Work And Health – Impact on Productivity

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Week # 9

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May 20th 2015

Rising Health Care Costs in the U.S.

In 2007, national health care expenditures in the United States totaled $2.2 trillion or 16% of its gross domestic product, a 14% increase from 2000.
This represents an average of more than $7,400 per person

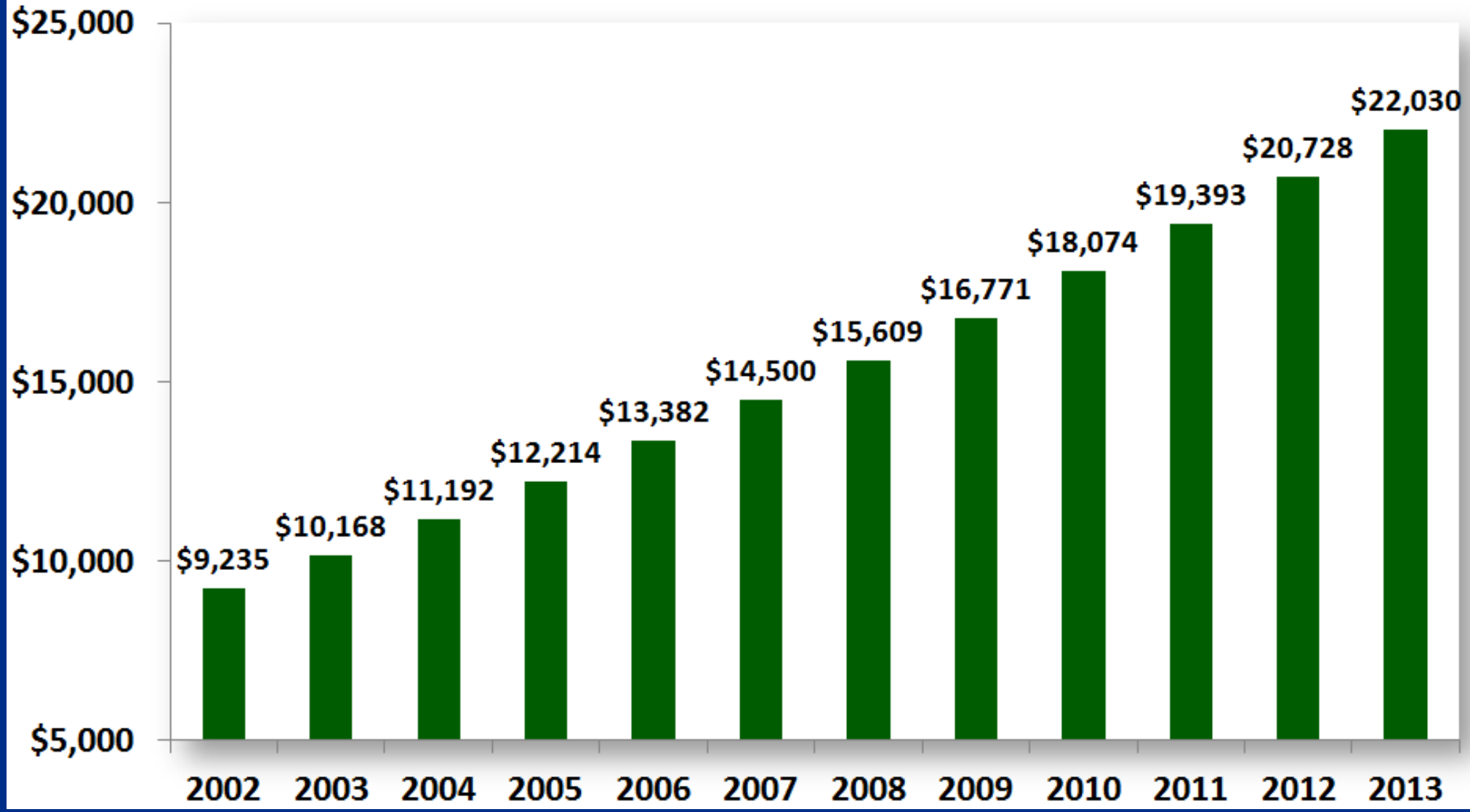
Each year in the United States, chronic disease such as heart disease, stroke, cancer, and diabetes cause 7 in 10 deaths and account for about 75% of the $2 trillion spent on medical care9

U.S. Health Care Costs 2015

- Nearly $3.2 trillion in 2015
- $10,000 per person per year for first time and rising
- Rate of increase is slowing, but expected to grow faster than national income for foreseeable future
- Total health care now accounts for 19.1% of GDP (up from 18% of GDP in 2010)

Milliman Medical Index

(Annual Cost for Family of 4 w/ PPO Coverage)



Employer Coverage and Costs

In 2007, private health insurance obtained through the workplace for individuals less than 65 years of age was the major source of insurance covering 157.9 million people or 61.6% of the population3

Since 2000, health insurance premiums for a typical family of four have increased by 114% proving costly for both employers and employees

Average annual premiums for employer-sponsored coverage are $5,049 for single coverage and $13,770 for family coverage in 2014

In 2006, employers spent nearly $87.6 billion on workers' compensation, but this represents only a portion of the total work-related injury and illness costs borne by employers, workers, and society overall, including cost-shifting to other insurance systems, as we as most costs of work-related illness14

Chronic Disease Costs – 2009

In 2009, the economic costs of cardiovascular diseases and stroke were estimated at $475.3 billion

including $313.8 billion in **direct** medical expenses and $161.5 billion in **indirect costs** of which

$39.1 in lost productivity is due to sickness or disability

$122.4 lost productivity due to premature death.

In 2007, medical costs attributed to diabetes included $27 billion for care to directly treat diabetes, $58 billion to treat diabetes-related chronic complications attributable to diabetes, and $31 billion in excess general medical costs

In 2008, the estimated health care costs related to obesity were $147 billion

Chronic Disease costs in 2015

- **Responsible for 7 of 10 deaths each year**
- **Account for 84% of our nation's health care costs**
- **Cost per chronic disease (as of 2010)**
  - Heart Disease and Stroke: $432 Billion/yr
  - Diabetes: $174 billion/yr
  - Lung Disease $154 billion/yr
  - Alzheimer's Disease $148 billion/yr
- **Costs**

  Total of $800 billion year

  http://www.forahealthieramerica.com/ds/impact-of-chronic-disease.html
- **http://www.cdc.gov/chronicdisease/**

High Blood Pressure in the United States

- About 70 million American adults (29%) have high blood pressure—that's 1 of every 3 adults.[1]
- Only about half (52%) of people with high blood pressure have their condition under control.[1]
- Nearly 1 of 3 American adults has prehypertension
- (http://www.cdc.gov/bloodpressure/measure.htm)—>blood pressure numbers that are higher than normal, but not yet in the high blood pressure range.[1]
- **High blood pressure costs the nation $46 billion each year.** This total includes the cost of health care services, medications to treat high blood pressure, and missed days of work.[2]

LECTURE GOAL:

1. To examine the hypothesis that work stressors are causal factors (e.g., job strain) that negatively affect PRODUCTIVITY,* i.e., outcome variables;
2. We will look at the relationship between work stressors, employee "stress responses" (intermediary variables such as anxiety, burnout, high blood pressure) and productivity (outcome variables);
3. Examine the impact on employers; i.e., attitudes and responses to the injured or ill employee with sickness absenteeism re: returning to work with or without job accommodations.

NIOSH DEFINITIONS

What are the Causes of Job Stress?

Nearly everyone agrees that job stress results from the interaction of the worker and the conditions of work. Views differ, however, on the importance of *worker characteristics* versus *working conditions* as the primary cause of job stress. These differing viewpoints are important because they suggest different ways to prevent stress at work.

According to one school of thought, differences in individual characteristics such as personality and coping style are most important in predicting whether certain job conditions will result in stress—in other words, what is stressful for one person may not be a problem for someone else. This viewpoint leads to prevention strategies that focus on workers and ways to help them cope with demanding job conditions.

Although the importance of individual differences cannot be ignored, scientific evidence suggests that certain working conditions are stressful to most people. The excessive workload demands and conflicting expectations described in David's and Theresa's stories are good examples. Such evidence argues for a greater emphasis on working conditions as the key source of job stress, and for job redesign as a primary prevention strategy.

1. "STRESS" refers to a response of the organism to various stimuli; i.e., A STRESS RESPONSE

- Different stimuli may produce different responses in different people.
- Stress responses may be psychological as well as physiological.
- Sometimes there can be a physiological response to a stressor without a concomitant conscious recognition of an emotional response.
- Many of the key demands on the individual are invisible

2. A "STRESSOR" refers to a specific causal exposure that produces the "stress response."

1) Physicochemical stressor - external environment represented by "nature."
2) Social stressor - the "social environment;" e.g., work stress, job stress (specifically job strain)
3) Biological stressor - the internal environment.
4) Mental stressor - psychological condition such as pleasantness and unpleasantness.

The 2000 annual "Attitudes In The American Workplace VI" Gallup Poll sponsored by the Marlin Company found that:

- 80% of workers feel stress on the job;
- Nearly ½ say they need help in learning how to manage stress;
- 42% say their coworkers need such help;
- 14% of respondents felt like striking a coworker in the past year, but didn't;
- 25% have felt like screaming or shouting because of job stress;
- 10% are concerned about an individual at work they fear could become violent;
- 9% are aware of an assault or violent act in their workplace; and
- 18% had experienced some sort of threat or verbal intimidation in the past year.

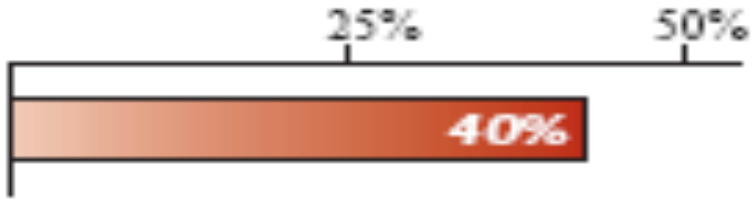
NIOSH report on Stress at Work

- 40% of workers reported their job was very or extremely stressful;
- 25% view their jobs as the number one stressor in their lives;
- Three fourths of employees believe that workers have more on-the-job stress than a generation ago;
- 29% of workers felt quite a bit or extremely stressed at work;
- 26 percent of workers said they were "often or very often burned out or stressed by their work";
- Job stress is more strongly associated with health complaints than financial or family problems.

What Workers Say About Stress on the Job

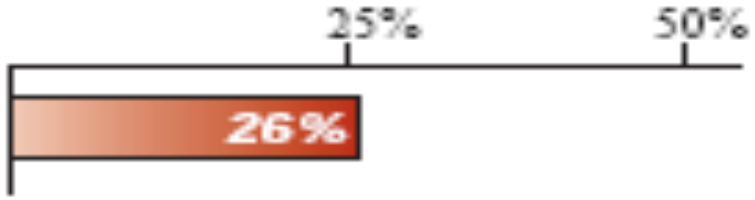
Survey by Northwestern National Life

Percentage of workers who report their job is "very or extremely stressful."



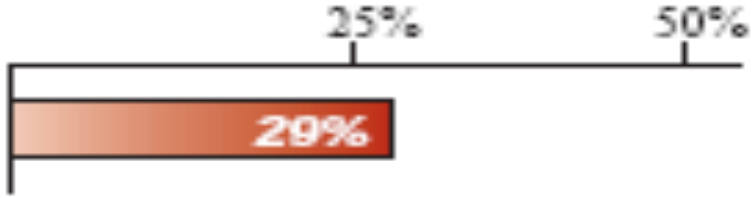
Survey by the Families and Work Institute

Percentage of workers who report they are "often or very often burned out or stressed by their work."



Survey by Yale University

Percentage of workers who report they feel "quite a bit or extremely stressed at work."



Impact of vacation on heart disease

Men who take vacations every year lowered the risk of heart disease by 20%. Those who did not have a vacation for the 5 years of the study had the highest mortality and incidence of heart disease.

Houston Woman Magazine, 8/2009, re: State University of New York research

Why We Need Minimum Paid Leave Now

The U.S. is the only industrialized nation without a minimum annual leave statute.

137 countries have paid vacation leave, including all developed countries

Only 14% of Americans will take a vacation of two weeks or more this year (Harris poll)

43% of Americans did not take a single week off last year (Conference Board study)

25% of Americans receive no paid leave

Only 69% of lower-wage workers get any paid vacation leave (Center for Economic Policy Research)

30% of workers in small enterprises receive no paid vacation leave (CEPR)

37% of American women earning less than $40,000 a year receive no paid annual leave (AFL-CIO “Ask a Working Woman” poll)

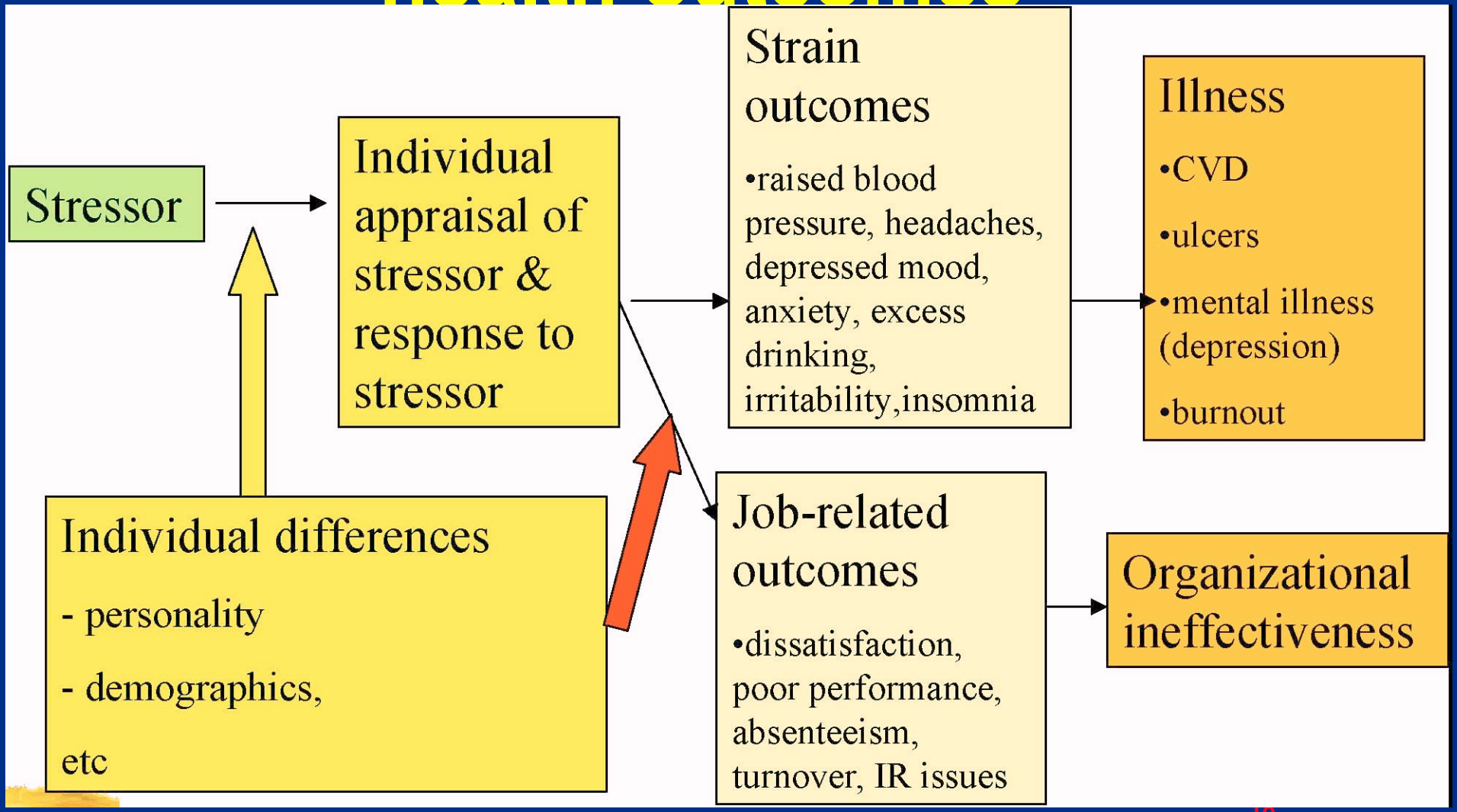
Vacations have been found to reduce the risk of heart attack in men by 30% and in women by 50% (Brooks Gump/Karen Mathews; Framingham studies)

Companies that have adopted the vacation benefits endorsed here have dramatically increased productivity and profits

A Department of Labor-appointed Committee on Vacations with Pay called for a national minimum paid leave law as far back as 70 years ago

Take your time back. www.timeday.org

A model of job strain and health outcomes



Productivity

Productivity is the amount of output created

(in terms of goods produced or services rendered) per unit

input used. For instance, labor productivity is typically

measured as output per worker or output per labor-hour.

We can examine “productivity” as

its impact on the business economy

(e.g., costs of workers’ compensation health insurance

premiums and workers’ health care costs).

Measures of Productivity

Work stressors are associated with decreased employee productivity outcomes:

- Increased presenteeism, absenteeism, tardiness, and intentions by workers to quit their job.
- Decreased worker productivity outcomes negatively affect employee-management relations
- Decreased worker productivity threatens the economic soundness of a business organization.
- The costs of workers' compensation for work-related disease may provide an incentive to reduce workplace exposures to psychosocial stressors

*Productivity: An outcome variable; the rate at which goods or services are produced; especially output per unit of labor.

For the individual worker, we hypothesize that:

Work Stressors (e.g. Job Strain) → Health Problems

1. **Psychological**
2. **Physical Injuries**
3. **Medical Illnesses**

Which in turn impact on productivity

Psychological Health Problems (outcomes)

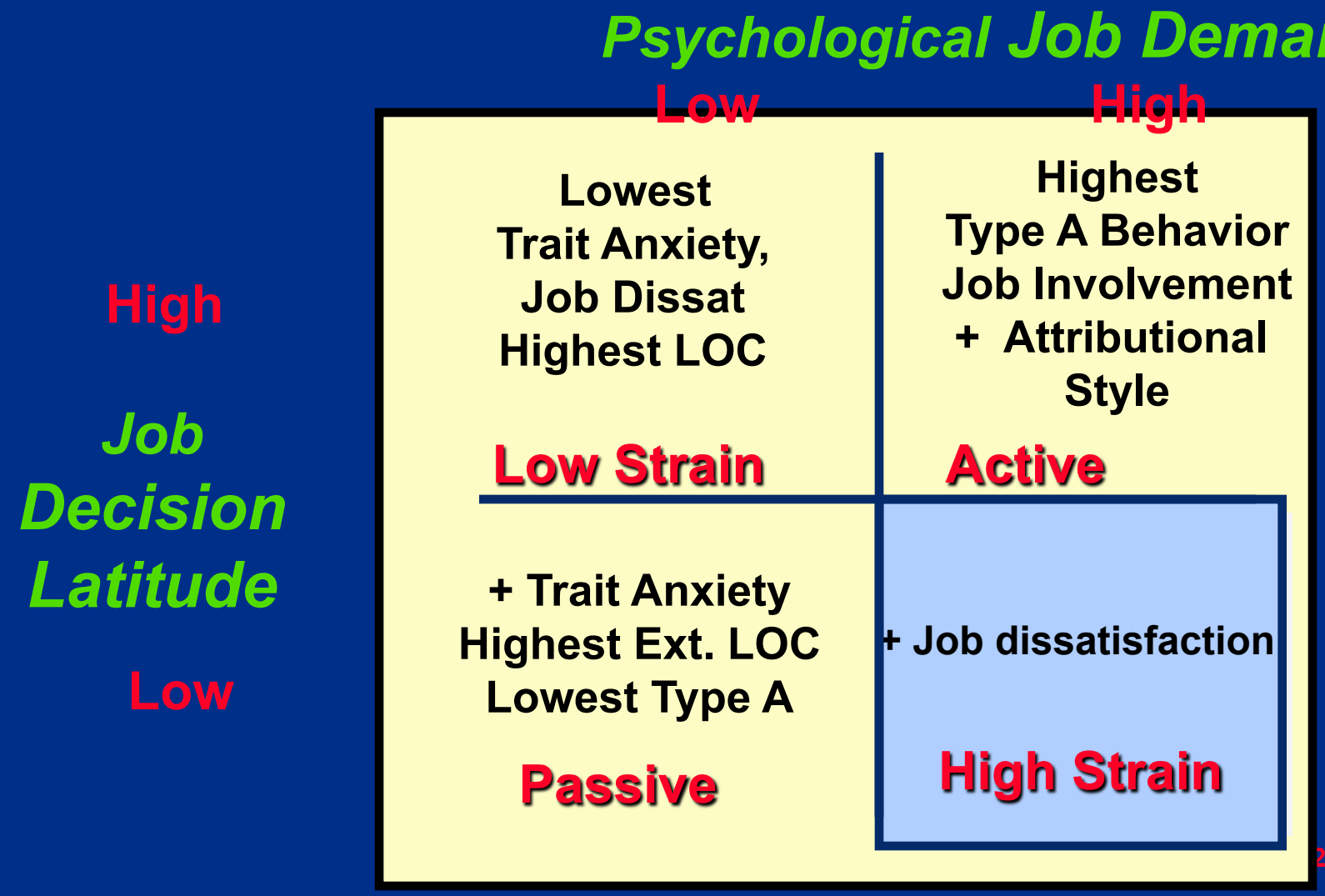
1. SELF REPORTED DISTRESS
2. ANXIETY
3. BURNOUT
4. DEPRESSION
5. FATIGUE
6. CHRONIC PAIN

Anxiety

- An anxiety state consists of unpleasant feelings of tension, apprehension, nervousness, and worry, and activation of the autonomic nervous system.

- The physiological manifestations of anxiety generally include increased blood pressure; rapid heart rate(palpitations or tachycardia); sweating; dryness of mouth; nausea; vertigo; irregularities in breathing; muscle tension; and muscular-skeletal disturbances such as restlessness, tremors, and feelings of weakness(Spielberger and Rickman, 1990).

Patterning of Psychological Attributes and Distress by quadants of Karasek's job strain model



More Evidence for Work stressor related Anxiety (1)

1 D'Souza RM, Strazdins L, Lim LL, Broom DH, Rodgers B.
J Epidemiol Community Health. 2003 Nov;57(11):849-54. Work and health in a contemporary society: demands, control, and insecurity. National Centre for Epidemiology and Population Health, Australian National University, Canberra, Australia. rennie.dsouza@anu.edu.au

- OBJECTIVE: To examine independent associations of job strain (high demands and low control) and job insecurity with mental and physical health outcomes.

- MAIN OUTCOME MEASURES: Depression, anxiety, physical, and self rated health (SRH)

Evidence for anxiety (2)

D'Souza RM, Strazdins L, Lim LL, Broom DH, Rodgers B.

- RESULTS: Adverse job conditions were relatively prevalent as 23% of the sample reported high job strain, while 7.3% and 23% reported high and moderate job insecurity respectively.
- Associations between job conditions and health persisted after adjustment for gender, education, marital status, employment status, major life events, and negative affectivity (personality).
- When adjusted for job strain, high job insecurity was independently associated with a greater than threefold increase in odds for poor SRH, depression and anxiety (OR (95% confidence intervals) poor SRH: 3.72 (1.97 to 7.04) depression: 3.49 (1.90 to 6.41), anxiety: 3.29 (1.71 to 6.33)), and a twofold increase for physical health 2.19 (1.21 to 3.95).

Evidence for Anxiety (3)

D'Souza RM, Strazdins L, Lim LL, Broom DH, Rodgers B.

- **High job strain showed significant independent associations with depression: 2.54 (1.34 to.4.75) and anxiety: 3.15 (1.48 to 6.70).**

- **AUTHORS CONCLUSION:**
  - In this relatively privileged socioeconomic group, insecure employment and high job strain showed independent, consistent, and strong associations with physical and mental health.
  - These adverse job conditions are on the increase, particularly insecure employment, and the influence of these two work conditions are an important focus for future public health research and their prevalence and impact should be examined in other occupations.

Effect of occupational stress on mental health

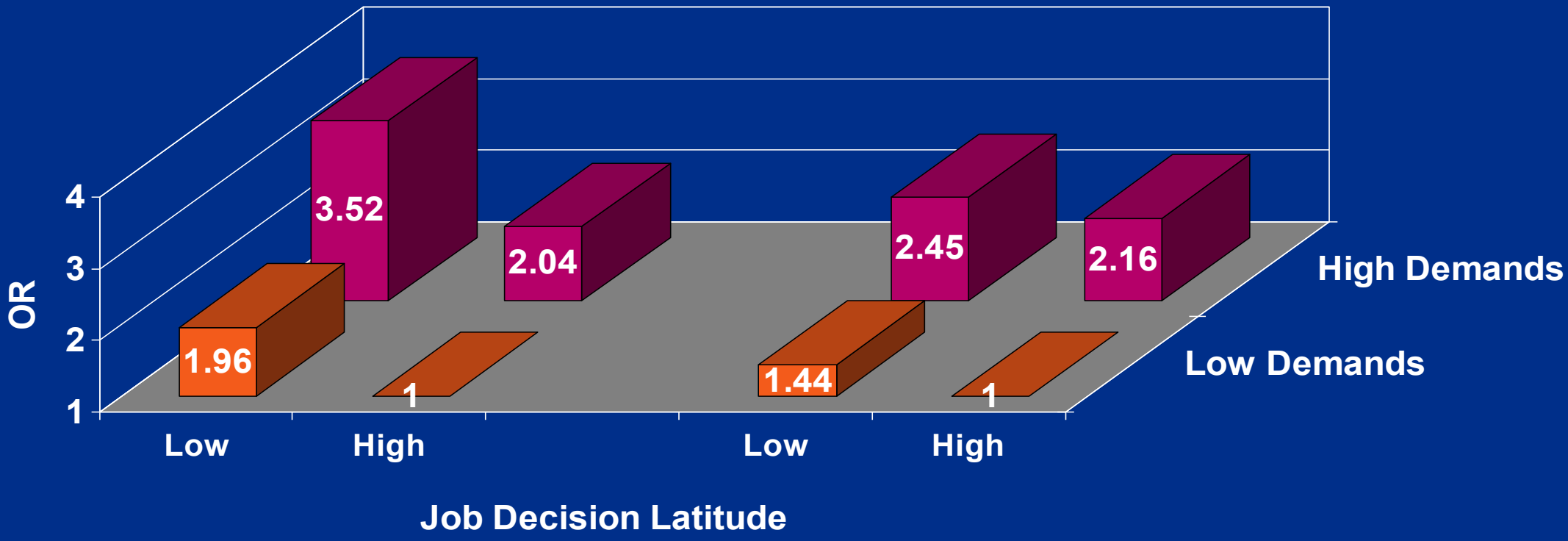
Yu SF, Zhang R, Ma LQ, Gu GZ, Yang Y, Li KR.

Henan Institute of Occupational Medicine, Zhengzhou 450052, China.

Zhonghua Lao Dog Wei Sheng Zhi Ye Bing Za Zhi. 2003 Feb;21(1):16-9. [Article in Chinese]

- OBJECTIVE: To study the effect of job psychological demands and job control on mental health and their interaction.
- CONCLUSION: Job time demands and job decision latitude have direct and interactive effects on psychosomatic health, the more time demands, the more psychological strains, the effect of job time demands is greater than that of job decision latitude.

High psychological distress (top 20% of PSI) among 2,889 Quebec white-collar workers, 1992-93



Crude Association

Adjusted for Age, Gender, Employment Status, Occupation, Social Support, Cynicism, Hostility, Domestic Load, Past Year Stressful Life Events

1999 review article: Van Der Doef & Maes

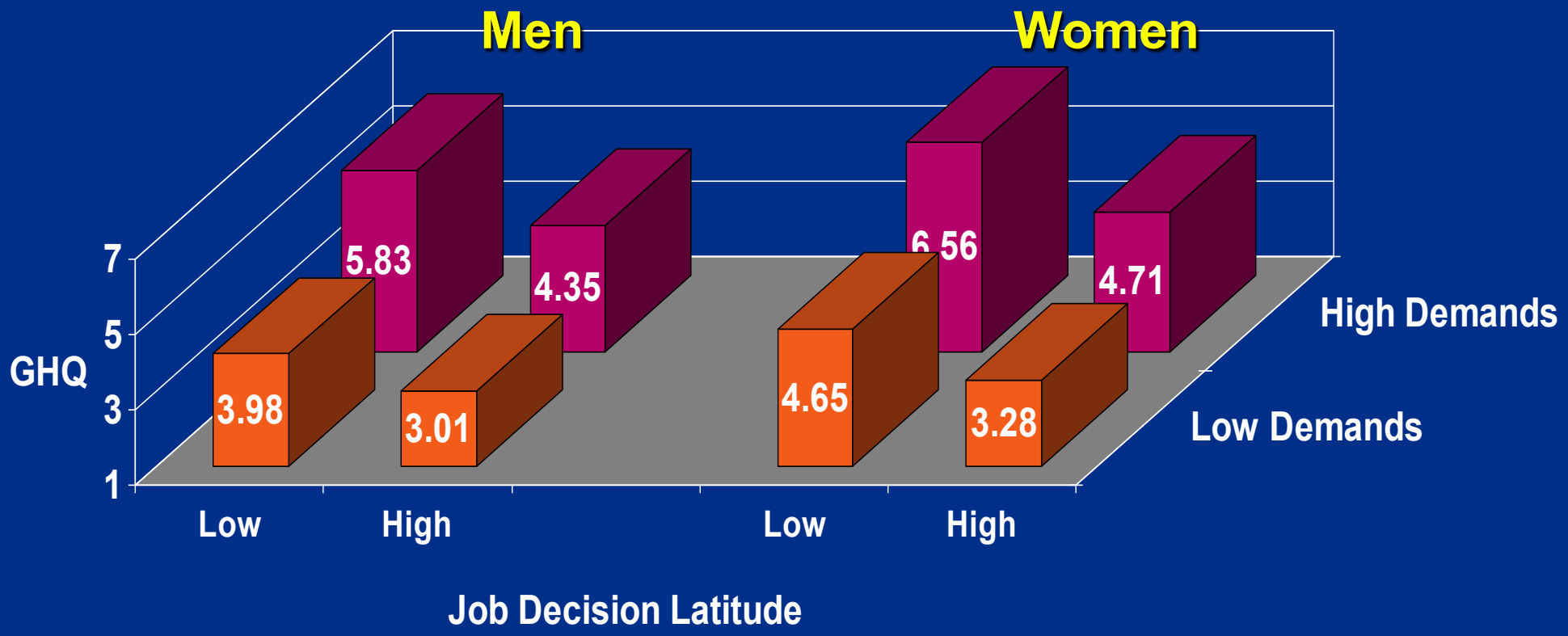
Outcome	JDC Model Strain	JDC Model Buffer	JDCS Model Strain	JDCS Model Buffer	Total N of Studies
Psych well-being	28/41	15/31	9/19	2/5	43
Job satisfaction	18/30	10/23	8/14	2/6	31
Job "burnout"	3/4	0/4	1/1	0/2	4
Job-related Psych well-being	7/8	1/2	1/2	1/1	8

- (ratio of supportive to total studies)

Van Der Doef, M., & Maes, S. (1999). The job demand-control(-support) model and psychological well-being: a review of 20 years of empirical research. Work & Stress, 13(2), 87-114.

[Whitehall Study]

Psychiatric disorder (30-item GHQ) among 10,314 British civil servants (Adjusted for age and employment grade)



Again, we see similar associations as in the Quebec sample – higher levels of symptoms for workers with high demands & low latitude.

Burnout :How defined (Maslach)

The MBI (Maslach Burnout Inventory) surveys address three general scales:

- Emotional exhaustion measures feelings of being emotionally overextended and exhausted by one's work
- Depersonalization measures an unfeeling and impersonal response toward recipients of one's service, care treatment, or instruction
- Personal accomplishment measures feelings of competence and successful achievement in one's work

Evidence linking Work Stressors to Burnout and Depression

Contribution of Burnout to the Association Between Job Strain and Depression: the Health 2000 Study Ahola et al. (J Occup Environ Med. 2006;48:1023–1030)

Objective: The objective of this study was to investigate the contribution of burnout to the association between job strain and depression. Methods: A representative sample of 3270 Finnish employees aged 30 to 64 years responded to the Maslach Burnout Inventory–General Survey and the Beck Depression Inventory and participated in the Composite International Diagnostic Interview.

Results: High strain compared with low strain was associated with 7.4 (95% confidence interval [CI]! 5.6–9.7) times higher odds of burnout, 3.8 (95% CI ! 2.8–5.1) times higher odds of depressive symptoms, and 1.7 (95% CI! 1.1–2.6) times higher odds of depressive disorders.

The risk for depressive symptoms and for depressive disorders of high strain was reduced by 69%or more after adjusting for burnout.

Conclusion: Burnout is strongly related to job strain and may in part mediate the association between job strain and depression.

Depression

- How measured?
- Numerous measures for depression exist including the Beck Depression Inventory (BDI), the Hamilton Depression Rating Scale (HAM-D), the Profile of Mood States (POMS) etc. , and simple ratings of depression made by an interviewer (Booth-Kewley and Friedman, 1987).

Depression Costs

- **The United States loses between $30 billion and $44 billion in direct medical, mortality, and productivity costs each year as a result of depression(2–4).**
- **Moreover, studies show that depression is related to work impairment (5), disability and lost work days (6–9), and reduced productivity on the job (10).**

  – Elinson, etal – Depression and the Ability to Work in

Depression: Current treatment outcomes[1]

- Up to 70% of depressed patients respond (≥ 50% decrease in HAM-D score) to treatment but fail to achieve remission from their emotional and physical symptoms[1*]
- Approximately 30% of depressed patients achieve remission (≤ 7 score on the HAM-D) with treatment[1*]

* Antidepressant clinical drug trials.

References:
1. O'Reardon JR, et al. *Psychiatr Ann.* 1998;28:633-640.

Fatigue

- **A recent study from China found that job time demands and decision latitude had interaction effects on physical complaints (R(2) = 0.24), state-anxiety (R(2) = 0.26), and daytime fatigue (R(2) = 0.28) (P < 0.05).**

Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi. **Effect of occupational stress on mental health** 2003 Feb;21(1): 16-9.

Long work hours and Disability Retirement:

- Working 60+ hrs/wk → 2.75x greater risk of disability retirement among Finnish men, 1984-93

Krause N et al. *Scand J Work Environ Health* 1997;23:403-13.

For the individual worker, we hypothesize that:

Work Stressors (e.g. Job Strain → Health Problems including physical injuries and medical conditions

1. **Psychological Health Problems**
2. **Physical Injuries**
3. **Medical Illnesses**

Physical Injuries

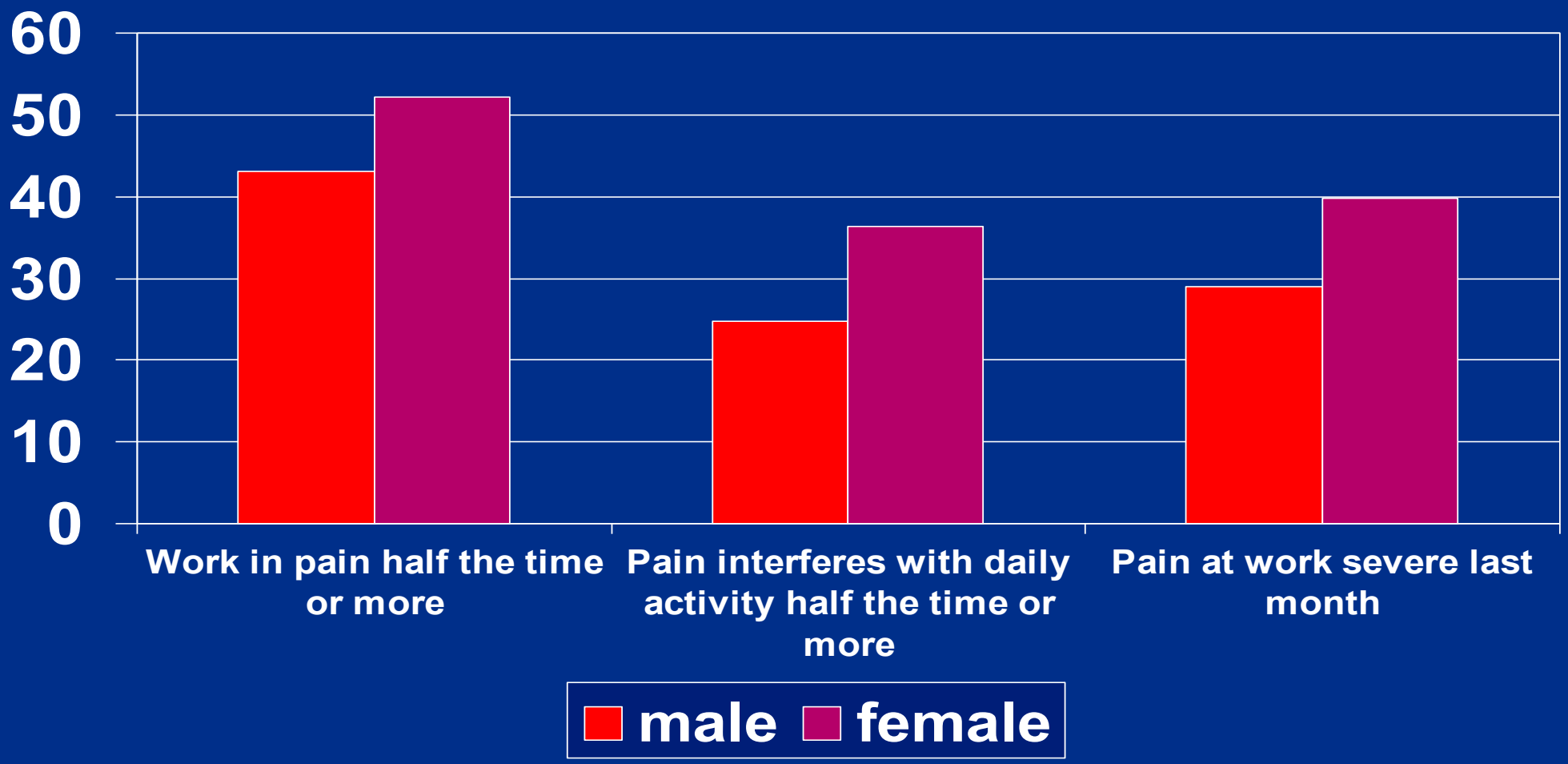
- Neck and Back injuries
- WRMSD's
- Joint pain

Costs of WORKPLACE INJURIES AND DISABILITY

- Employee health and productivity losses as a result of work-related injury are estimated to be US dollars 1.2 trillion annually to US companies.
- In 2003 this was approximately 14.3% of the gross domestic product. Workers' compensation, medical care, and short and long-term disability are a part of these costs.
- Controlling or eliminating these costs is a problem for US employers.
- Work. 2003;21(3):211-20.

CAW STUDY 2003

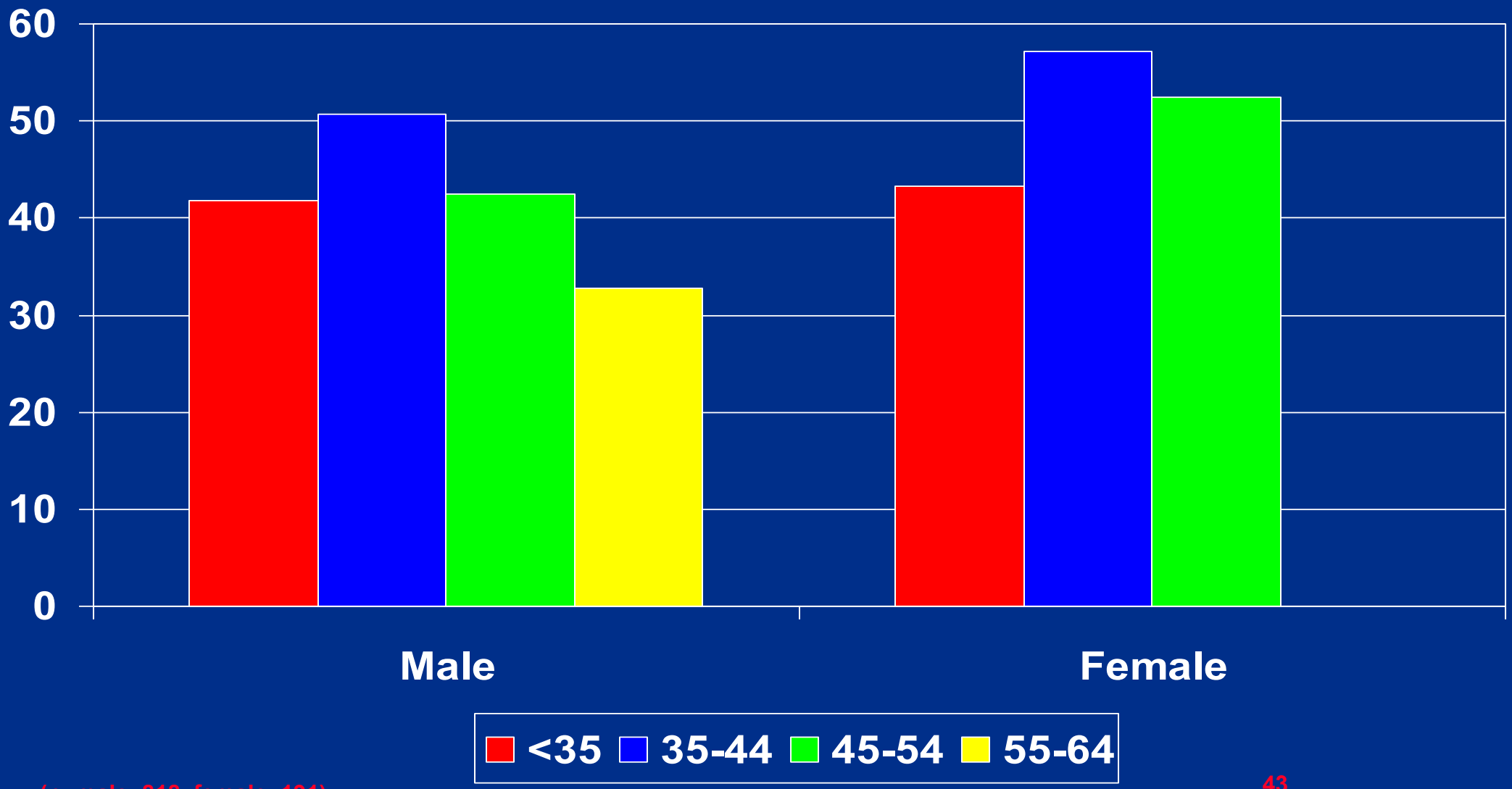
Pain profile by sex (%)



n: Male=825, Female=201

CAW STUDY 2003

Work in pain half the time or more by sex and age (%)



(n: male=818, female=191)

Psychosocial Factors and Neck and Back Pain

- The main result of this study was that both physical work load and psychosocial factors were simultaneously and independently associated with back or neck pain *.
- Psychosocial factors associated with back or neck pain included extended uninterrupted driving periods, frequency of job problems, high psychosocial demands, high job dissatisfaction, and low supervisory support.

* Krause N; Ragland DR; Greiner BA; Syme SL; Fisher JM. Psychosocial job factors associated with back and neck pain in public transit operators. Scand J Work Environ Health 1997 Jun;23(3):179-86.

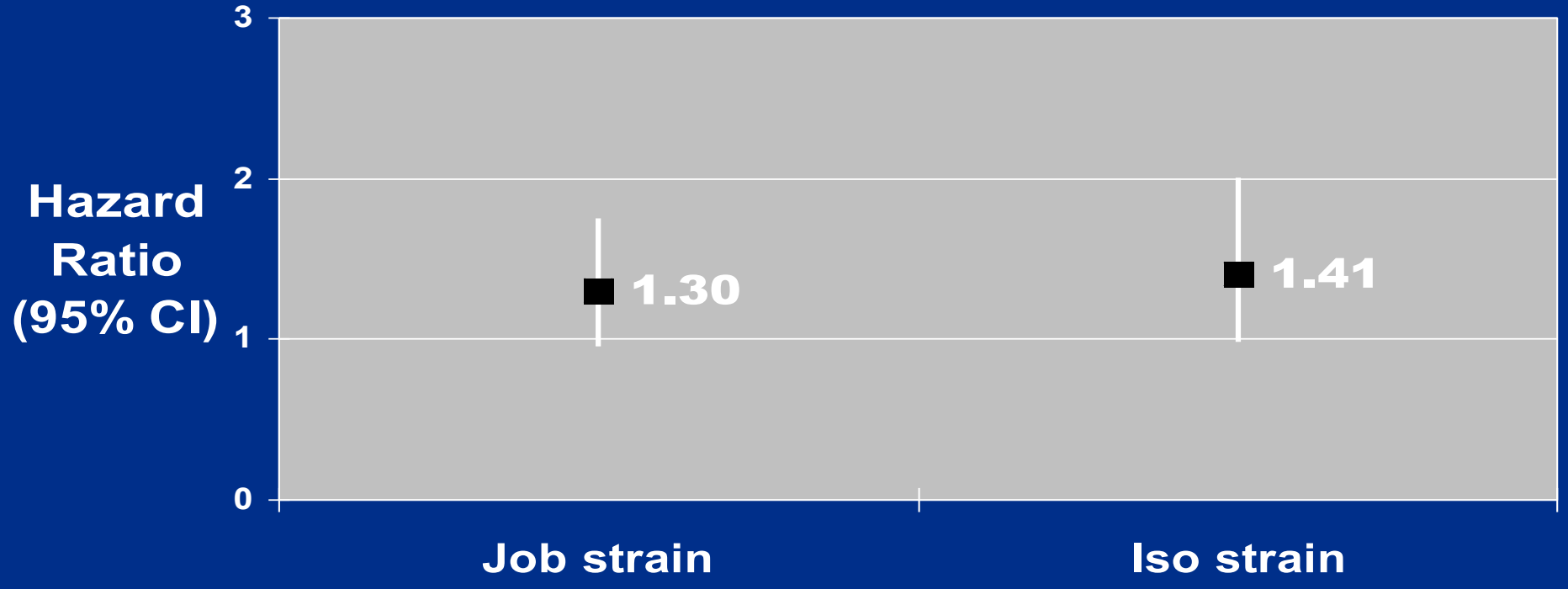
San Francisco Bus Drivers Cohort Study II (1993-2000)

- baseline exam & survey 1993-95, n=1503 (82% participation rate) 7.5-year prospective follow-up
- Outcome: Incidence of first compensated spinal injury. Medical diagnosis and severity assessed by workers' compensation medical bill review files (ICD-9 codes)
- Control for confounding: age, sex, height, weight, pain at baseline, objective physical job demands:
  - driving years
  - weekly driving hours,
  - vehicle type (diesel bus, trolley bus, light rail, cable)
- Psychosocial risk factors: Job strain (high demands-low control); Iso strain (+ low social support) based on tertiles of exposure

Rugulies R, Krause N. Job strain, iso-strain, and the incidence of low back and neck injuries. A 7.5-year prospective study of San Francisco transit operators. Social Science and Medicine 2005;61:27-39.

7.5-Year Incidence of First Low Back Injury

San Francisco Bus Driver Study, 1993-2000, n=1221



Hazard Ratios adjusted for demographic, anthropometric, physical job factors, and pain at baseline

Rugulies R, Krause N. Job strain, iso-strain, and the incidence of low back and neck injuries. A 7.5-year prospective study of San Francisco transit operators. Social Science and Medicine 2005;61:27-39.

7.5-Year Incidence of First Neck Injury

San Francisco Bus Driver Study, 1993-2000, n=1221

Hazard Ratios adjusted for demographic, anthropometric, physical job factors, and pain at baseline

Rugulies R, Krause N. Job strain, iso-strain, and the incidence of low back and neck injuries. A 7.5-year prospective study of San Francisco transit operators. Social Science and Medicine 2005;61:27-39.

Neck and Back injuries

- Krause N, Ragland DR, Fisher JM, Syme SL. 1998. Psychosocial job factors, physical workload, and incidence of work-related spinal injuries: a 5-year prospective study of urban transit operators. *Spine* 23:2507-16.
- Krause N, Dasinger L, Neuhauser F. 1998. Modified work and return to work: a review of the literature. *Journal of Occupational Rehabilitation* 8(2):113-39.
- Krause N, Lynch JW, Kaplan GA, Cohen RD, Goldberg DE, Salonen JT. 1997. Predictors of disability retirement. *Scand J Work Environ Health* 23(6):403-13.

Job Stressors And Upper Extremity Musculoskeletal Disorders

Studies with:	Null assoc		Positive assoc		Attributable fraction (%)*
	N	Effect est.	N	Effect est.	
High job demands	6	1.1-1.4	10	1.5-2.4	33-58
Low job control	10	1.1-1	6	1.6-2.8	37-64
(consistent for shoulder, not elbow, hand, wrist)					
Low social support	7	1.2	7	1.4-2.1	28-52
Few rest break opportunities	3	1.4-1.5	3	1.5-3.3	33-70

*Only some studies included in estimate

14 of 32 studies controlled for physical job demands (but did not assess interaction)

MSDs common even in low exposed, thus high RR not expected; majority x-sectional

Bongers PM, Kremer AJ, ter Laak J. *American Journal of Industrial Medicine* 2002;41:315-342.

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1. **Psychological Health Problems**
2. **Physical Injuries**
3. **Medical Illnesses**

Medical Illnesses

- Hypertension
- CVD
- Stroke
- Immune Suppression
- Cancer ?

Nurses Health Study

- The negative affects of work are particularly acute for employees in high-strain jobs with little control over their workdays.
- A study of 21,000 nurses in high-demand, low-control jobs found that over a four-year period their health declined more than would be expected if they were smokers or led sedentary lives.
- After adjusting for age, body mass, smoking, exercise, chronic disease, education, isolation, marital status and virtually every other conceivable factor, the group still ranked considerably lower in physical functioning, vitality and mental health than did those in medium- and low-strain jobs.
- In other words, independent of what employees did individually, the organizational structure of their workplace affected their health.

Lost Productive Time

- Presenteeism
- Sickness Absence
- Absenteeism
- Disability
- Workers Compensation
- RTW

PRESENTEEISM

"Absenteeism affects productivity; however, even when employees are physically present at their jobs, they may experience decreased productivity and below-normal work quality--- a concept known as *presenteeism*."

- Koopman et al., "Stanford Presenteeism Scale: Health Status and Employee Productivity" JOEM 2002; 44:14-20

PRESENTEEISM

- "…However, absenteeism has generally been the only aspect of work impairment included…because absenteeism is more easily measured than other aspects of work performance. This neglect of other workplace costs of illness has led to an underestimation of the indirect costs of illness and to a skewing of focus away from conditions associated with low absenteeism but high rates of impairment while at work. The latter is referred to…as presenteeism…

- Wang et al., "Chronic Medical Conditions and Work Performance in the Health and Work Performance Questionnaire Calibration Surveys," JOEM 2003; 45: 1303-1311

Performance Questionnaire Calibration Surveys, JOEM 2003; 45: 1303-1311

PRESENTEEISM

- "Presenteeism is the health-related productivity loss while at paid work. In the literature Presenteeism is often referred to as LPT or LWPT (lost work productive time)

- Presenteeism may include:
  - 1) time not on task (e.g., in the workplace, but not working);
  - 2) decreased quality of work (e.g., increased injury rates, product waste, product defects);
  - 3) decreased quantity of work;
  - 4) unsatisfactory employee interpersonal factors (e.g., personality disorders); and
  - 5) unsatisfactory work culture.

- Loeppke et al, "Health-Related Workplace Productivity Measurement: General and Migraine-Specific Recommendation from the ACOEM Expert Panel," JOEM 2003; 45(4): 349-359

Presenteeism - Findings

Some data suggest that presenteeism is a larger productivity drain than either absenteeism or short-term disability. Further, presenteeism costs are compounded, some health experts say, because employees who work when ill generally cost more in the long run from increased health, mental health, and short-term disability utilization.

An alternative view

The Worker perspective – often don't feel well and yet they come to work

1) have a commitment to the job including co-workers and company

2) can't afford to take sick days or go on disability

For example, the average Wal-Mart hourly pay is $9.26 (men make 6% more on average than women)

3) Afraid to lose job (job insecurity)

As a consequence, workers often work in pain or when ill.

Presenteeism - Costs

- A new study shows that productive time lost due to common pain conditions such as headaches, back pain, and arthritis costs U.S. employers more than $61 billion dollars per year, and most of that lost time is caused by impaired performance at work rather than work absence.

- "Pain is common and treatable condition that results in a significant but largely invisible cost to employers," says researcher Walter Stewart, PhD, MPH, director of the Center for Health Research and Rural Advocacy at Geisinger Health System in Danville, Penn.

- Stewart, Walter *The Journal of the American Medical Association,* Nov. 12, 2003

Sickness Absence - Definition

- Short term – episodes of 4-21 days
- Long term – episodes > 21 days

Sickness Absence – Study by Vahtera and colleagues

- **STUDY OBJECTIVE: To investigate the impact of changes in psychosocial work environment on subsequent sickness absence**

- Effect of change in the psychosocial work environment on sickness absence: a seven year follow up of initially healthy employees. Vahtera J, et al. J. Epidemiol Community Health. 2000 Jul;54(7):484-93.

Sickness Absence – Vahtera etal

MAIN RESULTS: After adjustment for the pre-recession levels, the changes in the job characteristics of the workers during the recession predicted their subsequent sick leaves.

Lowered job control caused a 1.30 (95% CI = 1.19, 1.41) times higher risk of sick leave than an increase in job control. The corresponding figures in relation to decreased social support and increased job demands were 1.30 (95% CI = 1.20, 1.41) and 1.10 (95% CI = 1.03, 1.17), respectively.

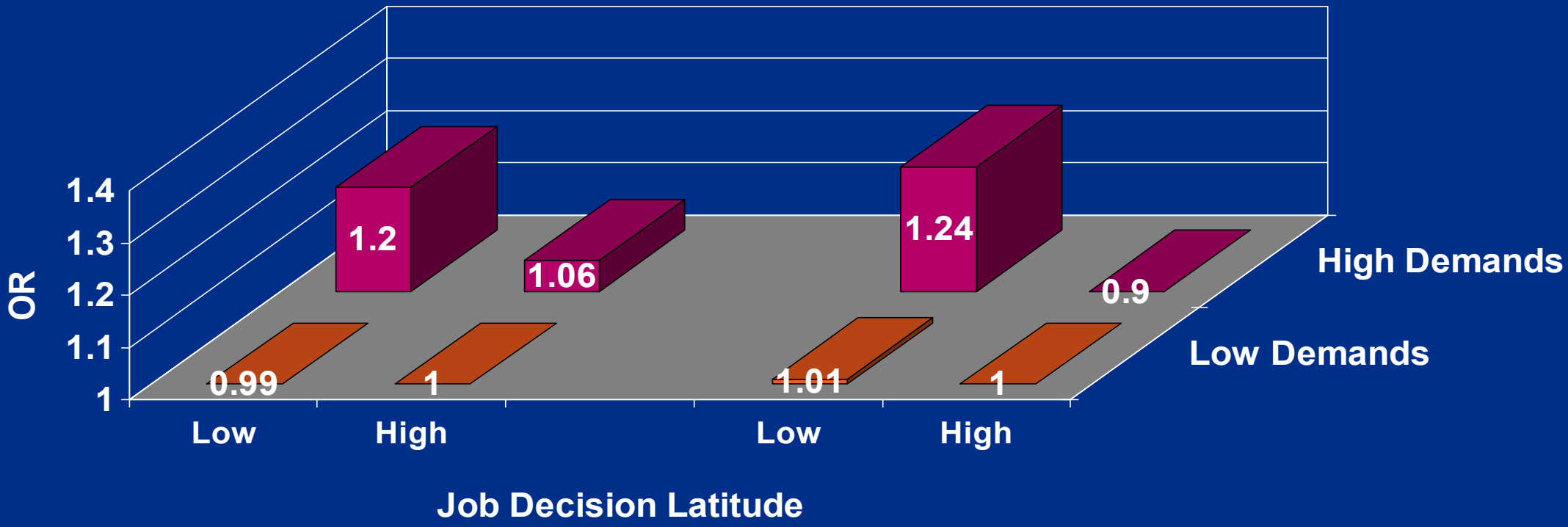
In some cases there was an interaction with socioeconomic status, changes in the job characteristics being stronger predictors of sick leaves for employees with a high income than for the others.

Vahtera etal. cont:

- The highest risks of sick leave (ranging from 1.40 to 1.90) were associated with combined effects related to poor levels of and negative changes in job control, job demands and social support.

- CONCLUSION: Negative changes in psychosocial work environment have adverse effects on the health of employees. Those working in an unfavorable psychosocial environment before changes are at greatest risk.

Job Strain and Sickness Absence:
20 month follow-up among 1,793 Quebec nurses



Short-term sick leave
(1-5 days)

Medically certified sick leave for
mental health problems

Bourbonnais, R & Mondor, M AJIM 39:194-202 (2001)

The Impact of Psychosocial Factors On Sickness Absence

A recent study by Andrea et al 2002 BMJ found that job characteristics such as lower levels of decision latitude and the presence on one long term disease were the strongest predictors for sickness absences exceeding one month duration.

Absenteeism

(unexcused missed days from work)

- Absenteeism is traditionally defined as a habitual pattern of absence from a duty or obligation.

- However, most workplaces classify any missed day from work which is unexcused as “absenteeism”

WORKPLACE ABSENTEEISM :

Correlates of employees' perceptions of a healthy work environment. Lowe GS, Schellenberg G, Shannon HS. Am J Health Promot. 2003 Jul-Aug;17(6):390-9.

- **PURPOSE: This study analyzed correlates of workers' perceptions of the extent to which their work environment is healthy and how these perceptions influence job satisfaction, employee commitment, workplace morale, absenteeism, and intent to quit.**

- **MEASURES: The dependent variable was the response to the item, "The work environment is healthy" (5-point strongly agree-strongly disagree Likert scale).**

  - Perceptions of a healthy work environment were related to job satisfaction, commitment, morale (measured on a 5-point scale), number of self-reported absenteeism days in the past 12 months, and whether or not the respondent had looked for a job with another employer in the past 12 months.

WORKPLACE ABSENTEEISM cont:

- **RESULTS: The strongest correlate of a healthy work environment was a scale of good communication and social support (beta = .27). The next strongest was a job demands scale (beta = -.15.) Employees in self-rated healthier work environments had significantly ($p < 0.01$) higher job satisfaction, commitment and morale, and lower absenteeism and intent to quit.**

- **CONCLUSIONS: The study supports a comprehensive model of workplace health that targets working conditions, work relationships, and workplace organization for health promotion interventions.**

Disability

- A disability is a condition or function judged to be significantly impaired relative to the usual standard of an individual or their group. The term is often used to refer to individual functioning, including physical impairment, sensory impairment, cognitive impairment, intellectual impairment or mental health issue.

Predictors of disability retirement

- Disability retirement may increase as the work force ages, but there is little information on factors associated with retirement because of disability.

- First prospective population-based study of predictors of disability retirement including information on workplace, socioeconomic, behavioral, and health-related factors.

Krause N, Scand J Work Environ Health. 1997 Dec;23(6):403-13. Links Predictors of disability retirement.

Results:

- Various job characteristics predicted disability retirement.
- Heavy work, work in uncomfortable positions, long workhours, noise at work, physical job strain, musculoskeletal strain, repetitive or continuous muscle strain, mental job strain, and job dissatisfaction were all significantly associated with the incidence of disability retirement.
- The ability to communicate with fellow workers and social support from supervisors tended to reduce the risk of disability retirement.

Overtime and Disability Retirement:

- Working 60+ hrs/wk →
  - 2.75x greater risk of disability retirement among Finnish men, 1984-93

Krause N et al. *Scand J Work Environ Health* 1997;23:403-13.

For the individual worker, we hypothesize that:

Health Problems →Decreased Productivity

4. Increase in Disability Leaves of Absence
5. Increase in Job Turnover Rates
6. Increase in Workers' Comp Health Costs

Workers Compensation (Calif)

- The law in CA requires a worker to prove that the actual events of employment were the “predominant cause” (presumed to be more than 50%) among all the causes of the psychiatric injury (or other health outcome).

Workers Comp system in Calif – The Benefit structure

- The benefit structure defines what injured workers are entitled to receive when they sustain an injury "arising out of and in the course of" their employment. There are six basic types of workers' compensation benefits available, depending on the nature, date and severity of the worker's injury: (1) medical care, (2) temporary disability benefits, (3) permanent disability benefits, (4) vocational rehabilitation services, (5) supplemental job displacement benefits, and (6) death benefits.

How Much Does Workers' Compensation Insurance Cost?

- Each type of occupation is assigned a risk classification. Risk is by two factors the frequency of on-the-job injury and the severity of injury.
- Severity is measured by both medical payments and indemnity benefits (payments made directly to the injured employee to compensate for losses suffered as a result of an accident).

Risk Classification by Occupation

- In California, for example, roofers have the highest occupational risk classification, and office clerks have the lowest. Therefore, workers' compensation rates are much higher for roofing companies than for administrative companies.

- Office clerk is roughly $1.25 per $100 of salary (as of 2004) or $6.25 for a salary of $500/week

Views of Laypersons on the Role Employers Play in Return to Work When Sick-Listed

Cecilia Nordqvist,[1] Christina Holmqvist,[1] and Kristina Alexanderson[1,2]

Journal of Occupational Rehabilitation, Vol. 13, No. 1, March 2003 (© 2003)

Sickness absenteeism is an increasing public health problem, but few studies have examined the views of laypersons regarding factors that promote return to work. The present investigation concerns the opinions of such individuals on the role employers play in this context. Data from five focus-group interviews of laypersons with experience of long-term sickness absence were subjected to grounded theory analysis. When asked about factors that hinder or promote return to work, the laypersons spontaneously emphasized the importance of the employer. Specifically, they stressed the need for a structured back-to-work program at each workplace, which should include contacting absent employees and informing fellow workers of possible changes in task assignments upon return of the absent person. Reported hindering factors included lack of such information, leading to envy and harassment. Respondents also asserted the importance of work supervisors in creating a positive emotional atmosphere.

KEY WORDS: return to work; sick leave; lay perspective; employer; back pain; rehabilitation.

The Demand-Control-Support model as a predictor of return to work

- The present study investigated work-related determinants of return to work.

- The strain hypothesis of the Demand-Control-Support model postulates a relation between job demands, job control and support at work on the one hand, and the etiology of health complaints on the other hand.

Janssen N, van den Heuvel WP, Beurskens AJ, Nijhuis FJ, Schroer CA, van Eijk JT. Int J Rehabil Res. 2003 Mar;26(1):1-9.

The Demand-Control-Support model as a predictor of return to work -2

- **Hypoth #1: The Strain Hypothesis:**
  - The combination of high job demands, low control and low support predicts an adverse health state. [High demands are hypothesized to obstruct return to work.]
- **Hypoth #2: The Learning Hypothesis:**
  - The combination of high job demands, high control and high support predicts high work motivation and learning opportunities. [High control and high support are hypothesized to have a positive effect on return to work.]

The Demand-Control-Support model as a predictor of return to work -3

- This hypothesis was tested in a population of employees who were sick-listed for 6-8 weeks.
- Return to work (RTW) was determined 4 months after the onset of the sick leave.
- RTW is operationalized by the categories (i) not working; (ii) return to work with adjustments; and (iii) full return to work
  - Janssen N, van den Heuvel WP, Beurskens AJ, Nijhuis FJ, Schroer CA, van Eijk JT. Int J Rehabil Res. 2003 Mar;26(1):1-9.

The Demand-Control-Support model as a predictor of return to work: Findings

- **High job demands** were the **least predictive** of full return to work.

- **The likelihood of employees with high job demands returning to work with adjustments was higher than the likelihood of them not working. Therefore, job demands might also work as a pressure to return to work**

- **High skill discretion in combination with high job demands** predicts working with adjustments in comparison with not working.

- **High supervisor support** was **the most predictive** of return to work without adjustments, and the least predictive of not working.

Psychosocial job factors and return-to-work after compensated low back injury: a disability phase-specific analysis

Abstract

Background

Job characteristics may constitute a barrier to return-to-work (RTW) after compensated disabling low back pain (LBP). This study examines the impact of psychosocial job factors on time to RTW separately during the acute and subacute/chronic disability phases.

Methods

This is a retrospective cohort study of 433 LBP workers' compensation claimants with 1–4 years of follow-up. The association of psychosocial job factors with duration of work disability was estimated with Cox regression models, adjusting for injury history and severity, physical workload, and demographic and employment factors.

Results

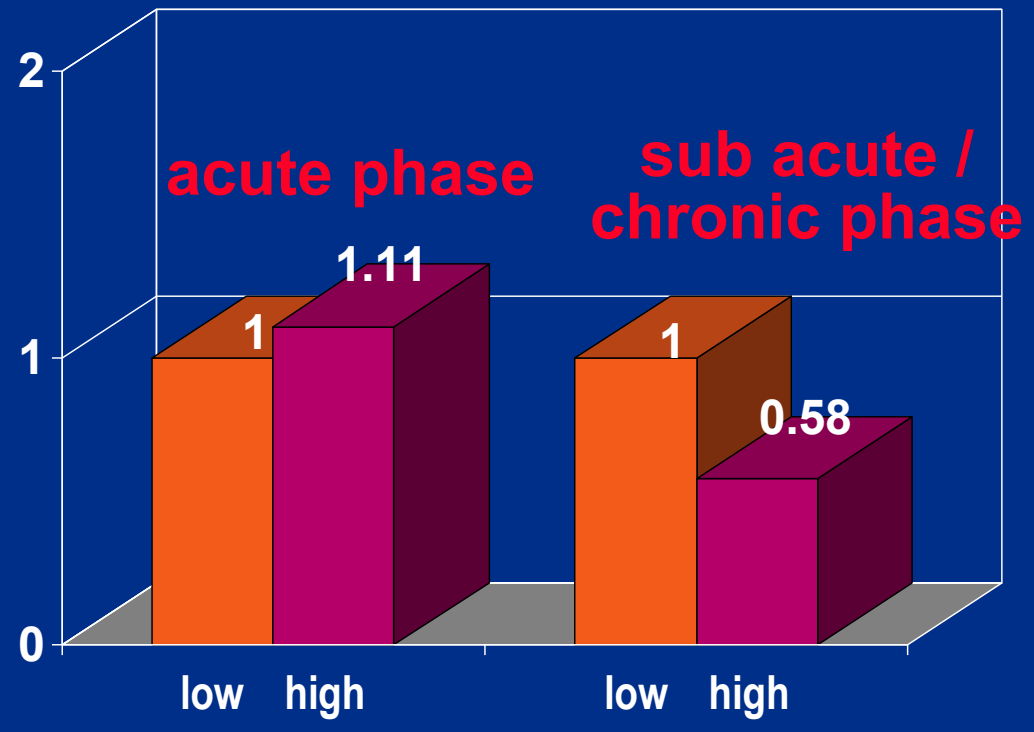
High physical and psychological job demands and low supervisory support are each associated with about 20% lower RTW rates during all disability phases. High job control, especially control over work and rest periods, is associated with over 30% higher RTW rates, but only during the subacute/chronic disability phase starting 30 days after injury. Job satisfaction and coworker support are unrelated to time to RTW.

Conclusions

Duration of work disability is associated with psychosocial job factors independent of injury severity and physical workload. The impact of these risk factors changes significantly over the course of disability. Am. J. Ind. Med. 40:374–392, 2001. © 2001 Wiley-Liss, Inc.

Relative return-to-work (RTW) rates

3 year cohort (1994-1996) of 721 LBP California workers compensation claimants



adjusted for age, sex, injury severity, previous injury, physical workload, social support at work,job seniority and employer size

Krause N, Dasinger LK, Deegan LJ, Rudolph L, Brand RJ. Psychosocial job factors and return-to-work after compensated low back injury: a disability phase-specific analysis. Am J Ind Med 2001;40(4):374-92.

Return to Work

- Working people are at increased risk of a repeat MI if they return to work with a job characterized by having "job strain"

- Theorell, et al. 1993

Theorell, Perski and colleagues 1993

- Examined 79 men who had survived a first myocardial infarction before the age of 45,
- Found that return to work at a high strain job was a significant, independent predictor of IHD-related mortality after five years of follow-up.
- The predictive strength of return to high strain work was of comparable magnitude to degree of angiographically assessed coronary atheromatosis, and more powerful than left ventricular ejection fraction.
- This finding remained robust after adjustment for standard cardiac risk factors.

RTW cont:

- A recent study published in JAMA found that people exposed to job strain at both interviews (chronic job strain) were more than twice as likely to have a second heart attack compared with people no job strain or job strain during only one of the measurement periods

- Aboa-Éboulé C, Brisson C, Maunsell E, Masse B, Bourbonnais R, Vezina M, et al. Job strain and risk of acute recurrent coronary heart disease events. JAMA 2007;298:1652-1660.(63)