

2005



Contents

- Psychiatric aspects of cardiac disease
- Job stress
- Cardiac rehabilitation: psychosocial factors

Myocardial Infarction Patients

- 6 - 67% ; do not return to work
- 37 - 58% ; psychiatric disorders
 - Primarily depression
 - Panic disorder
 - Generalized anxiety disorder
- 70% fulfilled criteria for an anxiety disorder (primarily panic disorders)
 - Demonstrated coronary ds(-)

Psychiatric problems of CVD patients - 1

- Common thinking of the Heart
 - Seat of emotion, effort, life itself
- Normal emotional reactions of heart ds
 - Shock, fear, anger, guilt, sadness, grief

Psychiatric problems of CVD patients - 2

- Narcissistic injury (loss of self-esteem)
 - Confront issues of dependence on others
 - Loss of control
 - Less able to contribute to the support of their families
 - Sexual functioning
 - Circulatory impairment, ischemia, medication, fear and other emotional factors
- Feeling of guilt
 - Smoking, alcohol use, failure to exercise, noncompliance with medication or diet
 - > Development of illness

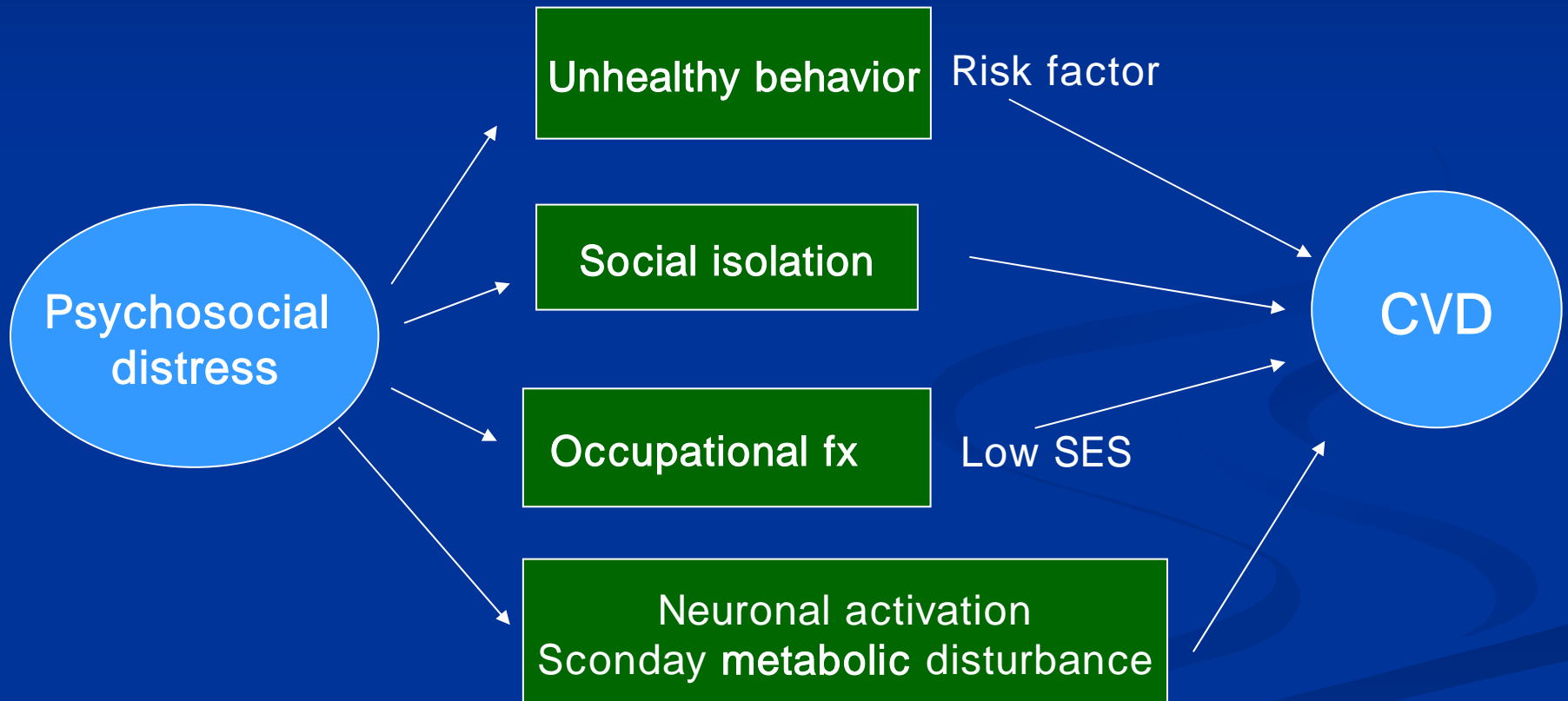
Reaction of patients

- Denial of illness
 - Acute care settings
 - Normal defense mechanism against anxiety
 - Maladaptive denial of illness (resistant to tx)
 - life-threatening emergency
 - depression or psychotic illness
- Attempts to alter one's life
 - adaptive
 - maladaptive
- Catastrophic anxiety or depression

Psychological and Behavioral factors affecting heart disease

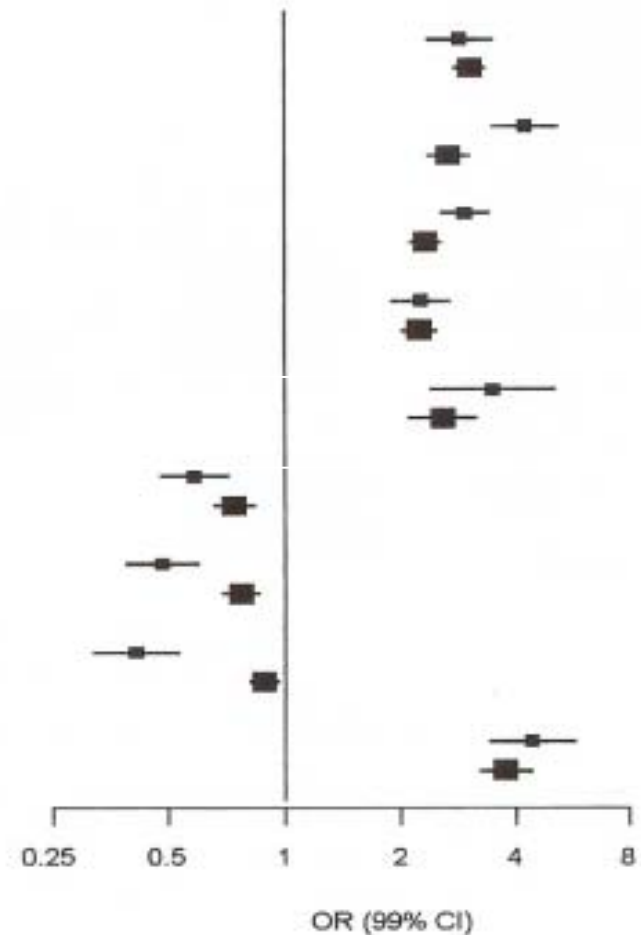
- Affective states
 - Depression
 - Anxiety
 - Acute situational disturbance
- Personality or coping style
 - Type A behavior pattern
 - Components of type A behavior pattern
 - Hostility
 - Anger
- Physiological hyperactivity to environmental stimuli
- Sociocultural factors
 - Work “overload”
 - Other Occupational factors; low control at work
 - Life stress; negative life events
- Interpersonal factors
 - Lack of social support - social isolation

Effect of psychosocial distress



Risk factors for CAD

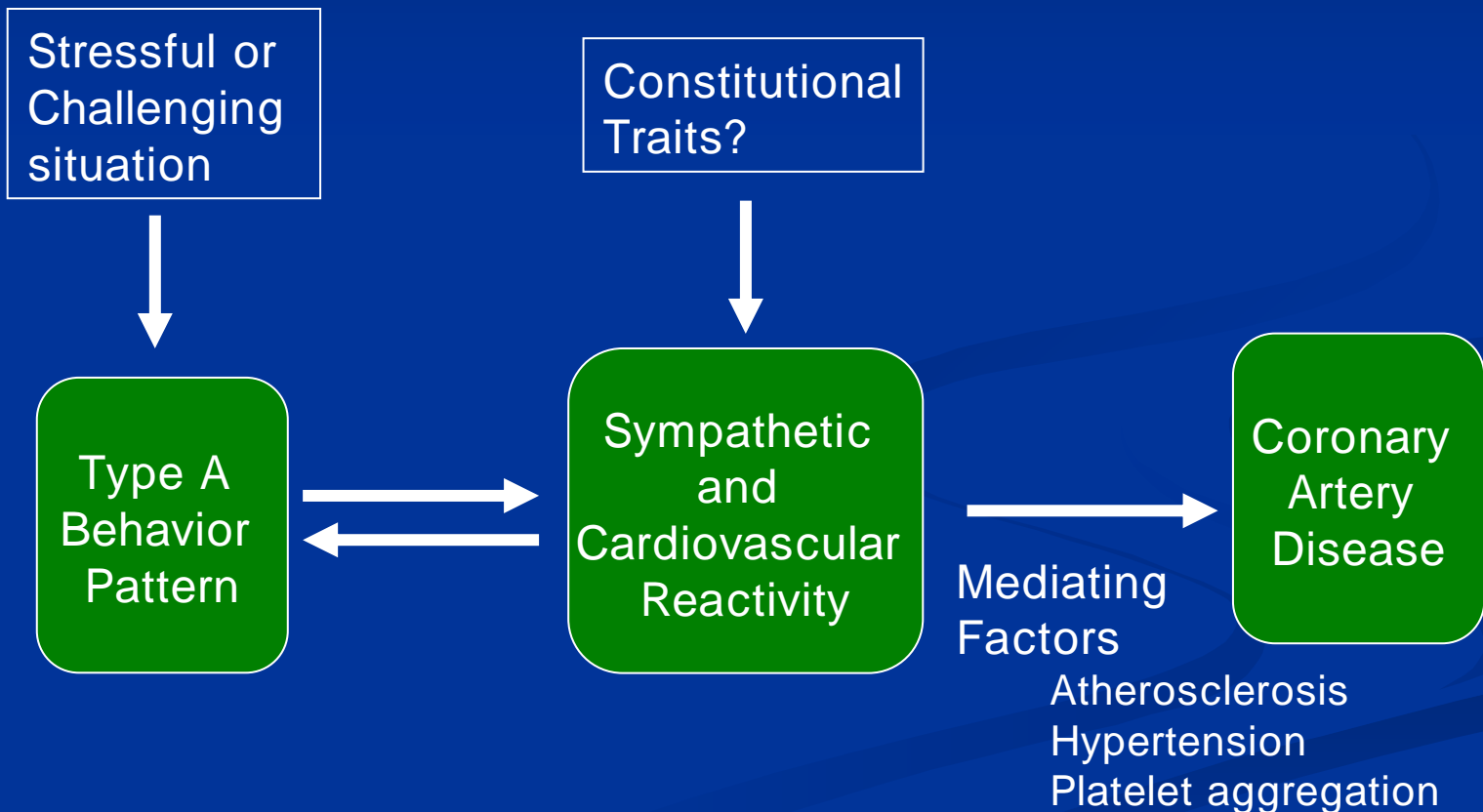
<u>Risk Factor</u>	<u>Gender</u>	<u>Cont %</u>	<u>Case %</u>	<u>OR (99%CI)</u>	<u>PAR (99%CI)</u>
Curr Smok	female	9.3	20.1	2.86 (2.36,3.48)	15.8 (12.9, 19.3)
	male	33.0	53.1	3.05 (2.78,3.33)	44.0 (40.9, 47.2)
Diabetes	female	7.9	25.5	4.26 (3.51,5.18)	19.1 (16.8, 21.7)
	male	7.4	16.2	2.67 (2.36,3.02)	10.1 (8.9, 11.4)
Hypertension	female	28.3	53.0	2.95 (2.57,3.39)	35.8 (32.1, 39.6)
	male	19.7	34.6	2.32 (2.12,2.53)	19.5 (17.7, 21.5)
Abd Obesity	female	33.3	45.6	2.26 (1.90,2.66)	35.9 (28.9, 43.6)
	male	33.3	46.5	2.24 (2.03,2.47)	32.1 (28.0, 36.5)
PS index	female	-	-	3.49 (2.41,5.04)	40.0 (28.6, 52.6)
	male	-	-	2.58 (2.11,3.14)	25.3 (18.2, 34.0)
Fruits/Veg	female	50.3	39.4	0.58 (0.48,0.71)	17.8 (12.9, 24.1)
	male	39.6	34.7	0.74 (0.66,0.83)	10.3 (6.9, 15.2)
Exercise	female	16.5	9.3	0.48 (0.39,0.59)	37.3 (28.1, 50.0)
	male	20.3	15.8	0.77 (0.69,0.85)	22.9 (16.9, 30.2)
Alcohol	female	11.2	6.3	0.41 (0.32,0.53)	48.9 (34.3, 60.0)
	male	29.1	29.6	0.88 (0.81,0.96)	10.5 (6.1, 17.5)
ApoB/ApoA-1 Ratio	female	14.1	27.0	4.42 (3.43,5.70)	52.1 (44.0, 60.2)
	male	21.9	35.5	3.76 (3.23,4.38)	53.8 (48.3, 59.2)



Type A behavior

- Heart ds $> X^2$ (Eaker et al, 1989)
- Hostility
 - the core component of Type A personality
 - Catecholamines, lipid concentration
 - Adrenergic receptor downregulation
- Time urgency
- Aggressiveness
- Ambition
- Competitiveness
- Setting excessively high performance standards
- Hard-driving behaviour

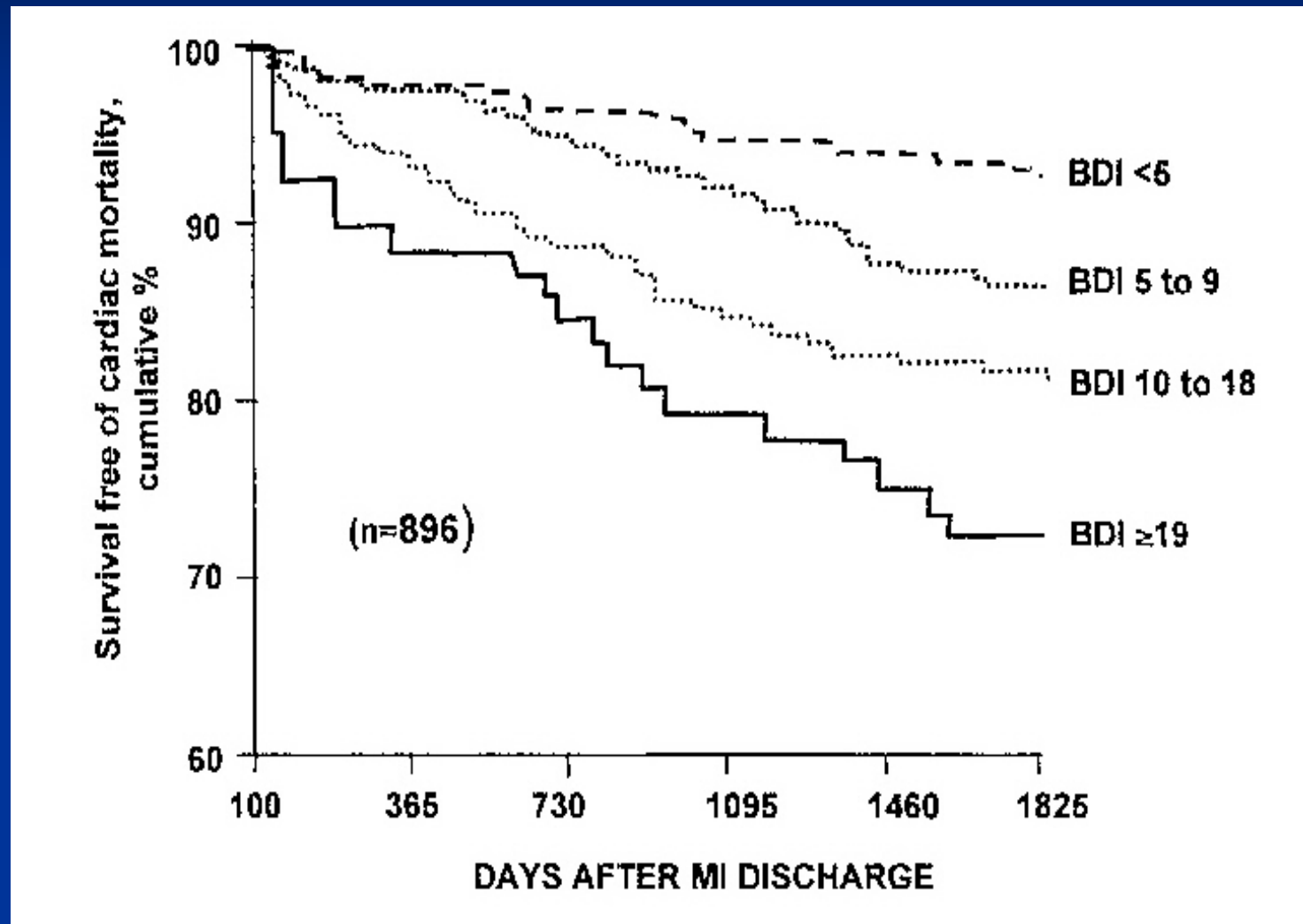
Type A behavior - coronary artery disease



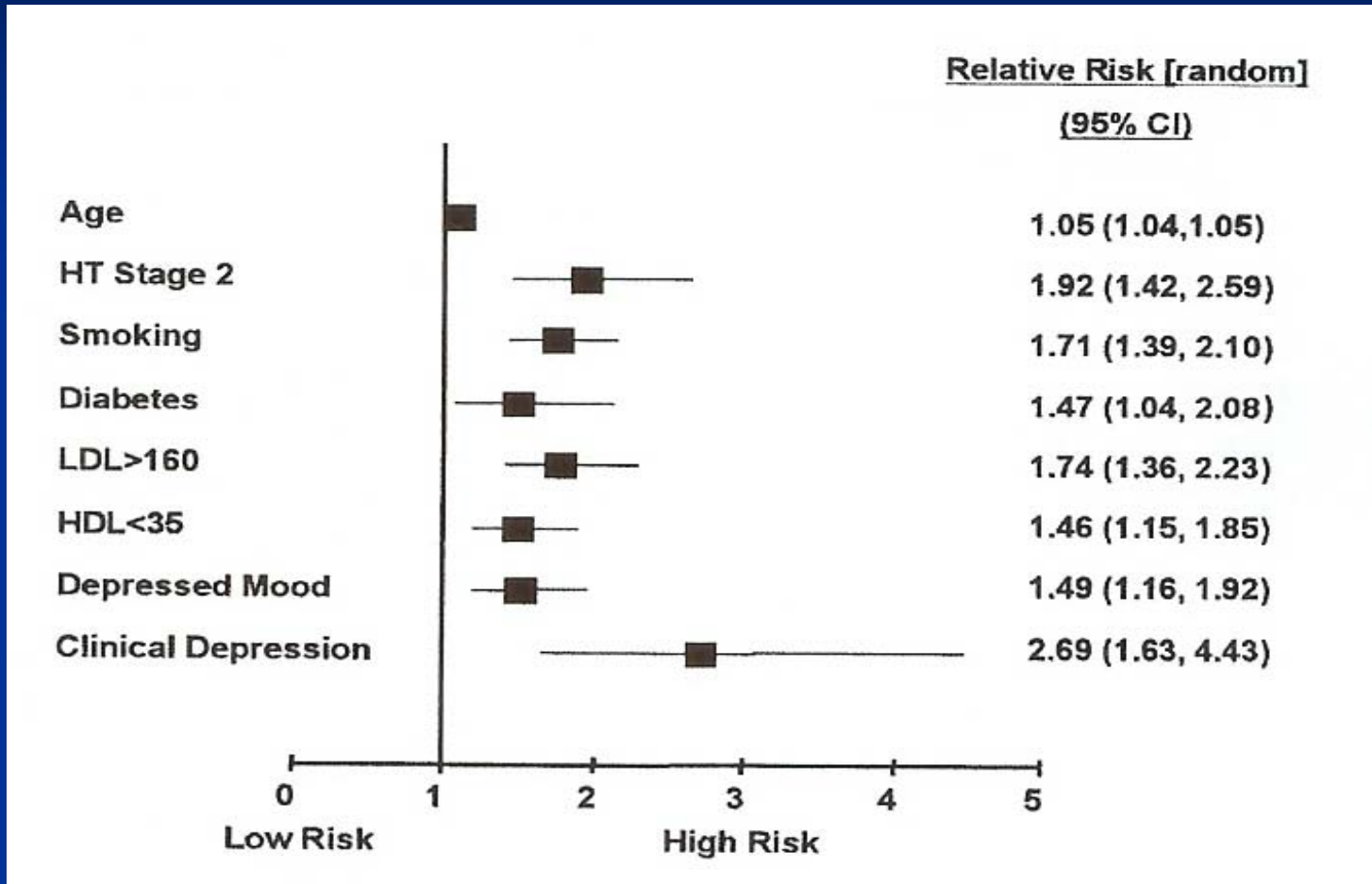
Depressive disorder

- Risk factor for cardiovascular morbidity and mortality
- Depressive sx
 - 20 - 40% of coronary artery disease pts
- Best predictor of major cardiac events
 - MI, angioplasty, coronary artery bypass surgery, Death)
- Negatively affect of healthy behavioral changes during hospitalization after MI
- High readmission rate
- Noncompliance with medical treatment

Depressive sx – Cardiac mortality



Risk ratio for Depression



Traditional risk factors (death due to cardiac ds, MI, coronary artery insufficiency, angina)
Depression (death due to cardiac ds, MI)

Lack of effective diagnosis & treatment of depression

- Considered normal CAD
 - Not recognized as risk factor for morbidity and mortality
- View as exogenous or secondary and not requiring treatment
- Believe secondary depression not amenable to treatment
- Misattributed as sx of the coronary ds itself
- Concerned about adverse cardiovascular effects of psychotropics

Anxiety

- Independent risk factor for cardiac disease
(Robins & Seidman, 1991; Weissman et al, 1990)
- Comorbid complication of cardiac disease
- Panic disorder
 - Greater risk for Hypertension & heart attack
 - Serum cholesterol
- Chronic anxiety
 - Noradrenergic activity -> induction of lipoprotein lipase -> cholesterol

Acute situational disturbances

- Cardiac event → Acute distress, traumatic experience
 - Triggering serious ventricular arrhythmias and sudden death
- Acute stress disorder
- Posttraumatic stress disorder

PTSD

(posttraumatic stress disorder)

- Exposure to extreme stress
- Serious threat to one's own physical integrity
- Intense fear, horror, helplessness
- 3 symptoms clusters
 - Intrusive recollections (flashbacks)
 - Avoidance/numbing symptoms
 - Hyperarousal symptoms (hypervigilance)

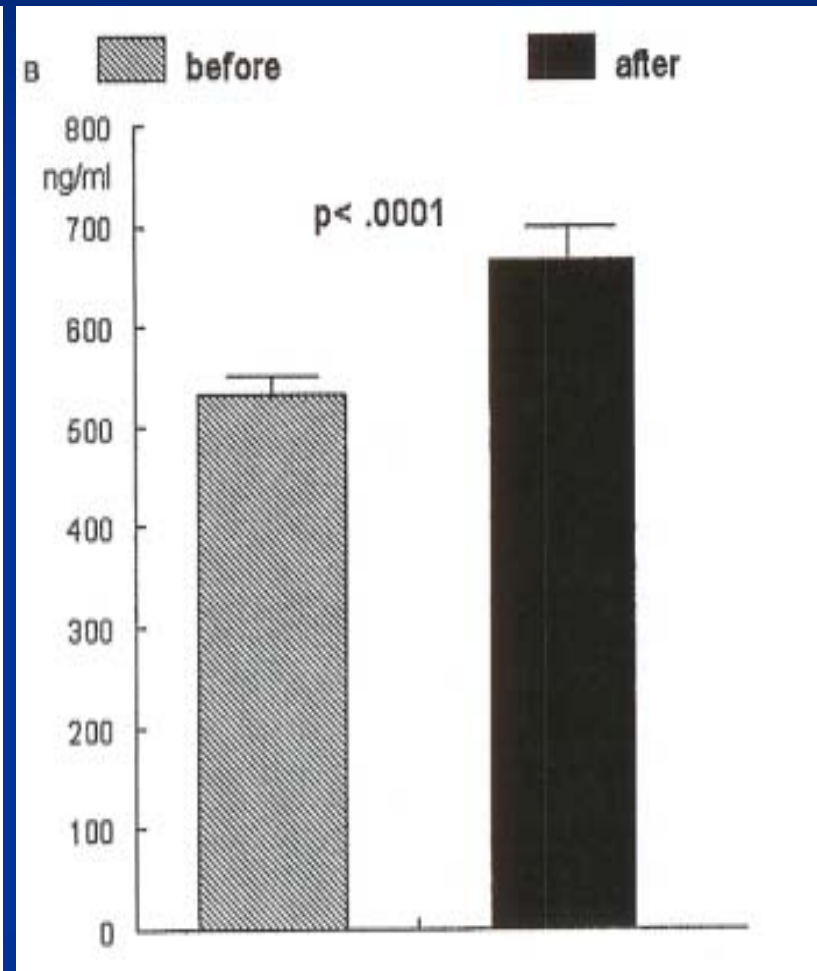
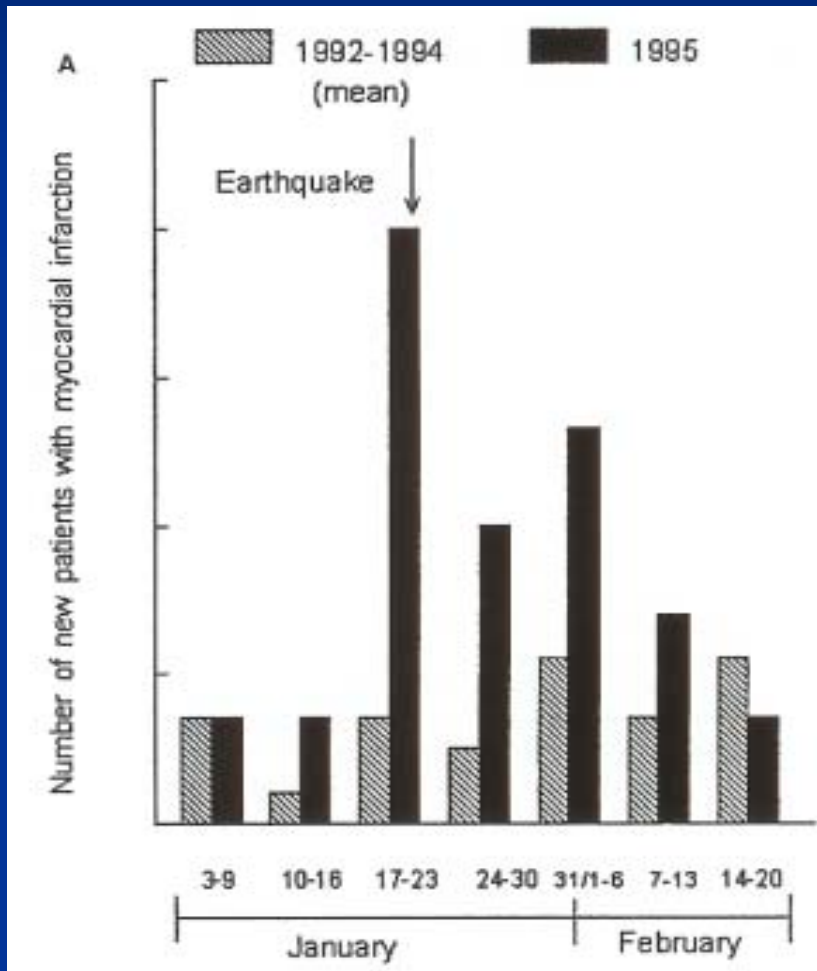
PTSD

- Severe cardiac disease : MI, Sx of angina pectoris
 - Life-threatening & devastating events
- Anesthesia, surgery
 - Strong physical & emotional stressors
- ICU environment
 - Extreme physical and mental stress
 - Anxiety, pain, respiratory distress, nightmares
 - Long-lasting negative effects on emotional well-being, mental health, health related quality of life

Stress

- Frontal cortex; major interpreter of stress
- Acute stress
 - The fight or flight response
 - Limbic system, hypothalamus, adrenal medulla
 - Catecholamines , cortisol
 - Cholesterol & free fatty acids
 - BP
 - VF threshold
 - Platelet aggregation
- Chronic stress
 - Pituitary -adrenal- cortical axis
 - Cortisol
 - Na⁺ retention
 - blood vol
 - ventricular ectopic threshold
 - sensitivity of arterioles to catecholamine
- Job stress

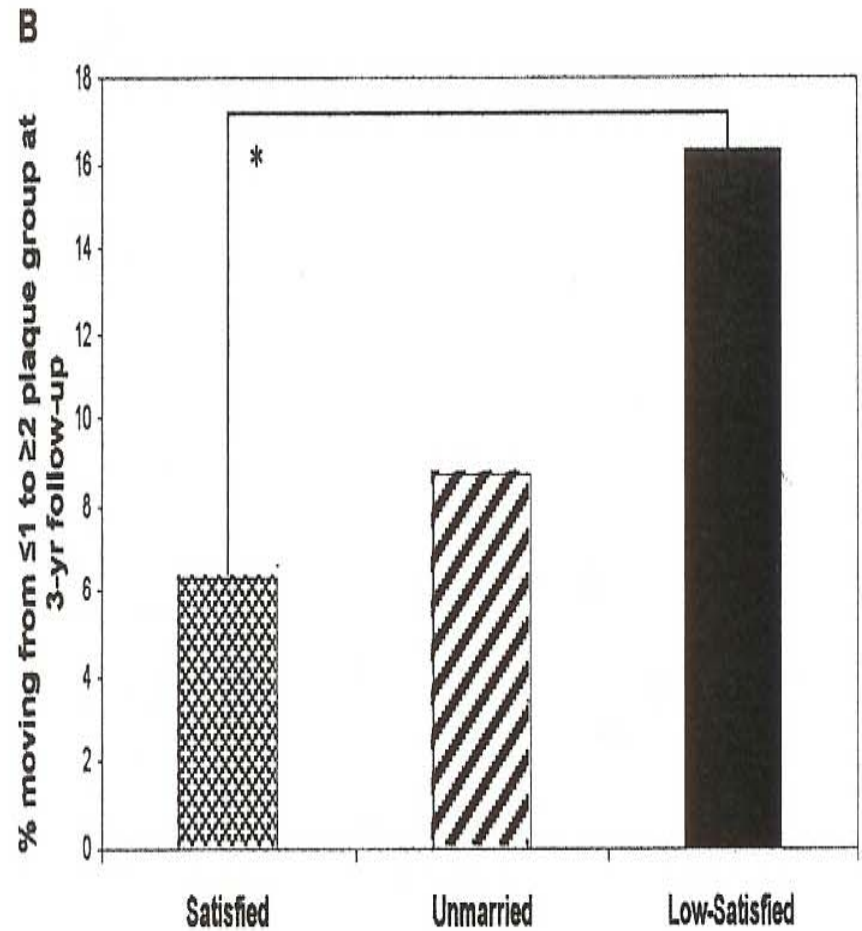
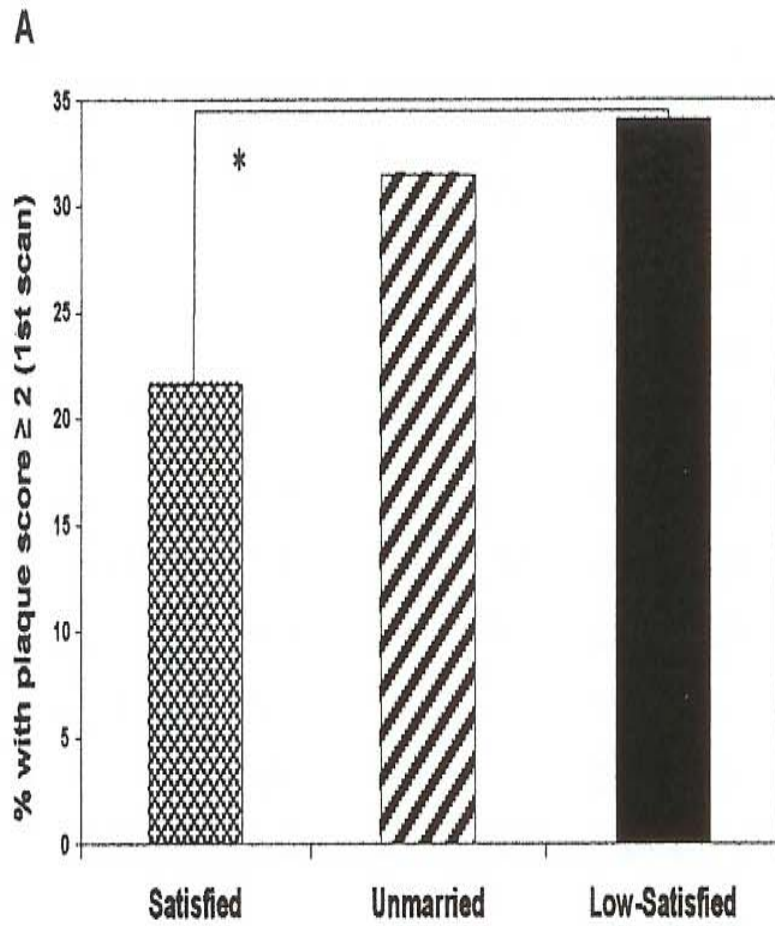
Acute stress(Earthquake) - MI



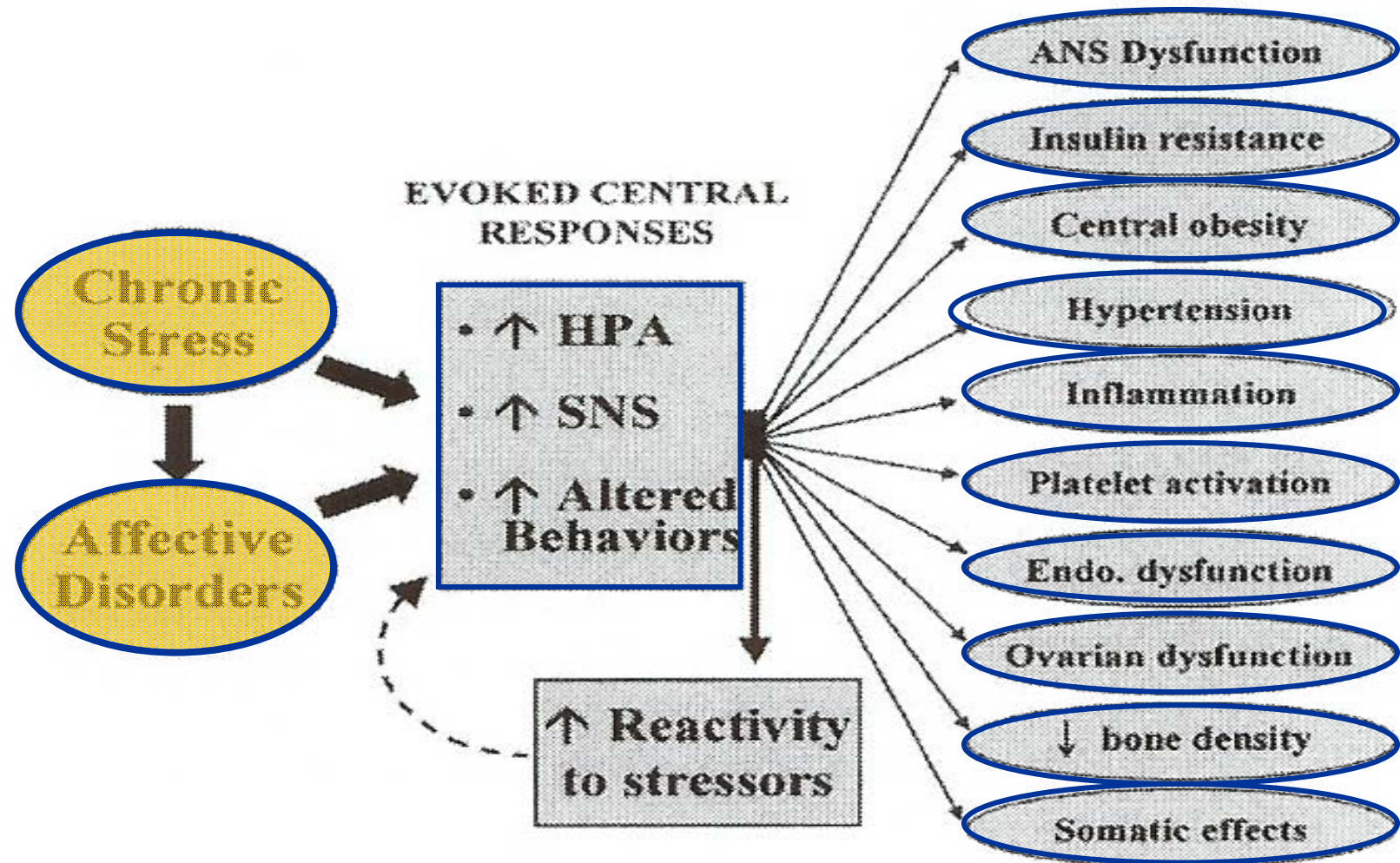
Hanshin - Awaji earthquake(1995)

Matsuo et al. 1998

Marital stress - subclinical atherosclerosis



Chronic stress



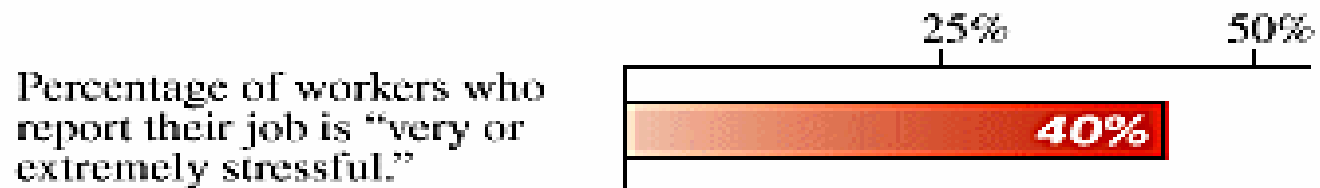
STRESS

...AT WORK

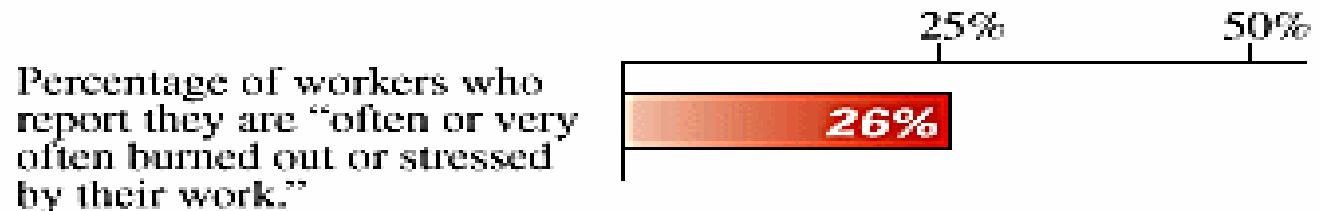


What Workers Say About Stress on the Job

Survey by Northwestern National Life



Survey by the Families and Work Institute



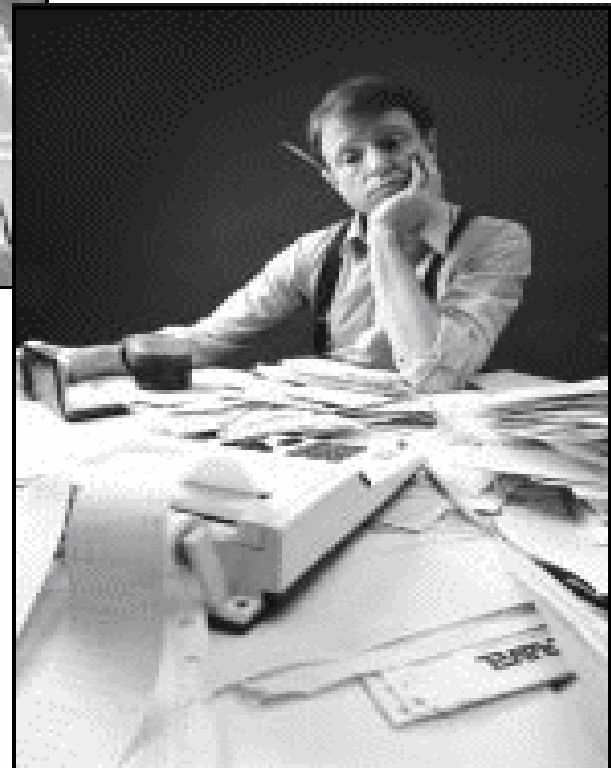
Survey by Yale University



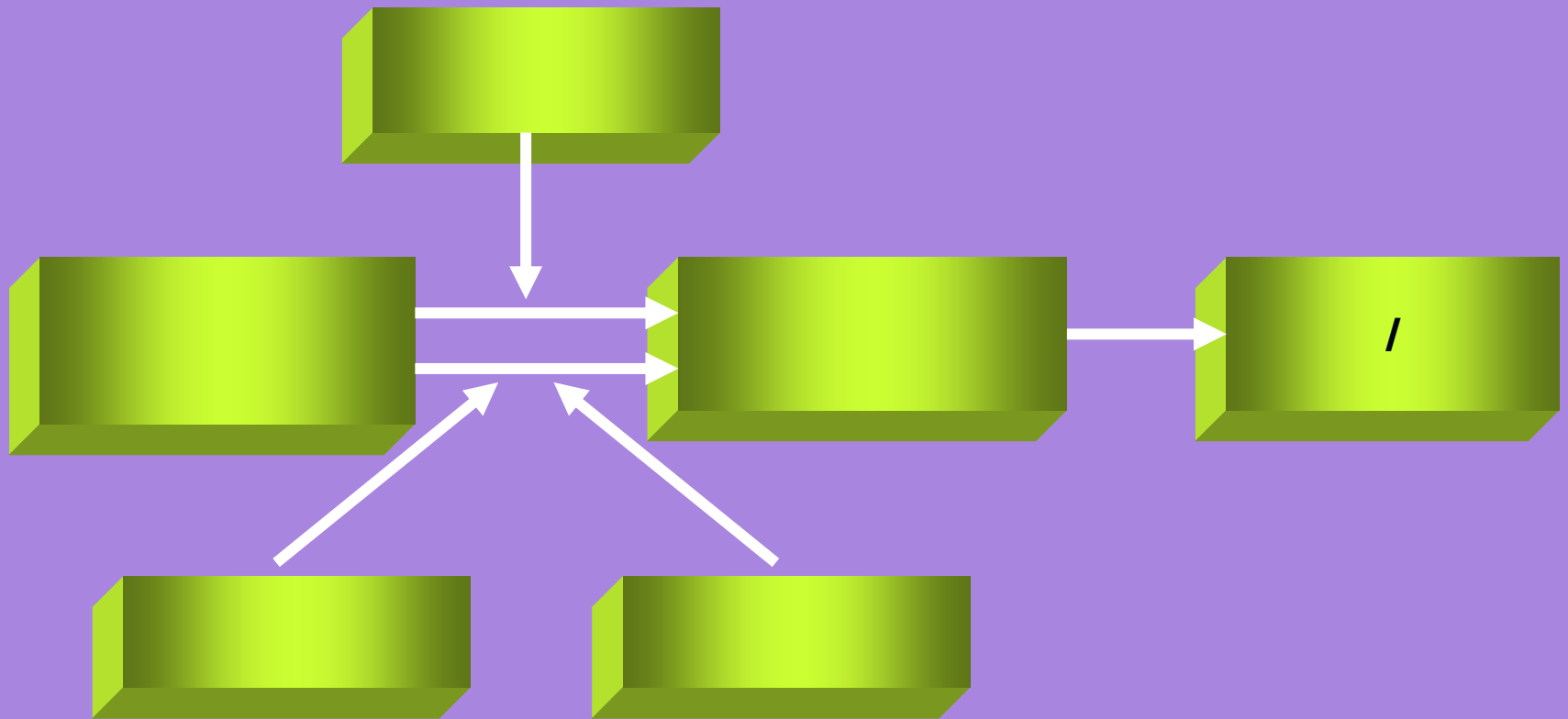
Job stress?



Job stress results when the requirements of the job do not match the capabilities, resources, or needs of the worker.



Job stress model(NIOSH)



Early Warning Signs of Job Stress

Headache

Sleep disturbances

Difficulty in concentrating

Short temper

Upset stomach

Job dissatisfaction

Low morale

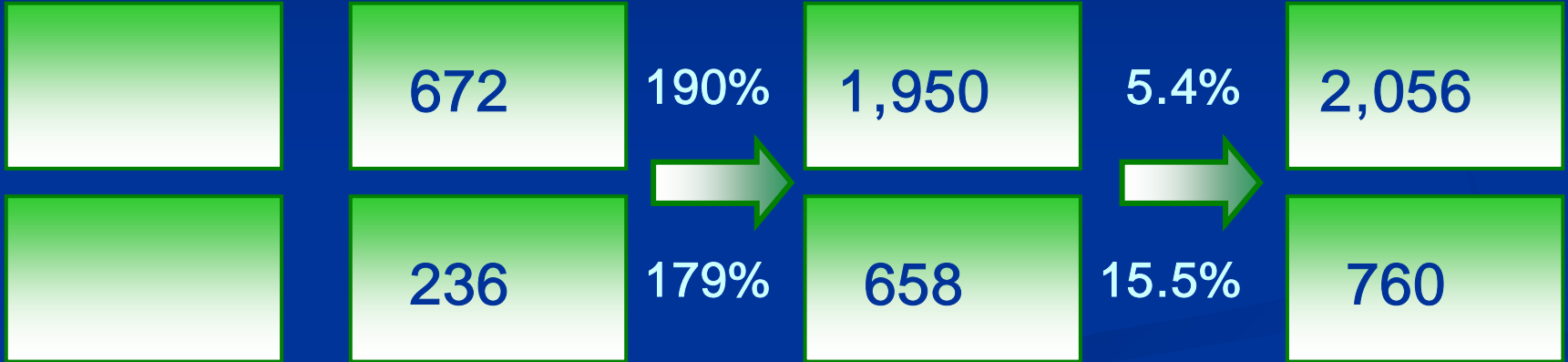


Health care expenditures are
nearly 50% greater for workers who report high levels of stress.
-Journal of Occupational and Environmental Medicine

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Strategies for job stress

- Reorganization of job conditions
 - to reduce frequency & intensity of stressful events
- Changing characteristics of individuals faced with job stressors
- Dealing directly with anxiety and depression



ORGANIZATIONAL CHANGE



STRESS MANAGEMENT



A HEALTHY WORKPLACE

Reduced stress disorders
Satisfied and productive workers
Profitable and competitive organizations

Cardiac Rehabilitation

- Initial evaluation
- Management of lipid levels
- Management hypertension
- Cessation of smoking
- Weight reduction
- Management of diabetes
- **Psychosocial management**
- Physical activity counseling and exercise training

Psychosocial Management

- Identify psychosocial problems
 - Denial, depression, anxiety, social isolation, anger, hostility
- Provide individual / group counseling
- Provide stress-reduction classes
- Goal
 - Improvement of clinically significant psychosocial problems
 - Acquisition of stress-management skills

Cumulative cardiac events & cost by treatment groups

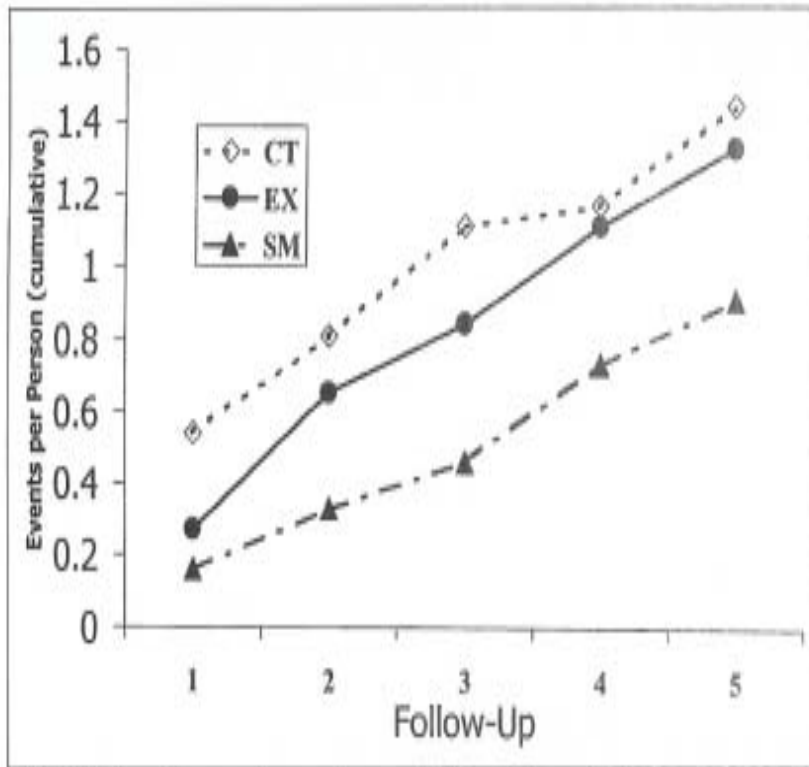


FIGURE 1. Cumulative cardiac events per patient over 5 years by treatment group. CT = control group; EX = exercise group; SM = stress management group.

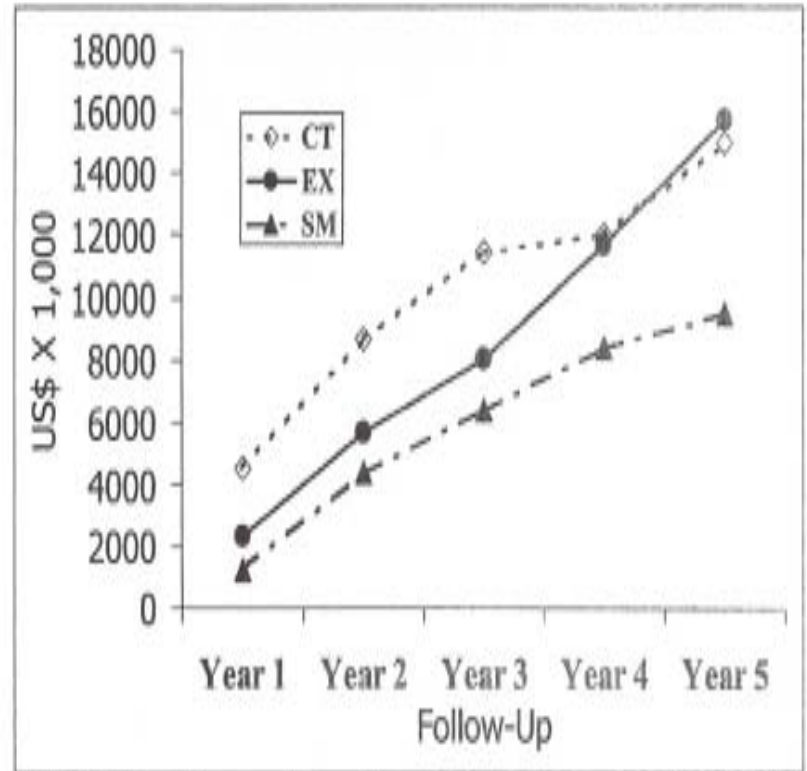
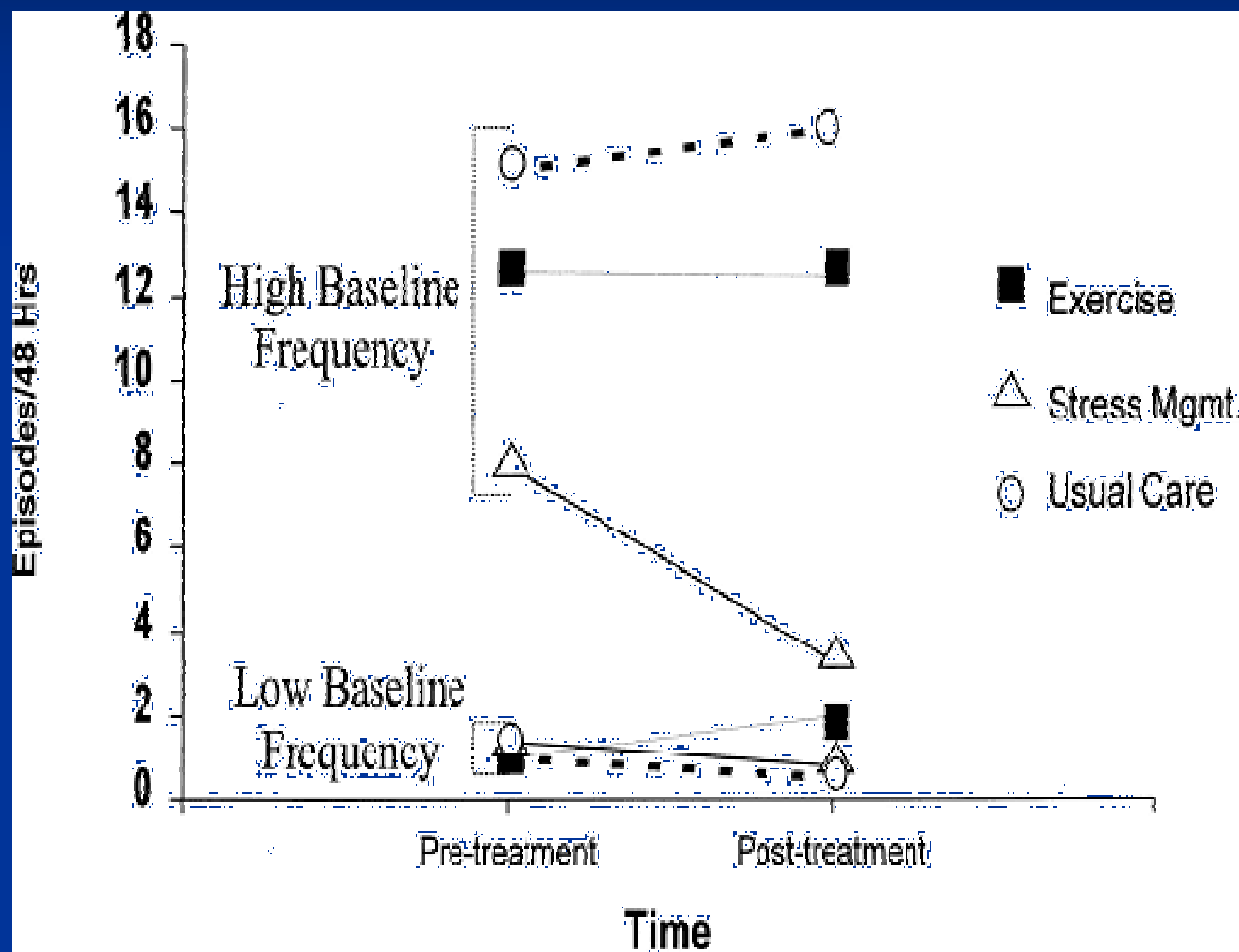


FIGURE 2. Cumulative per patient cost for each treatment group over 5 years of follow-up. Values represent US dollars in thousands. Abbreviations as in Figure 1.

Efficacy of stress reduction intervention



Stress Management

- Target condition
 - General stress
 - Stress caused by specific situations
- Less intense intervention
 - Recommend vacations, hobbies, yoga, relaxing music, pets, pleasurable activities
- More intense intervention
 - Teach behavioral strategies
 - Problem-solving, self-monitoring, appropriate goal setting, relapse-prevention techniques

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(Countertransference)



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anxiety -> denial



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