to both of the previously quoted studies. Likewise, those who were married had higher HAS scores ( $18 \pm 8.2$ ) than those not married ( $14.6 \pm 7.3$ ), although the difference did not meet statistical significance ( $P = .15$ ). How can this finding be interpreted in light of the importance of psychosocial support in reducing stress? Certainly, the small number of subjects in the "living alone" category could have contributed to a sampling error. On the other hand, higher scores in the "living with others" category could involve the following variables: (1) the quality of the relationships, and (2) the patient's altered role in the relationship once he is disabled by heart disease. For example, Goldschmidt et al<sup>18</sup> examined the wives of 19 coronary artery surgery patients and found 40% to 50% of these women to have significant levels of depression. These women attributed their own personal distress to their altered psychosocial role (real or perceived), even though their husbands had a "good" surgical outcome. Hence, the ability of the spouses to provide psychological support can be impaired by their own distress. Likewise, the patient can be further distressed by his changing role from independent provider to dependent financial liability to his family, relatives, or friends.

Several methodological variables could influence the results reported here. First, the results may not generalize to all cardiac patients because they focus only on male veterans who consented. Hence, only those willing to undergo a psychiatric interview were included. The scores were probably not inflated, however. Many patients who chose not to participate were observed to be overtly distressed. Perhaps they were embarrassed or uneasy about having their distress discovered. Another possible weakness of this study is that patients who participated had a variety of cardiac problems, including coronary artery disease, valvular disease, and recent coronary artery bypass graft or valve replacement. Hence, the variables leading to distress in patients with one particular cardiac disorder are not being reported. The study focus was on the high prevalence of distress in a group of rather seriously ill male cardiac patients in an effort to encourage primary care physicians to screen for this problem.

It is acknowledged that a brief one-time examination could skew data because changes over time are not considered. The HAS interview conducted for this study focused on symptoms over the 2 weeks leading up to the examination. The HAS has proven to be a reliable instrument for the assessment of anxiety and is used in pharmacological research on anxiety disorders.<sup>6,7,19</sup> An entry score of at least 18 on a 15-item HAS (equivalent to a score of 14.4 on the 12-item HAS used here) is usually required for testing the efficacy of antianxiety drugs.<sup>19</sup> This level of anxiety in medically healthy patients with an

anxiety disorder may not be the same as the distress experienced by cardiac patients. On the other hand, individual items on the HAS do reflect core anxiety symptoms. Subscores on these items (anxious mood, tension, fears, and autonomic symptoms) can be helpful in estimating the degree of core anxiety in medically ill patients. A score of 3 or 4 on each subscale reflects symptoms that are disabling. In the cardiac patients evaluated in this study, the number of patients scoring 3 or 4 on these core anxiety subscales were as follows: anxious mood  $n = 17$  (39.9%), tension  $n = 25$  (45.4%), fear  $n = 3$  (5.5%), autonomic symptoms  $n = 12$  (21.8%). The total mean score on these four subscales was 5.9. Since the mean total HAS score was 17, core anxiety symptoms contributed 34.7% of the points to the total mean score. In the clinical experience, patients whose total score on these four anxiety subscales is 7 or above need a more detailed assessment for treatable anxiety. Since anxiety interacts with the somatic distress caused by medical illness, creating a vicious cycle, therapeutic interventions aimed at alleviating core anxiety can reduce somatic discomfort. But the intervention has to be specific for a given patient. Psychosocial support may help one patient, whereas pharmacotherapy may be required in another.

Finally, chronic distress in patients with heart disease could have long-term pathophysiological consequences. Rozanski et al<sup>20</sup> demonstrated that personally relevant mental stress can precipitate measurable myocardial ischemia in patients with coronary artery disease. These researchers stated: "Whereas previous reports of transient myocardial ischemia during ambulatory electrocardiography suggested the existence of 'spontaneous' myocardial ischemia, our results point toward a possible causal link between such episodes and mental stress occurring in daily life."

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