

Psychosociální faktory (a zdraví)

Psychosocial factors

Psychosocial variables are generally of two types:

- Psychological attributes (hostility, depression, hopelessness, etc)
 - at the individual level
 - likely to be a result of the process of socialisation.
- More structural variables (e.g. work conditions, adverse life events)

These two categories work synergistically at the individual level

- social support at work (function of both work conditions and personal social interaction skills).

...and another view...

- psychosocial experiences reflect events in the external world impacting on the micro-processes of brains of individuals
- negative feelings may, depending upon context, feed into unhealthy lifestyles

But

- the coincidence of some unhealthy behaviours with social disadvantage is comparatively recent: in 1950 53% of physicians in the US smoked, compared with 40% of all adults

Psychosocial factors related to the development of physical disease (Step toe)

- Chronic life stress

High demand/low control at work; effort-reward imbalance; financial strain; marital conflict; caregiving, relative deprivation

- Social environment

Social isolation; emotional support; social cohesion, social inclusion/participation, loneliness

- Psychological factors

Depression, anger/hostility, anxiety/distress

...and another view (Thomas et al, IJERPH 2020)

- Psychosocial factors are characteristics that influence an individual psychologically and/or socially.
- Such factors can describe individuals in relation to their social environment and how these affect physical and mental health.
- Psychosocial factors include protective psychosocial resources and psychological risk factors.
- Psychosocial resources in the social environment include social network and social support.
- Psychological resources are coping ability or mastery, sense of coherence, and self-esteem.
- Psychological risk factors include vital exhaustion, depressiveness, hopelessness, and hostility.

Depression

Major vs. minor depression

- **Major depression:** a mood disorder that causes a persistent feeling of sadness and loss of interest, trouble doing normal day-to-day activities, and sometimes you may feel as if life isn't worth living.
- **Minor depression**, is a [mood disorder](#) that does not meet the full criteria for [major depressive disorder](#), seems to be a milder presentation on a continuum of severity of the same illness called major depression and is highly predictive of the latter.
- **Minor depression / depressive symptoms / distress**
 - Center for Epidemiological Studies-Depression Scale (CES-D)
 - Beck Depression Scale
 - Geriatric Depression Scale
 - Edinburgh perinatal depression scale
 - ...

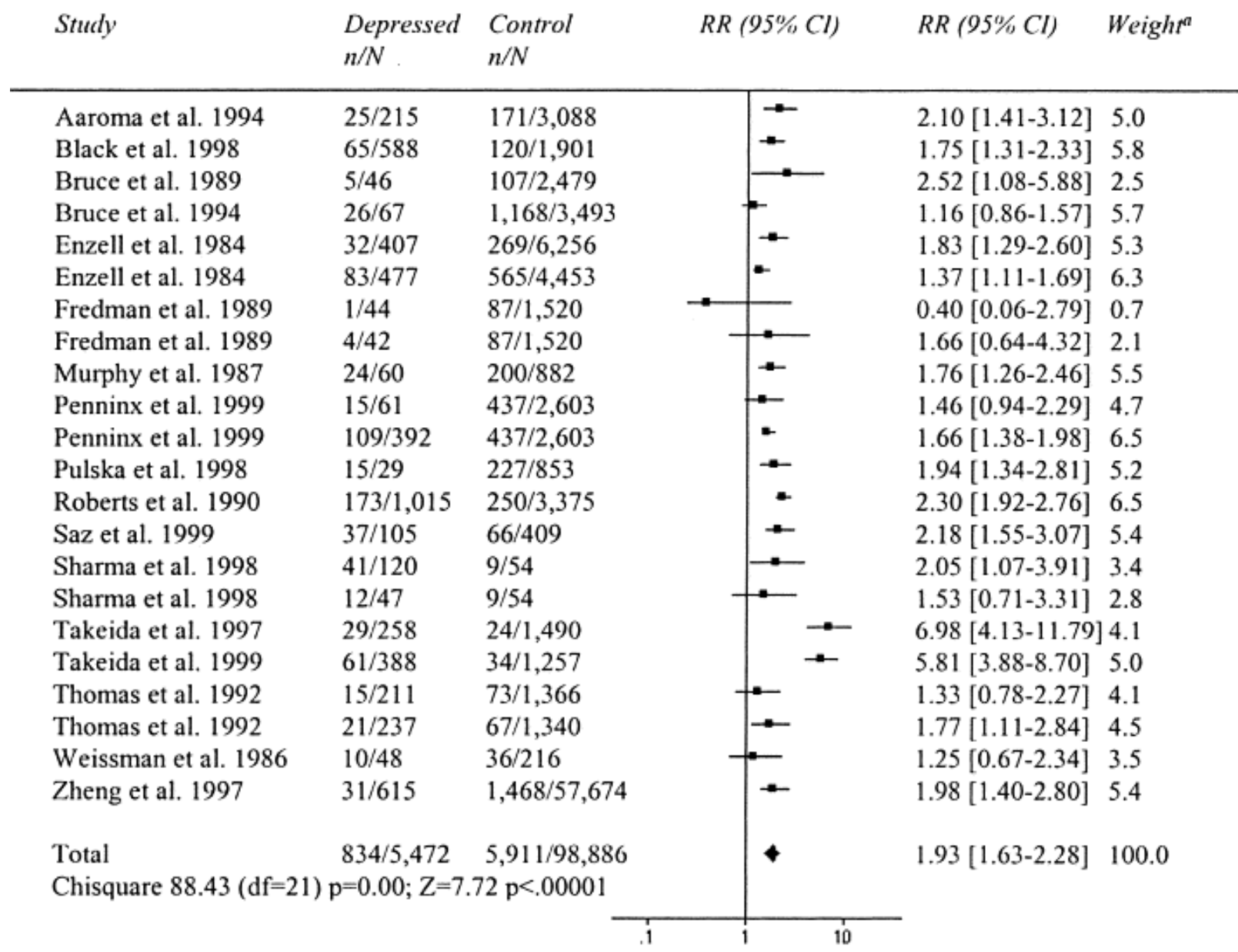
Center for Epidemiologic Studies Depression Scale (CES-D), NIMH

CESD

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the **past week**. Circle **one** number on each line.

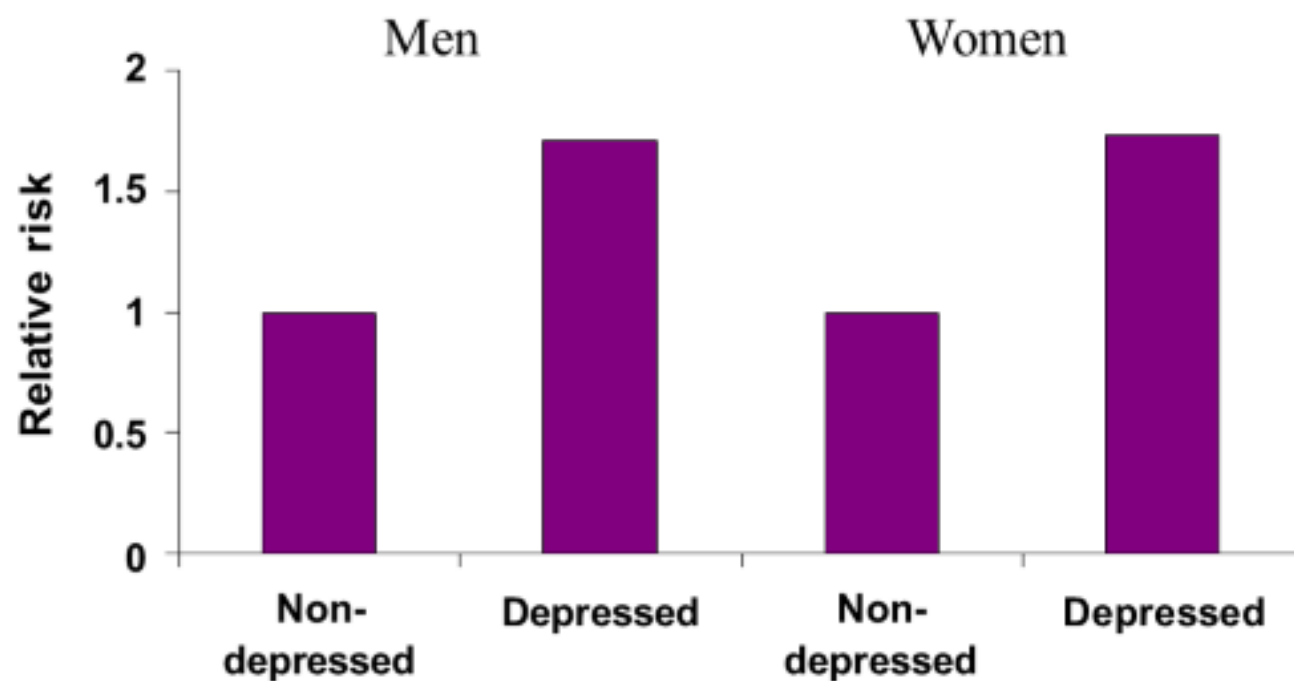
	During the Past Week			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1–2 days)	Occasionally or a moderate amount of time (3–4 days)	All of the time (5–7 days)
1. I was bothered by things that usually don't bother me	0	1	2	3
2. I did not feel like eating; my appetite was poor	0	1	2	3
3. I felt that I could not shake off the blues even with help from my family or friends	0	1	2	3
4. I felt I was just as good as other people	0	1	2	3
5. I had trouble keeping my mind on what I was doing	0	1	2	3
6. I felt depressed	0	1	2	3
7. I felt that everything I did was an effort	0	1	2	3
8. I felt hopeful about the future	0	1	2	3
9. I thought my life had been a failure	0	1	2	3
10. I felt fearful	0	1	2	3
11. My sleep was restless	0	1	2	3
12. I was happy	0	1	2	3
13. I talked less than usual	0	1	2	3
14. I felt lonely	0	1	2	3
15. People were unfriendly	0	1	2	3

Relative risk of mortality in depressed vs. non-depressed persons (Cuipers & Smit, 2002)



^a A larger weight corresponds to a larger N (calculated as the inverse of the standard deviation of the outcome)

Depression and CHD incidence



10 year follow-up. Adjusted for poverty, smoking, diabetes and body mass index (Ferketich et al, *Arch Intern Med* 2000)

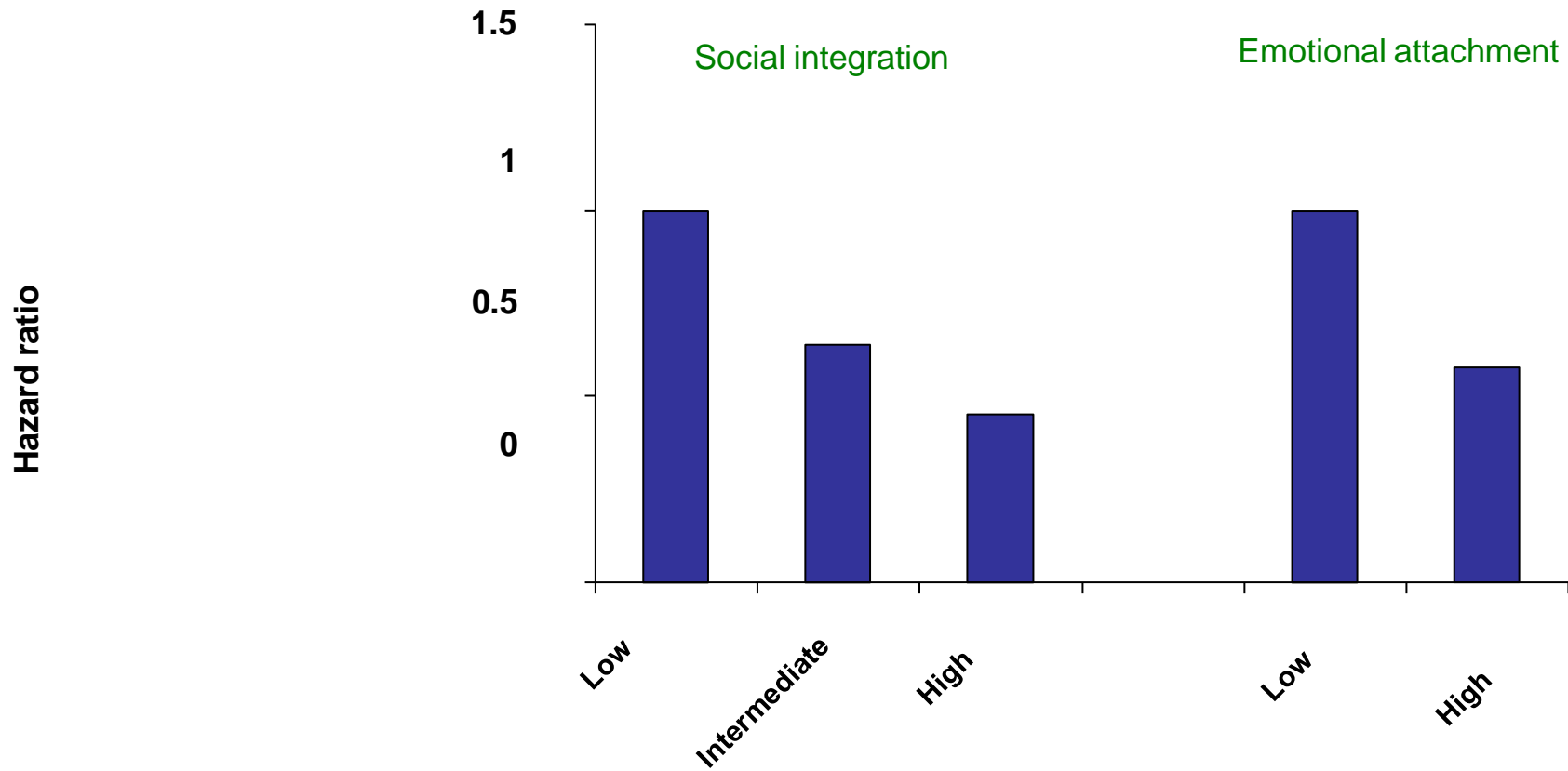
Osamělost (loneliness)

Jak hodnotíte Vaše kontakty s druhými lidmi?



	Nikdy, téměř nikdy	Občas	Často
a) Jak často pociťujete nedostatek společnosti jiných lidí?	1	2	3
b) Jak často se cítíte být opomenutý/á?	1	2	3
c) Jak často se cítíte být izolován/a od druhých?	1	2	3

Social support and CHD



15 year follow-up, adjusted for smoking, blood pressure, cholesterol, triglycerides, BMI, waist/hip ratio, diabetes, family history, social class, stress

Rosengren, 2004

Coping

- Coping can be defined as a positive response outcome expectancy
- When the result is negative, the individual stores this experience as negative outcome expectancy and feels “hopeless”.
- If the individual learns that there is no relationship between his or her responses and the outcome, the individual develops “helplessness”
- If an individual perceives a situation as manageable, it promotes feelings of coping and mastery.
- Coping scale by Pearlin aims to capture feelings of mastery, that is, feelings of control over one’s life, i.e., internal control

Sense of coherence

The ability to

- define life events as less stressful (comprehensibility),
- to mobilize resources to deal with encountered stressors (manageability), and
- experience motivation, desire, and commitment to cope (meaningfulness)

Self-esteem, self-efficacy

- The perception of self-esteem, depicting feelings of self-worth, a prevalent psychological resource in the literature. one's ability of performing a certain action
- The concept of self-efficacy refers to one's belief in the ability to perform a specific behavior, e.g., physical activity. anticipation of results of one's own action. High perceived self-ecacy enables a person to cope with confidence and high motivation

Pocit kontroly nad životem

	Nesouhlasím			Souhlasím		
	Silně	Středně	Slabě	Slabě	Středně	Silně
a) Doma mám pocit, že mám většinu situací pod kontrolou.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
b) Být zdravý, závisí na mně.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
c) Jsou věci, které mohu pro sebe udělat, abych snížil riziko infarktu.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
d) Jsou věci, které mohu pro sebe udělat, abych snížil riziko rakoviny.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
e) Mám pocit, že to, co se stane v mém životě, je často určeno faktory, které nemohu ovlivnit.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
f) Očekávám více kladných než záporných zkušeností v příštích 5-10 letech.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
g) Často mám pocit, že se se mnou zachází nespravedlivě.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
h) Můj život byl v posledních 10 letech plný neočekávaných změn.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
i) Často mám pocit, že to, co dělám každý den, nemá velký smysl.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
j) Někdy mám pocit, jako bych už udělal všechno, co se v životě udělat dá.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆
k) Již dávno jsem se přestal snažit o velká zlepšení či změny ve svém životě.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅	<input type="checkbox"/> ₆

Demands vs. resources

- When external demands are perceived to be larger than available protective resources, it can lead to experiences such as
 - negative outcome expectancy,
 - hopelessness
 - helplessness,
 - increase of what we define as psychological risk factors.
- Psychological risk factors include
 - negative feelings and emotions
 - vital exhaustion
 - depressiveness
 - Cognitive impairment
 - hostility

Example:

Life Conditions, Stress, and Health (LSH) research program, Sweden

- Designed to investigate the causes of socioeconomic status differences in the incidence
- of coronary heart disease (CHD).
- Data collection was conducted in collaboration with 10 primary care centers in the County of Östergötland, Sweden
- from October 2003 to May 2004.
- Men and women 45-69 years
- n=1007, response rate 63%

Correlations between PS variables

Table 4. Correlation matrix for psychosocial factors.

	Social Integration	Emotional Support	Perceived Control	Self Esteem	SOC	Trust	Cynicism	Vital Exhaustion	Hopelessness	Depressiveness
Psychosocial resources										
Social integration	1	0.377	0.309	0.363	0.360	0.206	-0.194	-0.283	-0.296	-0.337
Emotional support		1	0.188	0.239	0.234	0.134	-0.159	-0.197	-0.231	-0.256
Perceived control			1	0.466	0.428	0.187	-0.313	-0.422	-0.517	-0.488
Self esteem				1	0.571	0.145	-0.190	-0.563	-0.503	-0.515
SOC ¹					1	0.264	-0.319	-0.600	-0.428	-0.528
Trust						1	-0.308	-0.151	-0.186	-0.148
Psychological risk factors										
Cynicism							1	0.107	0.276	0.150
Vital exhaustion								1	0.423	0.671
Hopelessness									1	0.447
Depressiveness										1

¹ Sense of coherence.

Characteristics of psychosocial factors in the study population

Table 3. Characteristics of psychosocial factors in the study population.

Psychosocial Scales ¹	Number of Items	Cronbach's Alpha	Range in Scale	Range in Study Population	Mean (SD)	Median (Q1; Q3)	Number of Responders
Psychosocial resources							
Social integration	6	0.88	6–36	6–36	20.5 (5.9)	20 (16; 24)	962
Emotional support	6	0.77	0–6	0–6	5.5 (1.1)	6 (5; 6)	964
Perceived control	11	0.69	0–55	15–55	39.8 (7.7)	40 (35; 46)	894
Self-esteem	10	0.86	10–40	15–40	32.2 (4.8)	33 (30; 36)	947
SOC ²	13	0.82	13–91	32–91	68.7 (10.4)	70 (62; 77)	962
Trust	1	-	1–5	1–5	4.0 (0.6)	4 (4; 4)	959
Psychological risk factors							
Cynicism	12	0.85	12–60	12–53	31.2 (7.71)	32 (26; 37)	969
Vital exhaustion	19	0.94	19–57	19–56	30.2 (7.63)	29 (24; 35)	965
Hopelessness	2	0.70	0–8	0–8	2.28 (2.03)	2 (1; 4)	963
Depressiveness	20	0.68	0–60	0–51	9.02 (7.86)	7 (3; 12)	937

¹ A high score on the psychosocial resource scales is considered desirable, while a high score on a psychosocial risk scale is considered non-desirable. ² Sense of coherence.

Associations between health risk behaviours and psychosocial factors. adjusted for age, sex, education, employment, and immigrant status

	Current Smoker			Risky Alcohol Intake			Insufficient Physical Activity			Insufficient Intake of Fruit and Vegetables		
	Adj OR	95% CI	<i>p</i>	Adj OR	95% CI	<i>p</i>	Adj OR	95% CI	<i>p</i>	Adj OR	95% CI	<i>p</i>
Psychosocial resources												
Social integration	0.94	0.79–1.13	0.519	0.88	0.72–1.07	0.195	0.90	0.75–1.08	0.243	0.86	0.72–1.02	0.076
Emotional support	0.84	0.72–0.97	0.018	0.76	0.65–0.90	0.001	0.96	0.79–1.15	0.641	0.87	0.72–1.05	0.156
Perceived control	0.79	0.66–0.95	0.014	0.84	0.67–1.04	0.104	0.73	0.59–0.89	0.002	1.02	0.86–1.23	0.777
Self esteem	0.90	0.76–1.07	0.252	0.86	0.71–1.05	0.143	0.97	0.82–1.16	0.762	0.90	0.75–1.07	0.214
SOC ¹	0.84	0.71–1.00	0.055	0.79	0.64–0.96	0.019 *	0.79	0.65–0.95	0.013	0.98	0.82–1.16	0.780
Trust	0.84	0.71–0.99	0.034 *	0.73	0.61–0.88	0.001	0.85	0.70–1.03	0.093	0.92	0.77–1.09	0.330
Psychological risk factors												
Cynicism	1.18	0.99–1.41	0.063	1.19	0.97–1.46	0.101	1.21	1.01–1.44	0.040 *	1.02	0.86–1.21	0.837
Vital exhaustion	1.36	1.14–1.61	0.001	1.25	1.02–1.54	0.033 *	1.34	1.11–1.63	0.003	0.99	0.84–1.18	0.942
Hopelessness	1.14	0.96–1.36	0.143	1.07	0.87–1.32	0.511	1.29	1.05–1.58	0.013	1.10	0.92–1.32	0.311
Depressiveness	1.51	1.28–1.79	<0.001	1.20	0.98–1.47	0.082	1.23	1.01–1.50	0.036 *	1.11	0.93–1.33	0.245

* $p > 0.05$ after correction for multiple testing (false discovery rate (FDR)). ¹ Sense of coherence.

Relationships between psychosocial factors and number of health risk behaviors (0–1, 2, or 3–4). Odds ratios according to ordinal logistic regression for falling in a higher level of health risk behaviours, adjusted for age, sex, education, employment status, and immigrant status

	Adj OR	95% CI	<i>p</i>
Psychosocial resources			
Social integration	0.88	0.77–0.99	0.047 *
Emotional support	0.81	0.70–0.92	0.002
Perceived control	0.84	0.73–0.97	0.020
Self esteem	0.93	0.81–1.06	0.270
SOC ¹	0.84	0.73–0.95	0.008
Trust	0.80	0.70–0.91	0.001
Psychological risk factors			
Cynicism	1.18	1.03–1.35	0.014
Vital exhaustion	1.28	1.11–1.46	<0.001
Hopelessness	1.19	1.03–1.37	0.016
Depressiveness	1.32	1.14–1.52	<0.001

* $p > 0.05$ after correction for multiple testing (FDR). ¹ Sense of coherence.

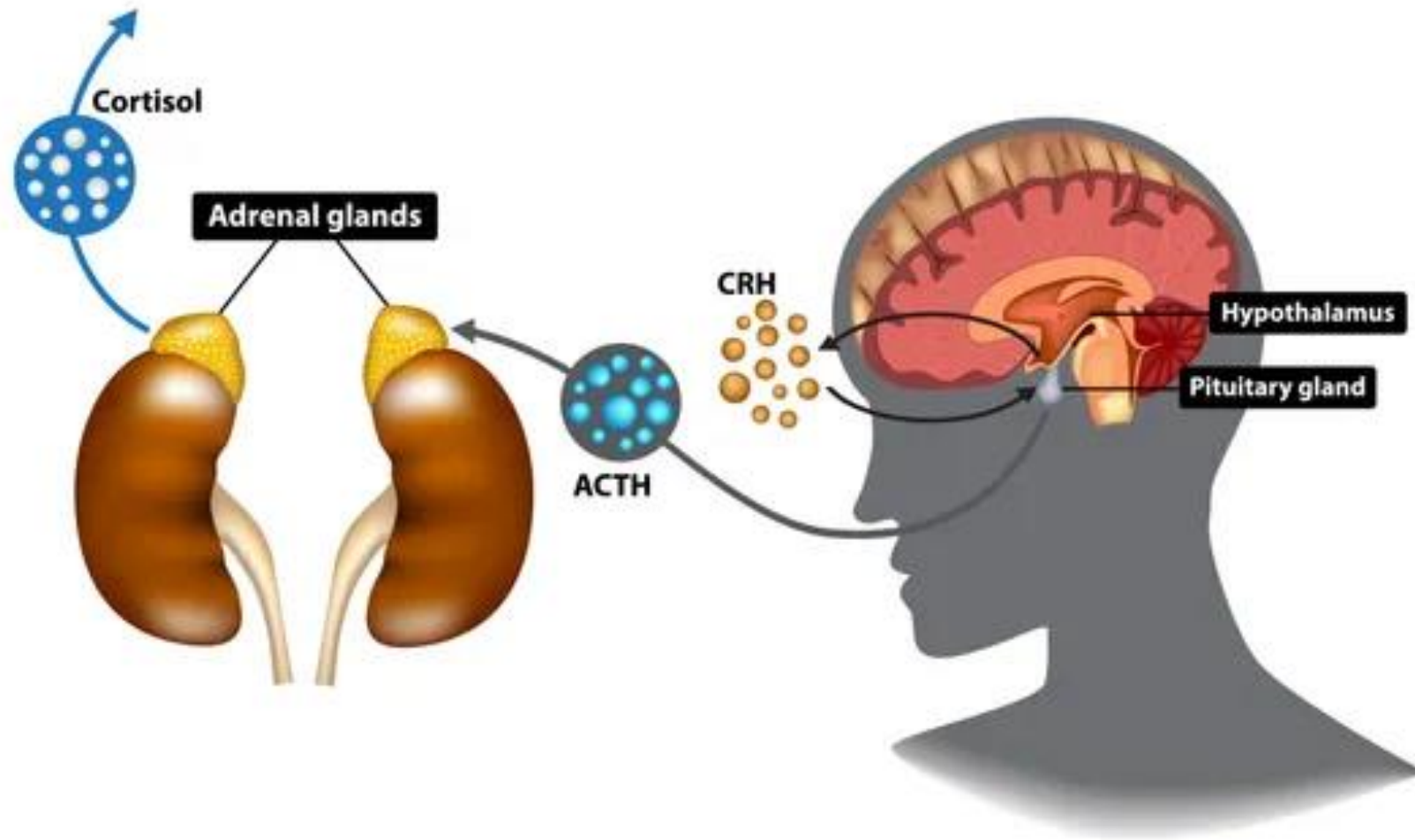
Psychosocial factors and illness - mechanisms

- **Behavioural processes (indirect)**
Smoking, food choice, physical exercise, alcohol consumption
- **Psychobiological processes (direct)**
Stress-induced modifications in neuroendocrine, cardiovascular, autonomic, immunological and other physiological responses

Psychobiological responses

- **Neuroendocrine**
 - cortisol, adrenaline, testosterone, noradrenaline
- **Cardiovascular**
 - Blood pressure, heart rate
- **Inflammatory**
 - C-reactive protein, interleukin (IL) 6, fibrinogen
- **Metabolic**
 - Lipids, glucose, insulin Platelets,
- **Haemostatic**
 - coagulation factors
- **Immune**
 - Lymphocyte counts and activity, natural killer cells, immunoglobulins

Hypothalamic-pituitary-adrenal (HPA) axis



Hypothalamic-Pituitary-Adrenal Axis

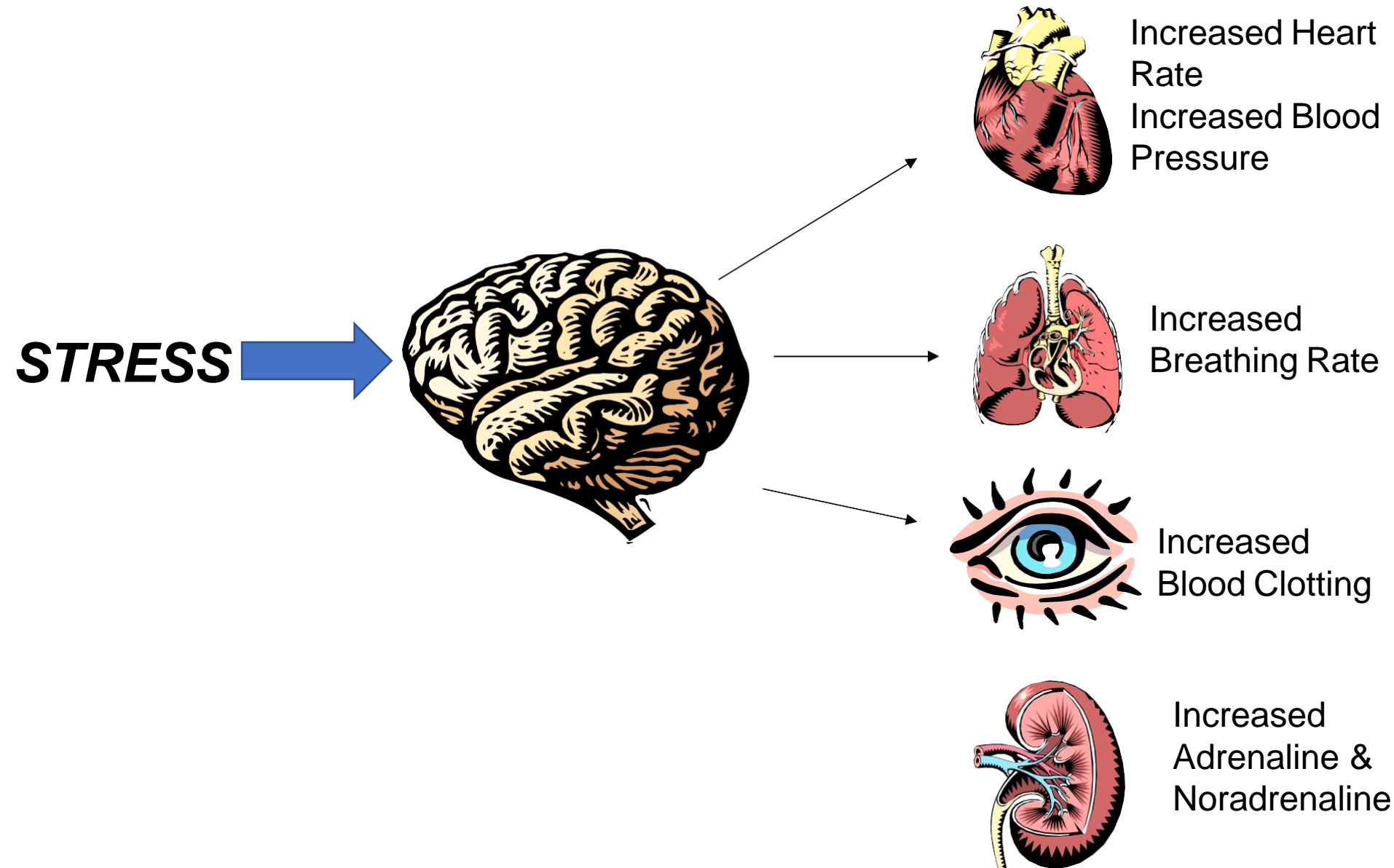
When a chronic stressor is perceived:

- the hypothalamus releases Corticotrophin Releasing Factor (CRF) and
- this is transported by the blood stream to the pituitary gland
- which then produces Adrenocorticotrophic hormone (ACTH).
- This is also transported by the bloodstream to the adrenal glands.
- The cortex of the adrenal glands produces corticosteroids, the most important being cortisol.
- Cortisol mobilises glucose stored in the liver, this provides a constant supply of energy for the body to deal with the stressor.

Some effects of cortisol

- Stimulation of glucose production in the liver
- Release of free fatty acids from fat stores
- Regulation of water balance
- Stimulation of anti-inflammatory responses
- Immune regulation

Sympathetic Nervous System



When are psychobiological responses hazardous?

- Repeatedly elicited in conditions of everyday life
- Some people show heightened reactions or failure of post-stress adaptation

Some potentially harmful effects of high cortisol

- Increased lipid (LDL-cholesterol) in the blood
- Suppression of immune function
- Decalcification of bone
- Deposition of abdominal fat
- Damage to the hippocampus
- Muscle wasting
- Impaired reproductive function

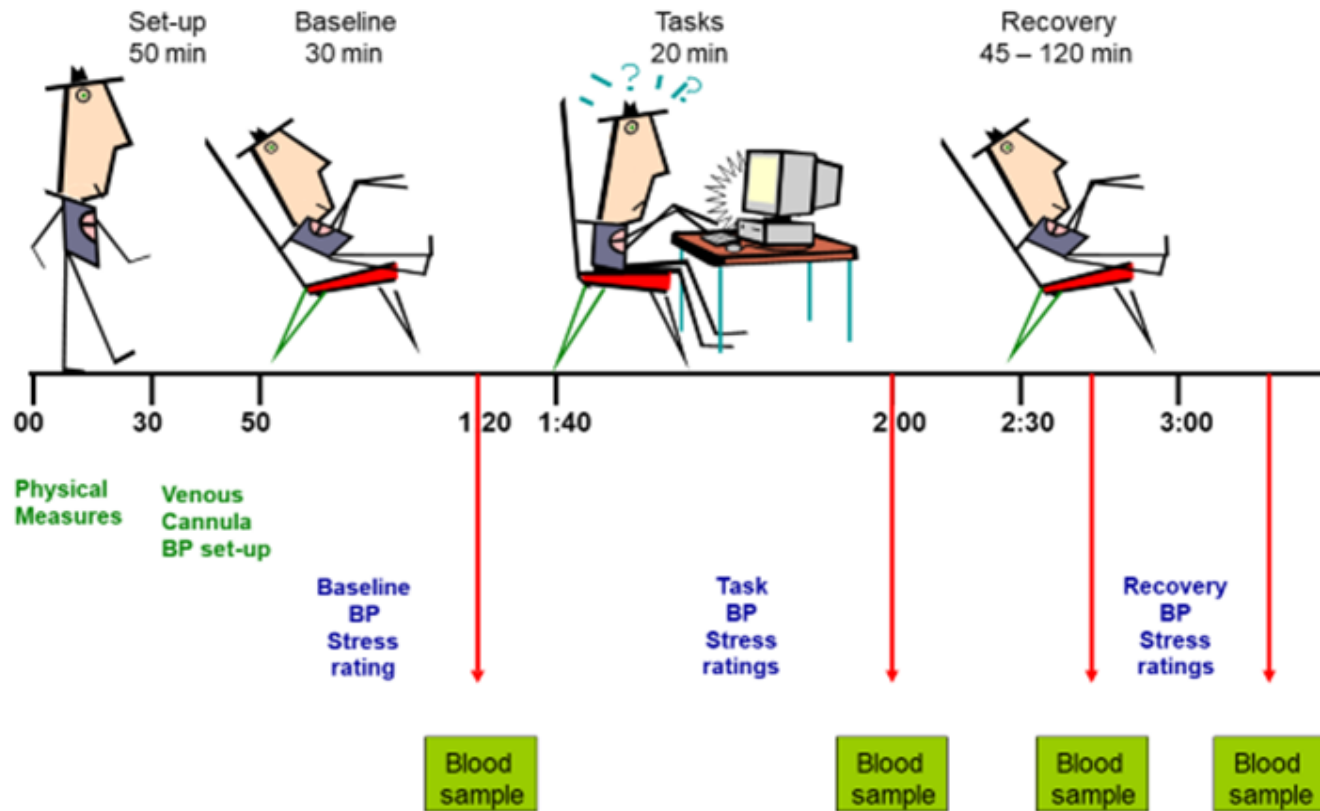
C-reactive protein

- Acute phase protein synthesized in liver
- Increases in response to inflammatory stimuli (cytokines), infection and tissue damage
- Antimicrobial, clears apoptotic cells, enhances phagocytosis
- Marker of chronic low grade inflammation
- Risk marker for CVD, functional significance debated

Type of study

- Experimental or clinical studies
- Naturalistic monitoring studies

Psychophysiological Stress Testing



BLUE

YELLOW

RED

GREEN

BLUE

Psychobiological responses and SEP

Participants

- 238 members of the Whitehall II (prospective) cohort aged 47-59 years in full-time employment.

Sampled by grade of employment:

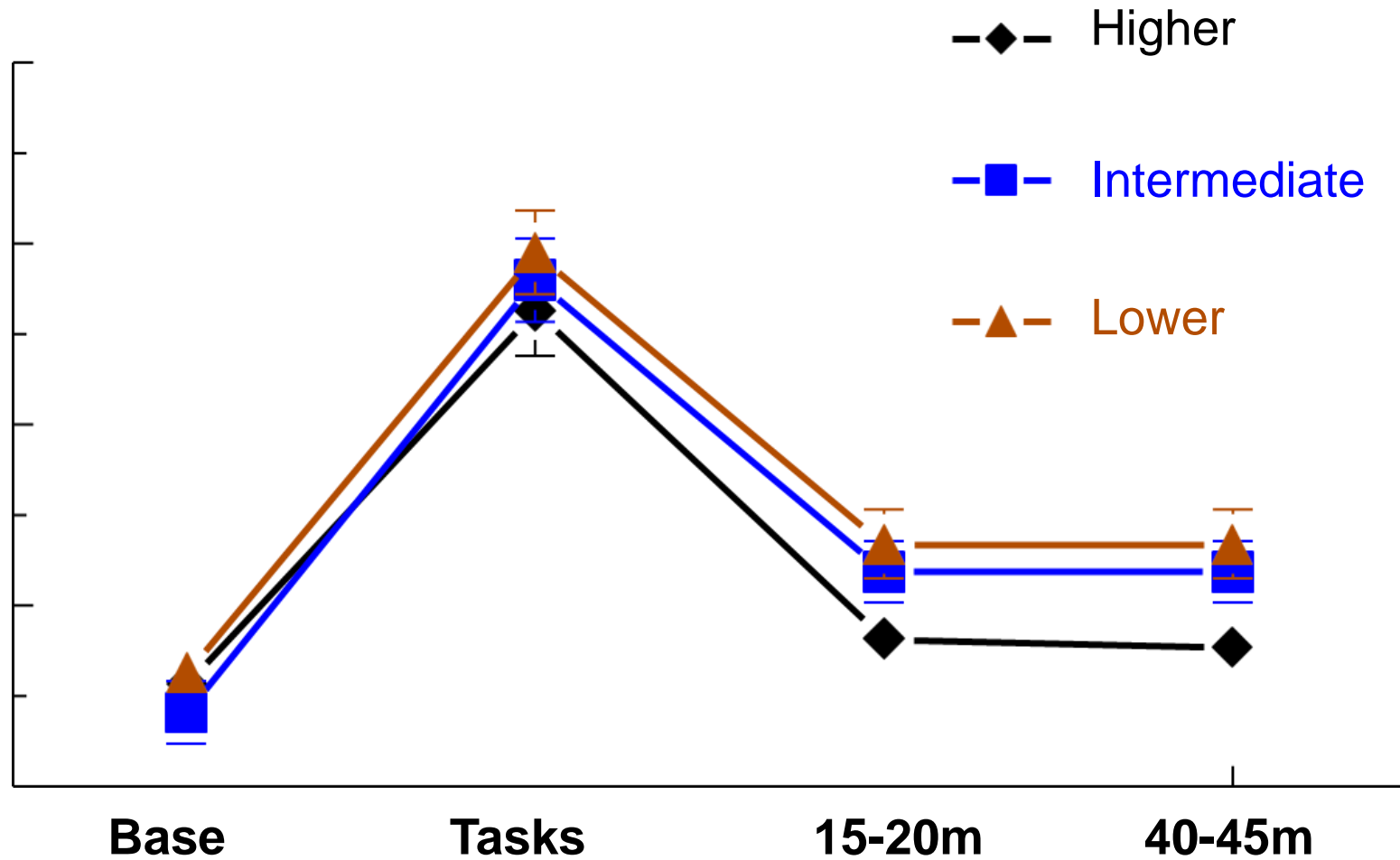
Higher	Men	49	Women	41	Total	90
Intermediate	Men	44	Women	37	Total	81
Lower	Men	36	Women	31	Total	67

Conditions

- Cardiovascular, neuroendocrine, cytokine and hemostatic responses to colour/word and mirror tracing tasks.

Blood drawn at baseline, immediately post-task, and 45 minutes later.

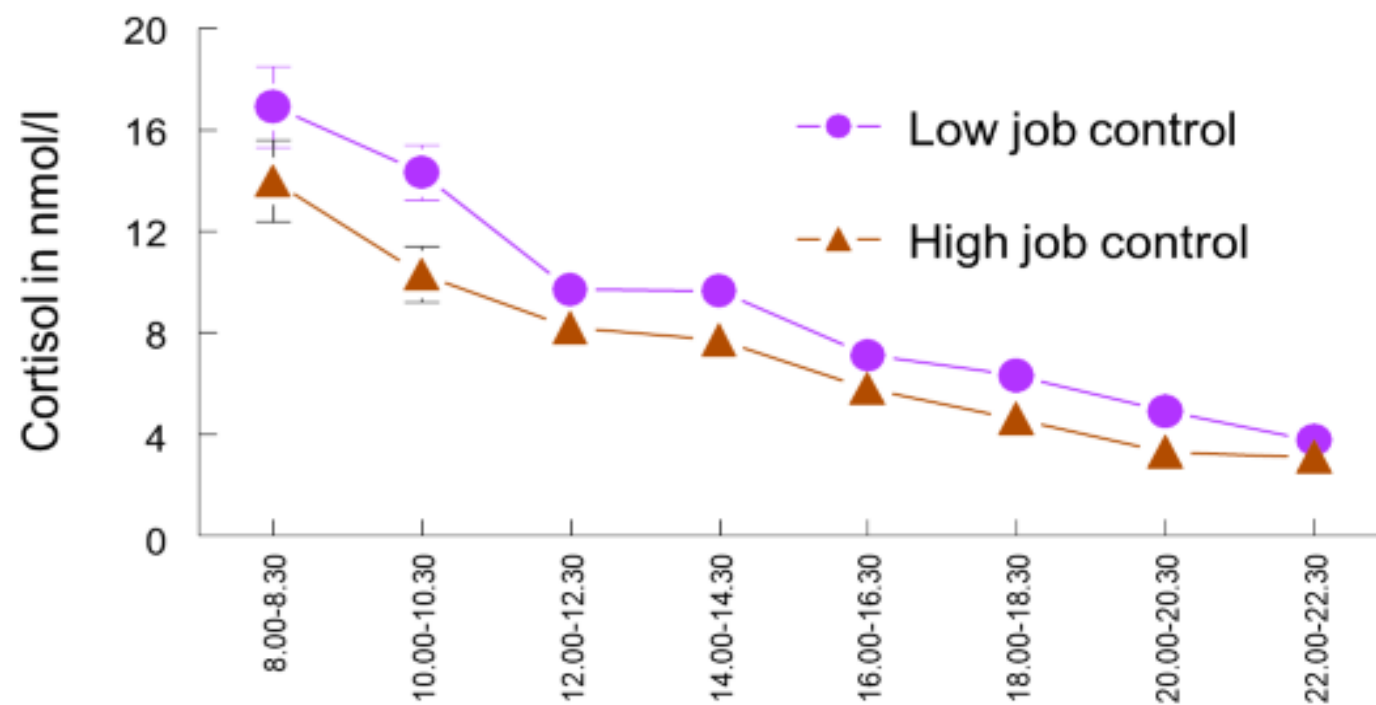
Systolic BP by occupational grade



Type of study

- Experimental or clinical studies
- Naturalistic monitoring studies

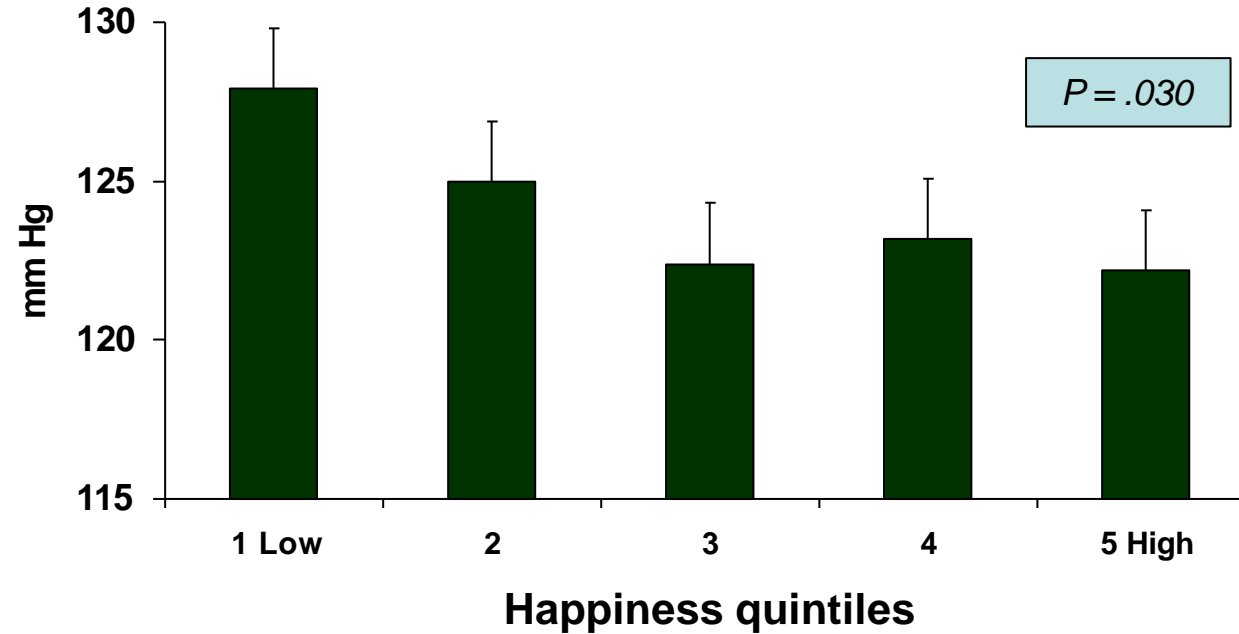
Cortisol and job control



Men, age-adjusted

Kunz-Ebrecht et al
Soc Sci Med, 2004

Systolic BP and happiness – 3 year



Adjusted for gender, age, occupational grade, work at follow-up, smoking, bmi, GHQ. N = 160

Multiple influences on health

