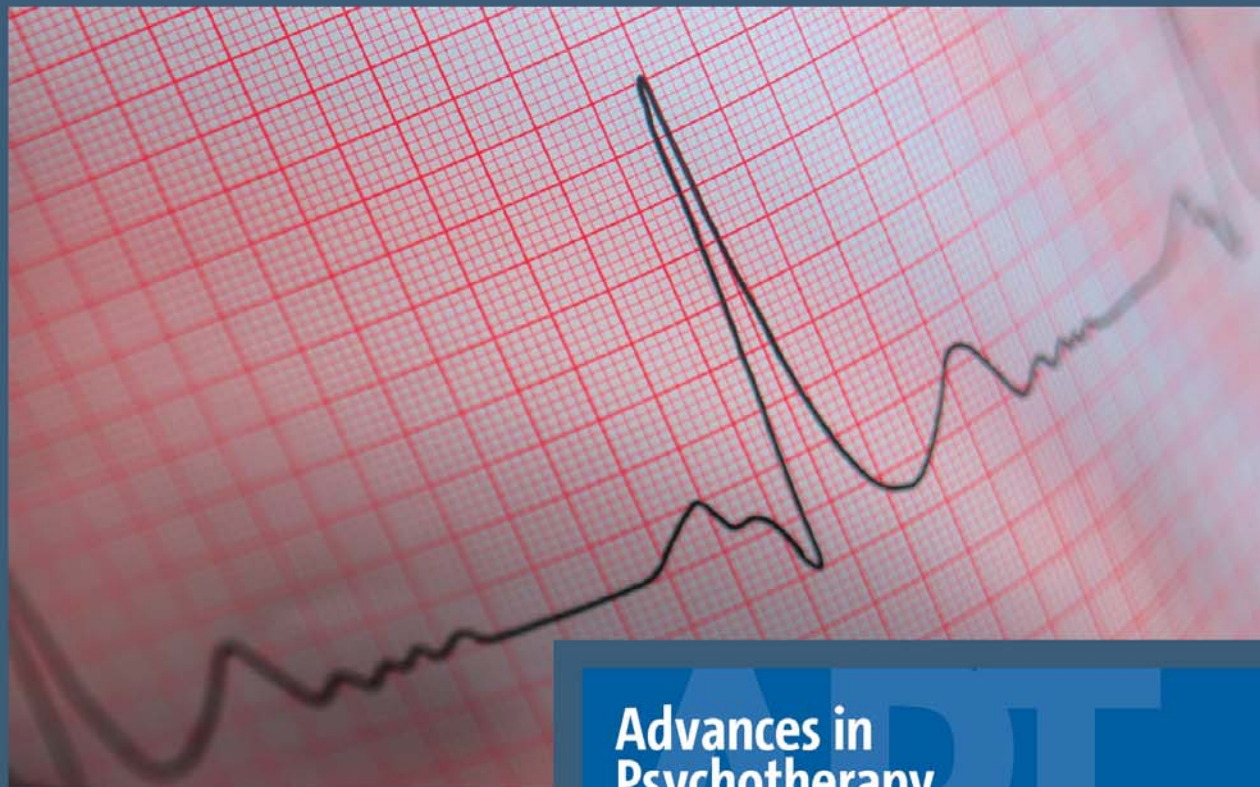


Judith A. Skala
Kenneth E. Freedland
Robert M. Carney

Heart Disease



**Advances in
Psychotherapy**

Evidence-Based Practice

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Heart Disease

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Advances in Psychotherapy – Evidence-Based Practice

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The series *Advances in Psychotherapy – Evidence-Based Practice* has been developed and is edited with the support of the Society of Clinical Psychology (APA Division 12). The Society is planning a system of home study continuing education courses based on the series that an individual can complete on the web.

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Preface

Cardiovascular disease is the most active area of research in behavioral medicine. This research is published across a wide array of journals, making it difficult for busy clinicians to keep up with new developments in the field. Thus, one of the biggest challenges today is translating the latest findings in behavioral cardiology into clinical practice. This volume is intended to make these findings accessible to psychologists, physicians, social workers, nurses, and other professionals who work with cardiac patients. It is also written for trainees who plan to work in medical settings where they will encounter patients with heart disease. It provides recommendations that are grounded both in research and in clinical practice.

Acknowledgments

Over the years, a number of forward-thinking cardiologists have collaborated with us and shared their insights and expertise. We particularly want to thank Michael W. Rich, MD, Allan S. Jaffe, MD, Victor G. Davila-Roman, MD, Edward M. Geltman, MD, and David S. Sheps, MD, MPH. We have also collaborated with many outstanding behavioral scientists. They are too numerous to name them all, but we do want to acknowledge Nancy Frasure-Smith, PhD and Francois Lespérance, MD for their dedication to the field of behavioral cardiology and for helping to bring it to the attention of the medical mainstream.

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Most of all, we wish to thank all the people who have come to us with their hardships, not knowing what to expect of therapy, and have agreed to work with us. They have entrusted us with their stories, their problems, their accomplishments, their fears, and their hopes. They have challenged, amazed, and inspired us. This book is dedicated to them with love, respect, and gratitude.

*Judith A. Skala
Kenneth E. Freedland
Robert M. Carney*

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Description

1.1 Terminology

1.1.1 Heart Disease

Many different terms are used to describe various aspects of heart disease. Some, such as **coronary artery disease** (CAD) and **coronary heart disease** (CHD) are often used interchangeably, while others are quite specific. CHD is an umbrella term for most forms of heart disease, but it does not exist as an International Classification of Diseases (ICD-10) code. The various ICD headings for heart disease can be found in the “Diseases of the Circulatory System” section coded 100 to 199. In order to work effectively with patients with heart disease, it is advisable to have a working knowledge of the following terms (ICD-10 code is given when applicable): **chronic ischemic heart disease** (I25), historically called **atherosclerotic heart disease** or ASHD, now commonly referred to as CAD or CHD; **congestive heart failure** or CHF (I50); **cardiomyopathy**, often written CMY (I42); **angina pectoris** (I20), which may be classified as stable, unstable, or with documented vasospasm (I20.1); ischemia; **myocardial infarction** or MI (I21); coronary valvular disorders, generally classified as **valvular stenosis** or **insufficiency** (I34–I37); **cardiac arrhythmias**, often more accurately called **dysrhythmias** (I47–I49); **atherosclerosis** (I70); atherogenesis; and **aneurysms** of the heart (I25.3). Common procedures include: cardiac catheterization, also called cardiac cath; **percutaneous transluminal coronary angioplasty** or PTCA, which now often includes insertion of one or more **stents**; **coronary artery bypass graft** or CABG surgery; and **pacemaker** insertion and/or insertion of an **automated implantable coronary defibrillator** or AICD.

1.1.2 Psychiatric Disorders and Psychosocial Problems in Heart Disease

Introduction

In this volume, we distinguish between **psychiatric disorders**, as defined by the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders, 4th Edition Text Revision (DSM-IV-TR), and **psychosocial problems**, which comprise a variety of other psychological, interpersonal, and social adjustment difficulties in patients with heart disease. In some instances, the distinction is clear. Type A behavior, for example, may be problematic for patients with heart disease, but it is not a DSM-IV psychiatric disorder.

In other cases, it is not so clear. For example, a patient who has recently had a heart attack may be quite anxious yet not meet the criteria for any of the anxiety disorders listed in DSM-IV. Depending upon the context, we discuss these sorts of problems either as **subsyndromal** forms of psychiatric disorders, or simply as psychosocial problems. Phenomena such as Type A behavior that have no counterpart in DSM-IV will only be referred to as psychosocial problems, not as psychiatric disorders.

Depression

The hallmarks of depression are persistent sadness (**dysphoric mood**) and pervasive loss of interest or pleasure in usual activities (**anhedonia**). In clinically significant depressive disorders, these symptoms are accompanied by other symptoms of depression and by diminished ability to engage in everyday activities (**functional impairment**).

Patients with subsyndromal depressive symptoms are at high risk of having a major depressive episode

The term **subsyndromal depression** has taken on several different meanings. Depending upon the context, it can indicate that the cardinal symptoms of dysphoric mood and/or anhedonia are present but the criteria for a full-fledged DSM-IV depressive disorder are not met. It can also mean that the patient has a depressive disorder that is only in partial remission, whether or not dysphoric mood or anhedonia are among the persistent symptoms. In some instances, the term is used as though it were synonymous with DSM-IV minor depression, but this usage is incorrect.

Nondysphoric depression is easily overlooked, as depression is often equated with sadness

Some patients deny feeling sad despite having other symptoms of depression. This condition has been termed **nondysphoric depression**. In some cases, the patient may simply not be feeling sad but may have other manifestations of depression. In others, he or she may actually feel sad but deny it when asked, perhaps because of personal or cultural biases against expressing emotions or to admitting to feeling sad. This is often encountered when assessing depression in medically ill patients, especially in those who are not seeking treatment for depression.

Some depressed patients present with anger or irritability, either instead of, or in addition to, sadness. Anger and irritability can prevent patients from being aware that their underlying mood is dysphoric. However, it is important not to assume that patients who are angry or irritable are necessarily depressed as well. Anger and irritability can be present for reasons unrelated to sadness or depression.

If you use the National Library of Medicine’s Medline database to search for articles on depression, it helps to know that the Medical Subject Heading (MeSH) keyword “depression” refers to “depressive states, usually of moderate intensity, in contrast with major depression present in neurotic and psychotic disorders.” In contrast, the MeSH term “depressive disorder” refers to “an affective disorder manifested by either a dysphoric mood or loss of interest or pleasure in usual activities. The mood disturbance is prominent and relatively persistent.” This term encompasses major depression as defined by DSM-IV. However, the MeSH term “depressive disorder, major,” does *not* refer to ordinary DSM-IV major depression. Instead, it refers to “marked depression appearing in the involution period and characterized by hallucinations, delusions, paranoia, and agitation.” In other words, it pertains to psychotic depression in elderly individuals. This is unquestionably a confusing situation.

“Depression” can refer to a mood, a symptom, or a syndrome

To make matters worse, “depression” can also refer to certain medical problems that may have nothing to do with psychiatric depression. The best way to find what you’re looking for is to use the MeSH term “depression” when searching Medline for articles on mild forms of psychiatric depression such as subsyndromal depressive symptoms, minor depression, or dysthymia, and to use “depressive disorder” when searching for ones on DSM-IV major depression. Better still, use both terms in their exploded form (exp depression/OR exp depressive disorder/), as some articles about depression are classified in Medline in ways you might not expect.

Anxiety

Anxiety has three dimensions: **cognitive**, **affective**, and **physical (somatic)**. Worry is the chief cognitive manifestation of anxiety. **Worrying** refers to a repetitive pattern of apprehensive expectations about potential problems, threats to safety or security, or harmful events that might occur. Whereas medically ill patients who have good reason to worry about their health are said to have **health anxiety**, individuals who worry needlessly about less serious aches and pains are said to have **hypochondriacal concerns**. Worrying about other problems is also common among cardiac patients, particularly about ones that either indirectly result from or are worsened by the patient’s medical illness.

The affective manifestations of anxiety include feeling fearful, ill at ease, restless, keyed up, or on edge. These are the sorts of feelings that people ordinarily experience when something frightening happens. Such feelings normally abate after the frightening experience ends, but “anxiety” implies that they persist even when the source of the fearfulness might not be readily apparent to an external observer. For that matter, it might not even be obvious to the patient.

The physical manifestations of anxiety include muscle tension, nervousness, perspiration, insomnia, fatigue, gastrointestinal symptoms, and cardiovascular symptoms such as **palpitations** or **tachycardia** (rapid heart rate), and chest pain. The cardiovascular symptoms of anxiety often cause concern and confusion among cardiac patients, as well as among their families, caregivers, and physicians. It can be difficult, for example, to differentiate between benign chest pain due to anxiety and unstable angina due to coronary disease. This issue is addressed in greater detail in subsequent sections.

The MeSH terms for anxiety are not quite as confusing as the ones for depression. Use the term “anxiety” to search in Medline for articles concerning “persistent feelings of dread, apprehension, and impending disaster.” In other words, use this term for subsyndromal forms of anxiety that fall short of the requirements for a DSM-IV psychiatric disorder. Many cardiac patients who do not meet the criteria for an anxiety disorder are nonetheless very anxious at times. The MeSH term “anxiety disorders” refers to “disorders in which anxiety (persistent feelings of apprehension, tension, or uneasiness) is the predominant disturbance.” Use “anxiety disorders” when searching for DSM-IV anxiety disorders such as generalized anxiety disorder or panic disorder.

Stress

This term has a number of different meanings. It can refer, for example, to a subjective state in which the individual feels pressured, conflicted, or over-

The three dimensions of anxiety often differ in severity

Terms for searching for articles about anxiety

whelmed. It can also refer to external pressures, problems, or events that make the individual feel stressed. In this volume, we generally use the terms **stressor**, **stressful event**, or **stressful life event** to refer to the external events and conditions to which patients may be exposed, thereby stimulating physiological arousal and subjective feelings of being stressed. We use **perceived stress** or **mental stress** to refer to subjective experiences that result from exposure to stressors or to stressful events. The terms **stress** and **stress response** are broader in that they encompass not only the cognitive and affective components of stress but the physiological ones as well.

The terms **stress** and **distress** are sometimes used as though they are interchangeable, but they have different connotations when applied to the psychosocial adjustment of medically ill patients. Distress comes in a number of different varieties, and perceived stress is one of them. However, a patient who is distressed might be feeling worried, anxious, sad, or upset for reasons that might be unrelated to perceived stress.

**Stress and anxiety
present with similar
symptoms**

The boundaries between stress and anxiety are somewhat arbitrary. Indeed, DSM-IV includes two “stress disorders” under the broader heading of “anxiety disorders.” One is the well known condition, post-traumatic stress disorder (PTSD). The other is its younger and less well known sibling, acute stress disorder. These conditions are defined in section 1.2.2. For now, suffice it to say that some of the symptoms of stress and anxiety are virtually indistinguishable.

“Stress,” like “depression,” has a number of meanings in the medical literature that are not directly related to psychiatric or psychosocial problems (e.g., stress testing.) The playful staff of the National Library of Medicine have also hidden an assortment of MeSH terms pertaining to psychological stress around their electronic garden. If you want articles about clinically relevant problems associated with stress in humans, your search will probably be more successful if you choose the MeSH term “stress, psychological” as it refers to “stress wherein emotional factors predominate.” You might also choose the term “stress disorders, post-traumatic” or “stress disorders, traumatic” if you are seeking studies on PTSD or acute stress disorder.

“Stress,” like “depression,” has a number of meanings in the medical literature that are not directly related to psychiatric or psychosocial problems.

Anger, Hostility, and Irritability

**Anger can have
adverse effects on
the cardiovascular
system**

Anger is a transient emotion or mood associated with feeling threatened, frustrated, or displeased. **Hostility**, in contrast, refers to a more persistent feeling of opposition and anger towards others. Anger and hostility are not necessarily more common in patients with heart disease than in the rest of the population. However, they can be particularly problematic for cardiac patients because of their adverse cardiovascular effects. A patient who is **irritable** is easily angered, frustrated, or made impatient. Thus, irritability refers to the individual’s threshold for experiencing or expressing anger and related feelings. Hostility is a persistent characteristic, considered by some authorities to be a personality trait. Irritability, in contrast, typically refers to a transient tendency or state.

Type A Behavior

The **Type A behavior pattern (TABP)** refers to a combination of time urgency and hostility that has been studied extensively in relation to heart disease. The time urgency component includes such characteristics as impatience, punctuality, multi-tasking (i.e., doing several different things at the same time, such as simultaneously studying a report and listening to the news while exercising at a health club), ambitiousness, and a sense of discomfort when there is free time to relax instead of engaging in goal-oriented activities. The hostility component includes frequent expressions of anger, aggressiveness, turbulent interpersonal relationships, harsh judgments about others' behavior, and disbelief in altruism. The time urgency and hostility components are apparent not only verbally but also through psychomotor signs such as tense or angry facial expressions and postures, hurried speech, and sighing in response to frustration. Individuals who lack these characteristics are said to fit the **Type B behavior pattern**.

The term "Type A personality" is sometimes used instead of "Type A behavior," and the MeSH term for this phenomenon is "Type A Personality." However, most of the recent scientific literature refers to this construct as a behavior pattern rather than as a personality trait.

Vital Exhaustion

In the late 1970s, Appels and his colleagues in The Netherlands began to investigate **vital exhaustion**, a condition that includes feelings of physical and mental exhaustion, lack of energy, insomnia, irritability, as well as hopelessness, demoralization, crying, and other depression-like symptoms. Appels found that vital exhaustion is a risk factor for acute myocardial infarction, and that its presence could be an early warning sign of an impending MI in individuals with coronary disease. A number of studies have found strong correlations between vital exhaustion and depression, which is not surprising given the number of overlapping symptoms. Consequently, some authorities have questioned whether depression and vital exhaustion are truly different phenomena rather than different names for the same problem. Nevertheless, there is sustained interest, particularly in Europe but also in North America, in vital exhaustion as a risk factor for myocardial infarction and for other expressions of coronary heart disease.

Low Perceived Social Support (LPSS)

Lack of adequate social support, in one form or another, has been shown to predict psychiatric problems such as depression, as well as mortality in a variety of different populations. Social support is a broad construct that includes such variables as the size and quality of one's social network, the circumstances in which one lives (e.g., alone or with others), the availability of practical assistance, and the extent to which one shares emotional bonds with other people. All of these aspects of social support are important, but only some of them have been shown to predict adverse medical or psychiatric outcomes in cardiac patients. They fall under the heading of what has been called **low perceived social support**. This includes such problems as having (or at least believing one has) no one to confide in, no one with whom to share love and affection, and no one to provide emotional support when confronting difficult challenges or decisions.

LPSS is a risk factor for mortality after acute MI

1.2 Definitions

1.2.1 Heart Disease

Table 1
Heart Disease Terminology and Definitions

Term	Definition
Automatic Implantable Cardioverter Defibrillator (AICD)	Implanted battery powered device with electrodes placed directly on heart muscle; delivers electrical stimulation to disrupt dysrhythmias.
Angina	Symptoms that occur when the heart muscle's demand for oxygenated blood exceeds the available supply. (See ischemia.)
Angina Pectoris	Chest discomfort due to insufficient blood flow to the heart muscle.
Aorta	Large main artery into which heart directly pumps and from which blood flows to all other arteries in the body.
Arrhythmias/ Dysrhythmias	Disruption of the electrical conduction system of the heart resulting in irregular and/or ineffective heart muscle contractions.
Atherogenesis	Formation of the deposits on the inner arterial walls
Atherosclerosis	A condition in which deposits of fat and other material (plaque) are distributed along the inner lining of the arteries, leading to arterial narrowing and decreased blood flow to the target organ.
Atrium, pl. atria	The two upper chambers of the heart that send blood to the ventricles during a heart beat (heart muscle contraction).
Coronary Artery Bypass Graft surgery (CABG)	Surgery to replace diseased coronary arteries with peripheral veins or arteries, thereby re-establishing blood flow to the heart muscle
Cardiac Catheterization	Also coronary angiogram; procedure involving injection of "dye" into the coronary arteries to diagnose coronary artery disease.
Cardiomyopathy	Primary disease of the heart muscle; may be congenital or acquired.
Congestive Heart Failure	A chronic progressive disease in which the heart muscle cannot pump effectively, causing fluid build-up in the lungs and extremities
Coronary arteries	Arteries that supply blood to the heart muscle
Coronary Artery Disease	A disease involving damage to the coronary arteries, leading to arterial narrowing and decreased blood flow.
Heart Aneurysm	Outward bulging of a weakened heart muscle wall, usually involving a ventricle (i.e., ventricular aneurysm).
Heart valve	Flap-like structure between heart chambers to prevent backflow of blood. The heart has 4 valves.
Ischemia	Insufficient blood supply, usually due to obstruction; causes angina.
Myocardial Infarction	Heart attack; death of heart muscle tissue due to complete obstruction of blood flow to the affected area.

Table 1 (continued)

Pacemaker	Implanted battery powered device to electrically initiate heart muscle contractions and/or control heart rate and rhythm
Percutaneous Trans-luminal Coronary Angioplasty (PTCA)	Intra-arterial procedure done to flatten plaques against inner wall of artery to increase blood flow.
Stent	Tubular mesh inserted into artery during PTCA to maintain blood flow; may be coated with drugs that prevent clot formation.
Valvular insufficiency	Failure of the valve to close perfectly, allows backflow of blood.
Valvular Stenosis	Narrowing of the valve opening.
Ventricles	The more muscular, lower chambers of the heart. During contractions the right ventricle sends blood to the lungs while the left ventricle sends oxygenated blood through the aorta to the body.

1.2.2 Psychiatric Disorders in Heart Disease

The following tables outline the DSM-IV-TR criteria for the depressive and anxiety disorders that are frequently comorbid with heart disease. (**Comorbidity** refers to the co-occurrence of two or more conditions or illnesses, such as major depression in a patient with coronary heart disease.) The criteria are abbreviated; consult DSM-IV-TR for complete details and additional information.

Table 2
Symptom Criteria for Depressive Episodes

Major Depressive Episode

- A. At least five of the following symptoms have been present nearly every day for at least two weeks; at least one of the symptoms is "1" or "2".
- (1) Dysphoric mood (feeling down, sad, etc.)
 - (2) Anhedonia (loss of interest or pleasure in usual activities)
 - (3) Significant change in appetite or weight
 - (4) Insomnia or hypersomnia
 - (5) Psychomotor agitation or retardation
 - (6) Fatigue or loss of energy
 - (7) Feelings of worthlessness or excessive guilt
 - (8) Diminished ability to think, concentrate, or make decisions
 - (9) Recurrent suicidal ideation or suicidal behavior
- B. These symptoms cause clinically significant distress and/or functional impairment, and they are not due to the direct, physiological effects of a medical illness, medication, or drug of abuse.

Minor Depressive Episode

The criteria for minor and major depression are identical, except that only 2–4 of the above symptoms are present in a minor depressive episode.

Table 3
Dysthymic Disorder

- A. Dysphoric mood has been present more days than not for at least 2 years. If there have been any breaks in the dysphoric mood, they have lasted no longer than 2 months at a time.
- B. While dysphoric, the individual has also had two or more of these symptoms:
 - (1) Poor appetite or overeating
 - (2) Insomnia or hypersomnia
 - (3) Low energy or fatigue
 - (4) Low self-esteem
 - (5) Poor concentration or difficulty in making decisions
 - (6) Feelings of hopelessness
- C. There were no major depressive episodes during the first two years of the mood disturbance. (If there were, the disturbance is classified as a form of major depressive disorder.)
- D. The symptoms cause clinically significant distress and/or functional impairment, and they are not due to the direct, physiological effects of a medical illness, medication, or drug of abuse.

Table 4
Panic Disorder

Panic disorder is diagnosed when there have been recurrent, unexpected panic attacks followed by at least one month of persistent fear of having more panic attacks, worry about the implications or consequences of the attacks, or avoidance behavior (i.e., attempts to avoid situations in which panic attacks seem likely to occur.) A panic attack is a discrete period of intense fear or severe anxiety in which at least four of the following symptoms appear abruptly and peak rapidly (i.e., within about 10 minutes.)

- (1) Palpitations, pounding heart beat, or rapid heart rate
- (2) Perspiring
- (3) Trembling or shaking
- (4) Shortness of breath or a sensation of being smothered
- (5) Choking sensations
- (6) Chest pain or discomfort
- (7) Nausea or other forms of gastrointestinal distress
- (8) Feeling dizzy, unsteady, lightheaded, or faint
- (9) Feelings of unreality (derealization) or of detachment from oneself (depersonalization)
- (10) Fear of losing control or going crazy
- (11) Fear of dying
- (12) Numbness or tingling sensations
- (13) Chills or hot flushes

Table 5
Postraumatic Stress Disorder (PTSD)

- A. The person has been exposed to one or more traumatic events involving experiencing, witnessing, or being confronted with actual or threatened death or serious injury to self or others, and the person's immediate response involved intense fear, helplessness, horror, and/or agitation.
- B. The traumatic event(s) are repeatedly re-experienced via intrusive, distressing memories, dreams, or, in severe cases, hallucinations, illusions, or dissociative flashbacks; or by intense distress when exposed to cues (whether external or internal) that resemble or symbolize the traumatic event(s).
- C. Persistent avoidance of, and numbed responsiveness to, anything associated with the trauma via avoidance (e.g., of conversations about the trauma, of places where the events occurred, of memories of the events, etc.), diminished participation in activities, detachment or estrangement from others, restricted emotions, or lowered expectations about the future.
- D. Persistent symptoms of physical and/or emotional arousal, as indicated by insomnia, irritability, difficulty concentrating, hypervigilance, or exaggerated startle response.
- E. The symptoms have been present for at least one month.
- F. The disorder causes significant distress or functional impairment.

Table 6
Acute Stress Disorder

- The criteria for acute stress disorder are very similar to those for PTSD, except that the symptoms are present during the first month following a traumatic event.
- If the symptoms persist more than one month, the diagnosis of PTSD supersedes that of acute stress disorder.
- PTSD is classified as "acute" if the symptoms have been present less than 3 months and as "chronic" once they have persisted at least 3 months. Thus, the terms acute PTSD and Acute Stress Disorder refer to different phases of the same underlying disorder.

1.3 Epidemiology

1.3.1 Heart Disease

The prevalence of coronary artery disease has increased markedly over the past 100 years. Although it accounted for approximately 10% of deaths at the end of the 19th century, this increased to half of all deaths in the developed nations by the end of the 20th century and it is gaining ground in other nations as Western influence spreads. People who have had an MI are 4–6 times more likely to die of sudden cardiac death than are people who have never had an

Deaths from heart disease have increased in the last century

Table 7
US Heart Disease Statistics

UNITED STATES 2002	CHD	CHF	MI
Prevalence	13,000,000 cases 6.9 % of population	4,900,000 cases 2.3 % of population	7,100,000 cases 3.5 % of population
Total males	8.4 %	2.6 %	5.0 %
Total females	5.6 %	2.1 %	2.3 %
Asians	5.0 %		
Black males	7.4 %	3.1 %	24,322
Black females	7.5 %	3.5 %	25,852
Hispanics	4.8 %		
White males	8.9 %		5.1 %
White females	5.4 %		2.4 %
Total Mortality	494, 382	52,828 (in 2001)	179,514

Source: American Heart Association: Heart Disease and Stroke Statistics – 2005 Update

MI. Women under 50 are twice as likely to die after a heart attack than men in the same age group.

Ethnic minorities are particularly at risk

In 2001, the rate of premature death (< 65 years) from diseases of the heart was highest among American Indians/Alaskan Natives (36%) and Blacks (31.5%), and lowest among whites (14.7%). Premature death was higher for Hispanics (23.5%) than Non-Hispanics (16.5%), and for males (24%) than females (10%). No data are available for the empty cells in the table.

In Canada, cardiovascular disease is tracked according to physician billing, hospitalizations, termed “hospital separations,” and mortality determinations, so Canadian heart disease rates are not directly comparable to those of their neighbors to the south. The latest available Canadian figures are from 1999.

Table 8
Canadian Heart Disease Statistics

CANADA 1999	CHD	CHF	MI
Hospital Separations/100,000	607	200	205
Number of female deaths in 1999 and (% of all deaths)	19,000 (17.9)	2646 (2.5)	8978 (8.5)
Number of male deaths in 1999 and (% of all deaths)	23,617 (20.8)	1845 (1.6)	11,948 (10.5)

Source: Public Health Agency of Canada, Cardiovascular Disease Surveillance On-Line

1.3.2 Psychiatric Disorders in Heart Disease

Depressive Disorders

Most North American studies of depression in patients with a recent history of acute myocardial infarction have reported point prevalences of approximately 15 to 20% for major depression and similar values for minor depression as defined by DSM-IV. Thus, at least 30% of these patients meet the criteria for a depressive disorder. Some studies have used self-report questionnaires such as the Center for Epidemiologic Studies Depression Scale (CES-D) or the Beck Depression Inventory (BDI), rather than standardized diagnostic interviews for DSM-IV disorders, to define the prevalence of depression. These studies tend to report much higher point prevalence estimates for clinically significant depression; some have been as high as 60%. The discrepancy is primarily due to the low specificity of these depression questionnaires; high scores sometimes reflect problems other than depression.

Since depression is very common in patients with a recent history of acute MI, it is often assumed that these cases of depression are *caused* by the MI. However, between 40% and 50% of patients who are found to have major depression after an acute MI were already depressed at the time of their MI. In some cases, the onset of the depressive episode precedes the MI by anywhere from several weeks to many months. Furthermore, about half of all patients who are found to meet the criteria for major depression after an acute MI have had at least one prior episode of major depression at some point in their lifetime. In the general population, the typical age of onset of first-ever major depressive episodes is in late adolescence or early adulthood. In contrast, acute myocardial infarctions are rare before middle age. In women, acute MI is very uncommon until after menopause. Furthermore, major depression is more common in women than in men, both in the general population and in patients with heart disease. All of this points to the fact that many cardiac patients have problems with depression years or even decades before they ever have an acute MI.

Depression is almost as common in patients with clinically stable coronary disease as it is in patients who have had a recent acute MI. It is also very common during the first year after coronary bypass surgery. Indeed, some studies suggest that depression may be even more common, and possibly more persistent, after bypass surgery than after acute MI.

Depression also affects many patients with congestive heart failure. For example, we recently studied a large group of patients who had been hospitalized with CHF. Twenty percent of them met the DSM-IV criteria for major depression during the hospitalization, and 16% met the criteria for minor depression. However, the prevalence varied dramatically by age and by the clinical severity of heart failure. The highest prevalence of major depression was found among patients with severe heart failure who were younger than 60. Two out of every three (67%) of these patients had major depression.

Anxiety Disorders

Anxiety is exceedingly common among inpatients, in part because heart disease and its treatment can be highly anxiogenic. However, less is known about anxiety in cardiac patients than about depression. The existing evidence,

Chronic medical illness is a risk factor for major depression

The onset of depression precedes the onset of acute MI in some cases and follows it in others

Young adults with CHF are especially vulnerable to chronic major depression

although limited, suggests that full-fledged DSM-IV anxiety disorders are less common in these patients than is subsyndromal anxiety.

The estimated prevalence of panic disorder in cardiac patients has ranged from as low as about 10% in some studies to as high as 50% in others. Among patients hospitalized for an acute coronary syndrome, the best available estimate is approximately 10 or 11%, and another 5 or 6% meet the DSM-IV criteria for generalized anxiety disorder. In contrast, at least 20% of ACS patients have subsyndromal anxiety.

**Differentiating
between angina and
benign chest pain
can be difficult for
patients with anxiety**

Panic disorder appears to be especially common among patients who have established heart disease yet whose cardiac-like symptoms cannot be fully explained by their heart condition. It is also very common among patients who do not have heart disease but who believe that they do. Individuals with **non-CAD chest pain** do not have clinically significant coronary disease yet nevertheless experience chest pains that may lead them to believe that they are having a heart attack. Many of those who present for emergency care have panic disorder, and/or other conditions such as functional gastrointestinal disorders that can cause chest pain. However, many patients who do have significant coronary disease, including ones who have had life-threatening myocardial infarctions, also have chest pain for reasons having nothing to do with their heart condition. The inability to differentiate between the symptoms of an impending heart attack and more benign sources of chest pain can itself be highly anxiogenic. However, clinicians should be careful not to assume that chest discomfort is necessarily benign because the patient is anxious.

1.4 Course and Prognosis

1.4.1 Heart Disease

The various diseases of the heart have different courses and outcomes. This is made even more complex by the fact that many heart diseases overlap with one another, often in the setting of other comorbid medical illnesses. Depression, anxiety, and other psychological, social, and financial problems add to this complexity. The earliest manifestation of cardiovascular disease, fatty streaks on the inner linings of the arteries, has been observed in children as young as 11 in the United States. Typically, problems related to coronary artery disease begin to appear in men around the age of 45, and in women, about a decade later.

Unfortunately, there is usually no warning that heart disease is developing and most people remain asymptomatic until they have arterial narrowing of about 70%. Once the flow of blood to an area or areas of heart muscle is sufficiently decreased, people often begin to experience symptoms of angina, shortness of breath, weakness, and/or fatigue with increased physical stress. Although many people equate the term *angina* with chest pain, other common anginal symptoms include pressure or burning in the chest, neck, jaws, or throat; pain, numbness, or tingling down the left arm and into the fingers; pallor, sweating, and nausea. Anginal chest pain may be experienced as traveling through the chest into the back, typically between the shoulder blades. It is not unusual for patients to state that they do not have any chest “pain” but