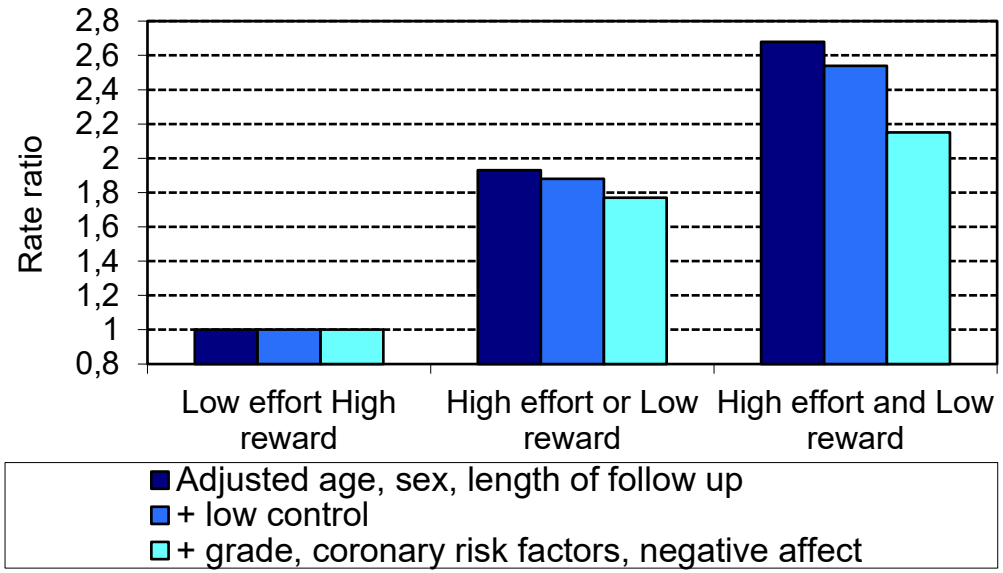
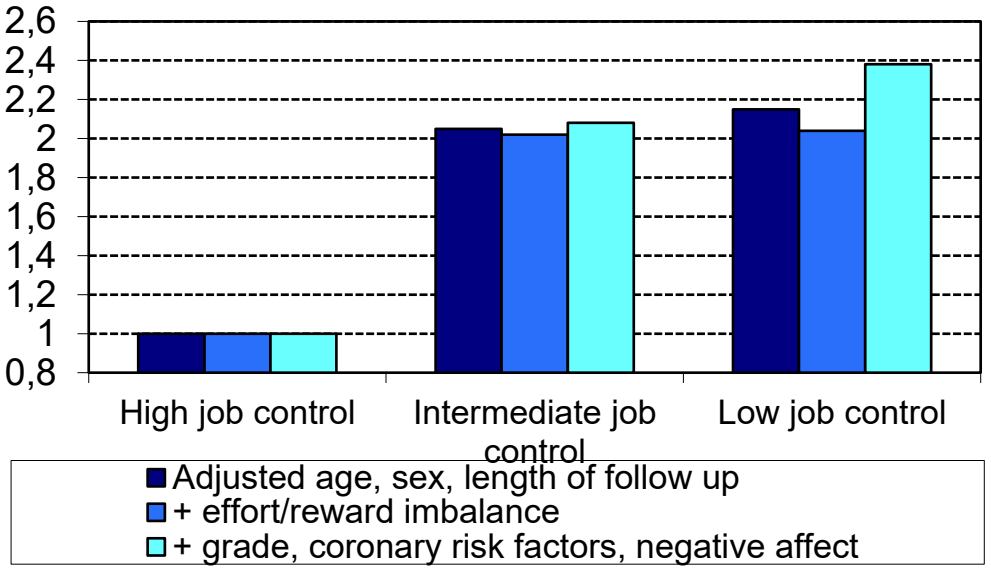
Work and Health - Practical session

PART A:

In paper from 1998, Bosma et al looked at the role of job control and effort-reward imbalance on incidence of coronary heart disease in Whitehall II study. Please see results summarised in following two pictures:





What would you say about the role of two measures of work stress and its role in developing CHD in this population? Why do you think that researchers used adjusting strategy as shown in the figures?

PART B: Job loss and lower healthcare utilisation due to COVID-19 among older adults across 27 European countries

Please read the abstract of the paper by Ksinan Jiskrova et al (2021) focusing on inequalities in possible job loss during the first phase of COVID-19 pandemic using data from European SHARE study.

ABSTRACT

Background Older adults are at greater risk for becoming severely ill from COVID-19; however, the impact of the pandemic on their economic activity and non-COVID-19-related healthcare utilisation is not well understood. The aim of this study was to examine the prevalence and predictors of COVID-19-related unemployment and healthcare utilisation in a sample of older adults across 27 European countries.

Methods We used data from the Survey of Health, Ageing and Retirement in Europe COVID-19 Survey, collected between June and August 2020. Participants (n=52 061) reported whether they lost a job, forwent medical treatment and whether their appointment was postponed due to COVID-19. Three-level models were estimated for each outcome to test the effects of individual, household and country-level characteristics.

Results The mean prevalence of reported job loss, and forgone and postponed medical care was 19%, 12% and 26%, respectively. Job loss was associated with female sex, lower education and household income, and older age in women. For example, the OR of job loss, comparing primary versus tertiary (college) education, was 1.89 (95% CI 1.59 to 2.26). Forgone and postponed medical care was associated with older age in men, female sex and higher education. At the country level, postponed medical care was associated with more stringent governmental anti-COVID measures.

Conclusion Job loss and lower healthcare utilisation for non-COVID-19-related reasons were common among older adults and were associated with several sociodemographic characteristics. Job loss appeared to disproportionally affect already economically vulnerable individuals, raising concerns about the exacerbation of social inequalities.

	Lost job due to COVID-19 n=10 958	
	OR	**95% CI**
Age (per 10 years)		
In men	1.02	0.88 to 1.18
In women	1.44	1.26 to 1.65
Sex (at centred age)		
Men	1 (ref)	
Women	1.27	1.14 to 1.41
Partner in household		
No	1 (ref)	
Yes	0.98	0.86 to 1.12
Education		
Tertiary	1 (ref)	
Secondary	1.60	1.40 to 1.82
Primary	1.89	1.59 to 2.26
Equivalised household income (per €1000)	0.84	0.78 to 0.90
Gini index (per 1 unit)	1.04	0.98 to 1.10
GDP per capita (per US$10 000)	1.23	1.06 to 1.43
COVID deaths/million (per 100)	1.07	0.96 to 1.20
Government stringency index (per 10 units)	1.39	0.95 to 2.05

What would be your conclusions on the basis of this abstract and shown results? What would you do the next with the data? What would you plan as the next steps? Are there any possible policy implications?

PART C: Job strain as a risk-factor for CHD: a collaborative meta-analysis of individual participant data (Kivimaki et al, 2012)

Summary

Background Published work assessing psychosocial stress (job strain) as a risk factor for coronary heart disease is inconsistent and subject to publication bias and reverse causation bias. We analysed the relation between job strain and coronary heart disease with a meta-analysis of published and unpublished studies.

Methods We used individual records from 13 European cohort studies (1985–2006) of men and women without coronary heart disease who were employed at time of baseline assessment. We measured job strain with questions from validated job-content and demand-control questionnaires. We extracted data in two stages such that acquisition and harmonisation of job strain measure and covariables occurred before linkage to records for coronary heart disease. We defined incident coronary heart disease as the first non-fatal myocardial infarction or coronary death.

Findings 30 214 (15%) of 197 473 participants reported job strain. In 1·49 million person-years at risk (mean follow-up 7·5 years [SD 1·7]), we recorded 2358 events of incident coronary heart disease. After adjustment for sex and age, the hazard ratio for job strain versus no job strain was 1·23 (95% CI 1·10–1·37). This effect estimate was higher in published (1·43, 1·15–1·77) than unpublished (1·16, 1·02–1·32) studies. Hazard ratios were likewise raised in analyses addressing reverse causality by exclusion of events of coronary heart disease that occurred in the first 3 years (1·31, 1·15–1·48) and 5 years (1·30, 1·13–1·50) of follow-up. We noted an association between job strain and coronary heart disease for sex, age groups, socioeconomic strata, and region, and after adjustments for socioeconomic status, and lifestyle and conventional risk factors. The population attributable risk for job strain was 3·4%.

Interpretation Our findings suggest that prevention of workplace stress might decrease disease incidence; however, this strategy would have a much smaller effect than would tackling of standard risk factors, such as smoking.

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	Country	Baseline	Number of participants	Number (%) of women	Number (%) of participants with job strain	Mean (SD) age at baseline (years)	Person-years	Number of CHD events (incidence per 10 000 person-years)
Whitehall II[21]	UK	1985–88	10 250	3398 (33%)	1437 (14%)	44·4 (6·1)	154 980	382 (24·6)
Still working[20]	Finland	1986	9129	2082 (23%)	1423 (16%)	40·9 (9·1)	193 809	729 (37·6)
WOLF-S[22]	Sweden	1992–95	5653	2447 (43%)	917 (16%)	41·5 (11·0)	81 516	106 (13·0)
Belstress[11]	Belgium	1994–98	14 226	0 (0%)	2190 (15%)	45·8 (6·0)	44 812	85 (19·0)
IPAW[17]	Denmark	1996–97	2022	1356 (67%)	355 (18%)	41·2 (10·5)	25 801	35 (13·6)
WOLF-N[23]	Sweden	1996–98	4678	780 (17%)	599 (13%)	44·0 (10·3)	53 891	122 (22·6)
COPSOQ-I[12]	Denmark	1997	1724	824 (48%)	354 (21%)	40·8 (10·5)	20 171	33 (16·4)
GAZEL[15]	France	1997	11 237	3132 (28%)	1630 (15%)	50·3 (3·0)	125 180	277 (22·1)
POLS[19]	Netherlands	1997–2002	24 473	10 093 (41%)	3904 (16%)	38·1 (11·1)	240 570	241 (10·0)
HeSSup[16]	Finland	1998	16 345	9102 (56%)	2866 (18%)	39·5 (10·2)	113 761	67 (5·9)
DWECS[13]	Denmark	2000	5463	2556 (47%)	1217 (22%)	41·8 (11·0)	48 074	55 (11·4)
FPS[14]	Finland	2000	47 373	38 317 (81%)	7728 (16%)	44·6 (9·4)	224 074	109 (4·9)
NWCS[18]	Netherlands	2005–06	44 900	23 085 (51%)	5594 (13%)	39·9 (11·8)	162 089	117 (7·2)
Total	..	1985–2006	197 473	97 172 (49%)	30 214 (15%)	42·3 (9·8)	1 488 728	2358 (15·8)

CHD=cardiovascular heart disease. WOLF-S=Work, Lipids, Fibrinogen-Stockholm. IPAW=Intervention Project on Absence and Well-being. WOLF-N=Work, Lipids, Fibrinogen-Norrland. COPSOQ-I=Copenhagen Psychosocial Questionnaire version I. GAZEL=Electricité De France-Gaz De France. POLS=Permanent Onderzoek Leefsituatie. HeSSup=Health and Social Support. DWECS=Danish Work Environment Cohort Study. FPS=Finnish Public Sector Study. NWCS=Netherlands Working Conditions Survey.

Table: **Characteristics of eligible participants**

Please read the abstract and look at the descriptive table. Summarize main findings of the study on the basis of the abstract.

Please look at the table on the left side of next page. On the basis of the results shown there do you still believe all the results presented in the abstract being valid summary of findings?

Look at remaining two figures. Why did authors display such figures? Please explain.

The findings of this paper were widely discussed and some researchers were quite critical. What do you think was the main criticism of this paper?

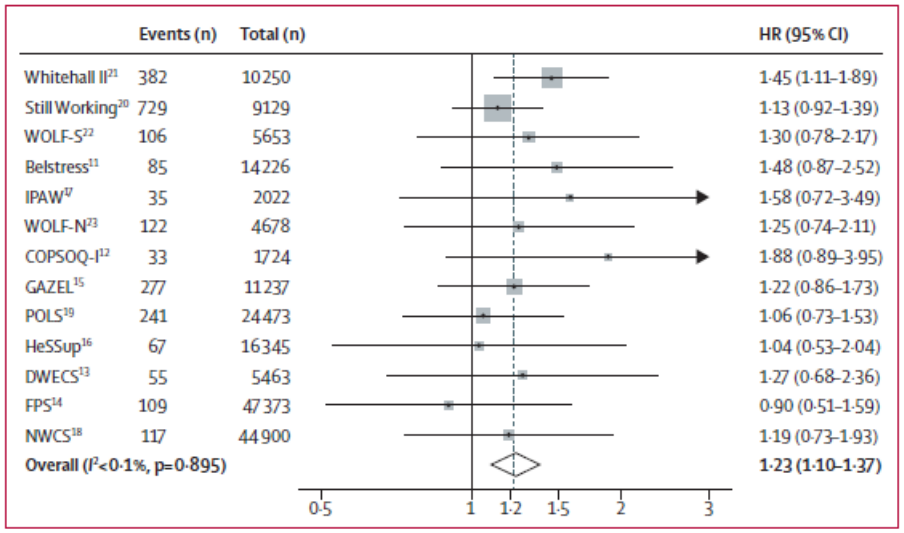

Figure 1: **Random-effects meta-analysis of the association between job strain and incident coronary heart disease**

Estimates are adjusted for age and sex. WOLF-S=Work, Lipids, Fibrinogen-Stockholm. IPAW=Intervention Project on Absence and Well-being. WOLF-N=Work, Lipids, Fibrinogen-Norrland. COPSOQ-I=Copenhagen Psychosocial Questionnaire version I. GAZEL=Electricité De France-Gaz De France. POLS=Permanent Onderzoek Leefsituatie. HeSSup=Health and Social Support. DWECS=Danish Work Environment Cohort Study. FPS=Finnish Public Sector Study. NWCS=Netherlands Working Conditions Survey.

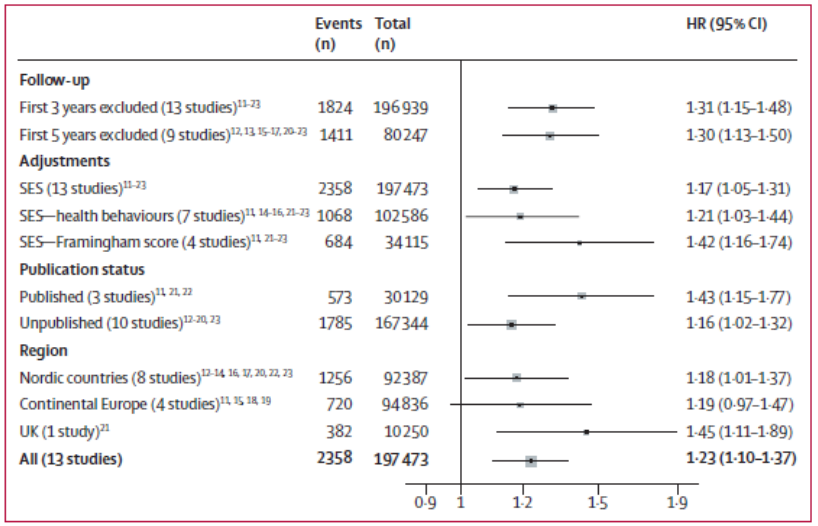

Figure 2: **Association of job strain with incident coronary heart disease in relation to study follow-up periods, adjustments, publication status for data, and geographical region**

Estimates are adjusted for age and sex unless otherwise stated. Some estimates are further adjusted for SES, health behaviours, and the Framingham score. SES=socioeconomic status.

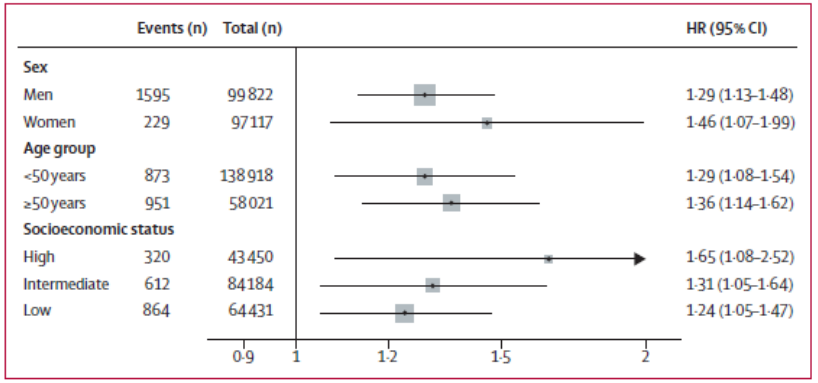

Figure 3: **Association of job strain with incident coronary heart disease in subgroups**

Estimates are adjusted, when appropriate, for age and sex. We excluded events that occurred in the first 3 years of follow-up.