



Bundesanstalt für Arbeitsschutz
und Arbeitsmedizin

Fractions of poor mental health attributable to psychosocial working conditions: The role of combined exposure

Hermann Burr^{1*}, Paul Maurice Conway²

1 Unit 3.2 Psychosocial factors and mental health,
Federal Institute of Occupational Safety and Health

2 Department of Psychology, University of Copenhagen

[*burr.hermann@bua.bund.de](mailto:burr.hermann@bua.bund.de)

Background

- **A recent publication found attributable fractions of depression**
 - For job strain: 17% in Europe (15% in Germany)
 - For ERI: 6% in Europe (4% in Germany) *(Niedhammer et al. 2021)*
- **A number of working conditions occur in a combined fashion**
 - No job strain or ERI: 62%
 - Either job strain or ERI: 28% (22% ERI, 6% Job Strain)
 - Both job strain or ERI: 10% *(Dragano et al. 2017)*

Background

- **Psychosocial working conditions not being job strain or ERI:**
 - High emotional demands
 - High role conflicts
 - Low control over working time
 - Low quality of leadership
 - Low trust
 - Low justice
 - Etc., etc.

Background

- **Unknown: Total fraction of depressive symptoms attributable to psychosocial working conditions**

- **To do that, one need two things**
 - Go beyond job strain and ERI
 - Consider a range of psychosocial factors concurrently (like in COPSOQ)

Method, population

- **Study on Mental Health at Work; S-MGA; N=1949**
- **A five-year cohort study (2012-2017)**
- **Random sample of persons in employments subject to payment of social contributions aged 31–60 years from the IEB register at the IAB Nuremberg**
- **Participation 20%, some bias regarding age (young lower) and occupational level (low lower)**

Method, variables

– **A demand index based on**

- organisational layoffs¹
- organisational restructuring¹
- work pace²
- amount of work²
- Divided into quartiles, then dichotomized: Lowest versus low to highest

1 BiBB/BAuA (Bundesinstitut für Berufsbildung & Bundesanstalt für Arbeitsschutz und Arbeitsmedizin 2011/12)

2 COPSQ I (Nübling et al. 2006)

– **A resources index based on**

- influence at work²
- possibilities for development²
- control over working time²
- role clarity²
- Divided into quartiles: Highest versus high to lowest

Method , variables

– Depressive symptoms

(Löwe et al. 2004)

- Patient Health Questionnaire-9 (PHQ-9)
- Dichotomized by 'No' (0-9) and 'Medium to high' (10+)

– Confounders

- Gender (men/women)
- Age (continuous and squared)
- Socio-economic position (SEP)

(International Labor Office Staff 2012)

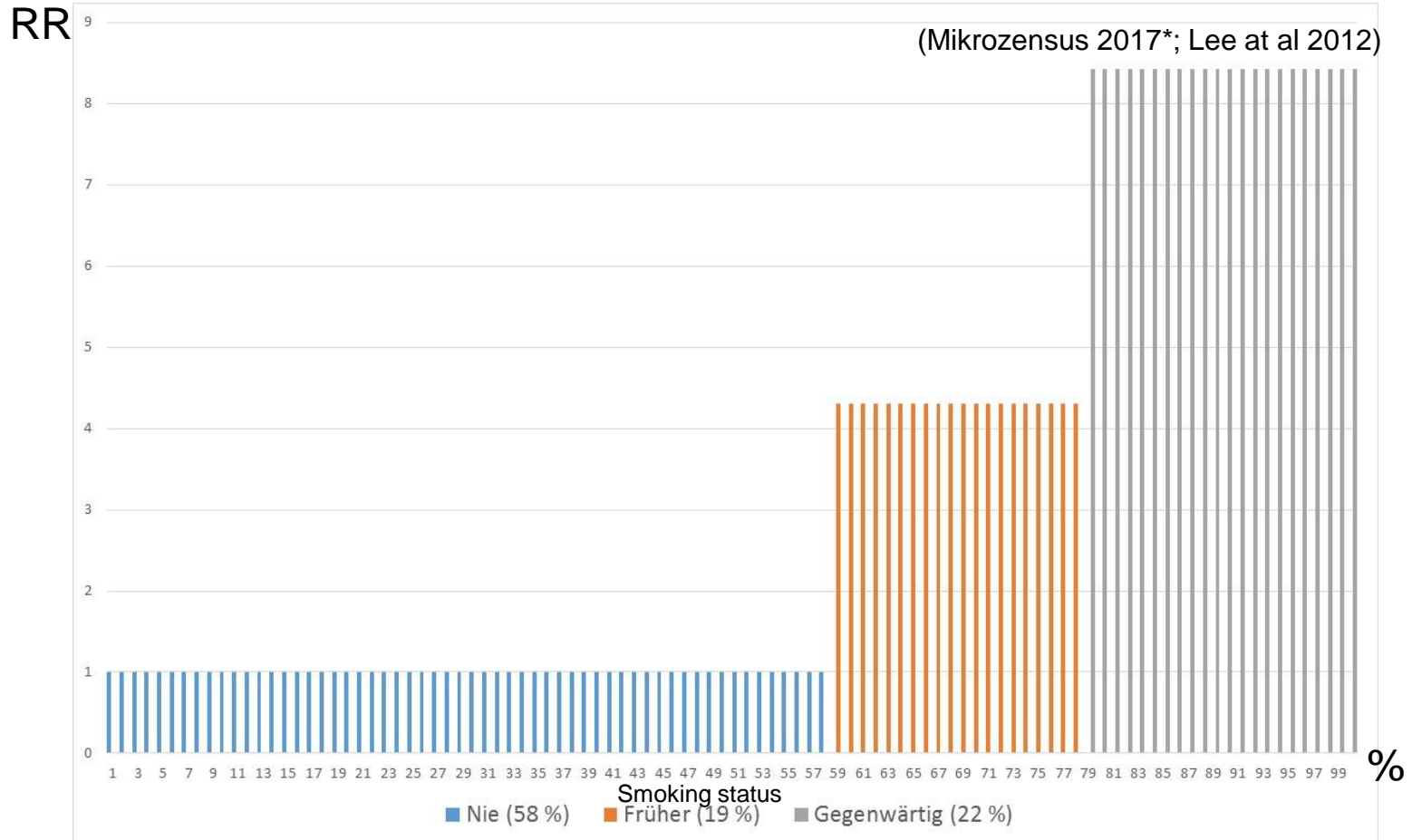
Method, analyses

- **Using results from logistic regressions in Conway et al 2023 with**
 - Depressive symptoms as dependent variable
 - Demands and Resources Indexes as independent variables
 - Adjusted for gender, age (linear and squared) and SEP

Method, analyses

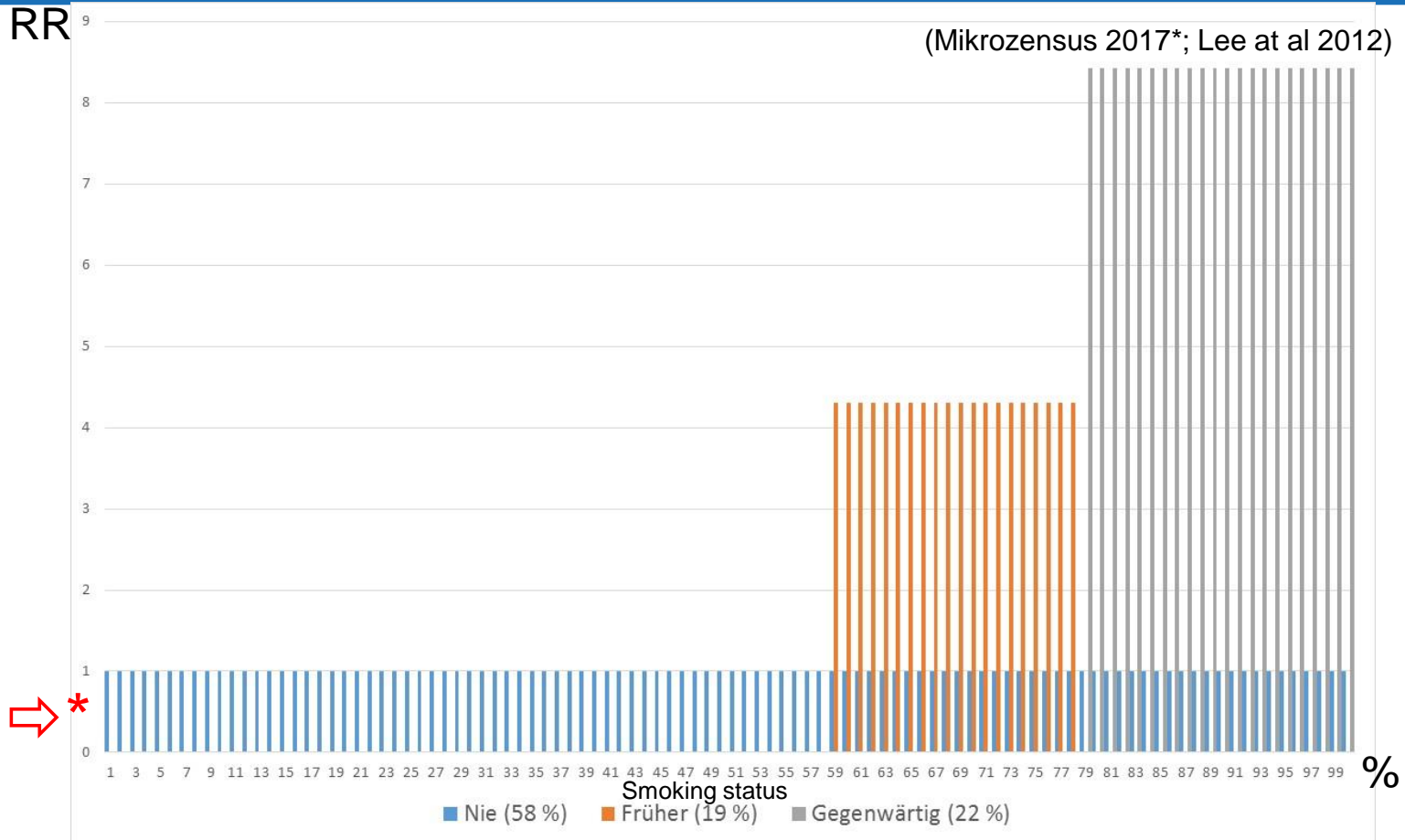
- **Calculation of attributable fractions using:**
 - Number of observations – and Odds Ratios (OR) for depressive symptoms in
 - Non-exposed group
 - Exposed group
 - To calculate **total number of cases** and **fraction of cases above OR=1**
- **Calculations presuppose that associations are causal!!!**

Digression: Calculation of an etiological fraction - example smoking and lung cancer. Graphic representation



Estimated incidence of lung cancer by smoking status among adults (17 years and older) in Germany

Digression: Calculation of an etiological fraction - example smoking and lung cancer. Graphic representation



Estimated incidence of lung cancer by smoking status among adults (17 years and older) in Germany

*Background incidence

Attributable fraction: 70%

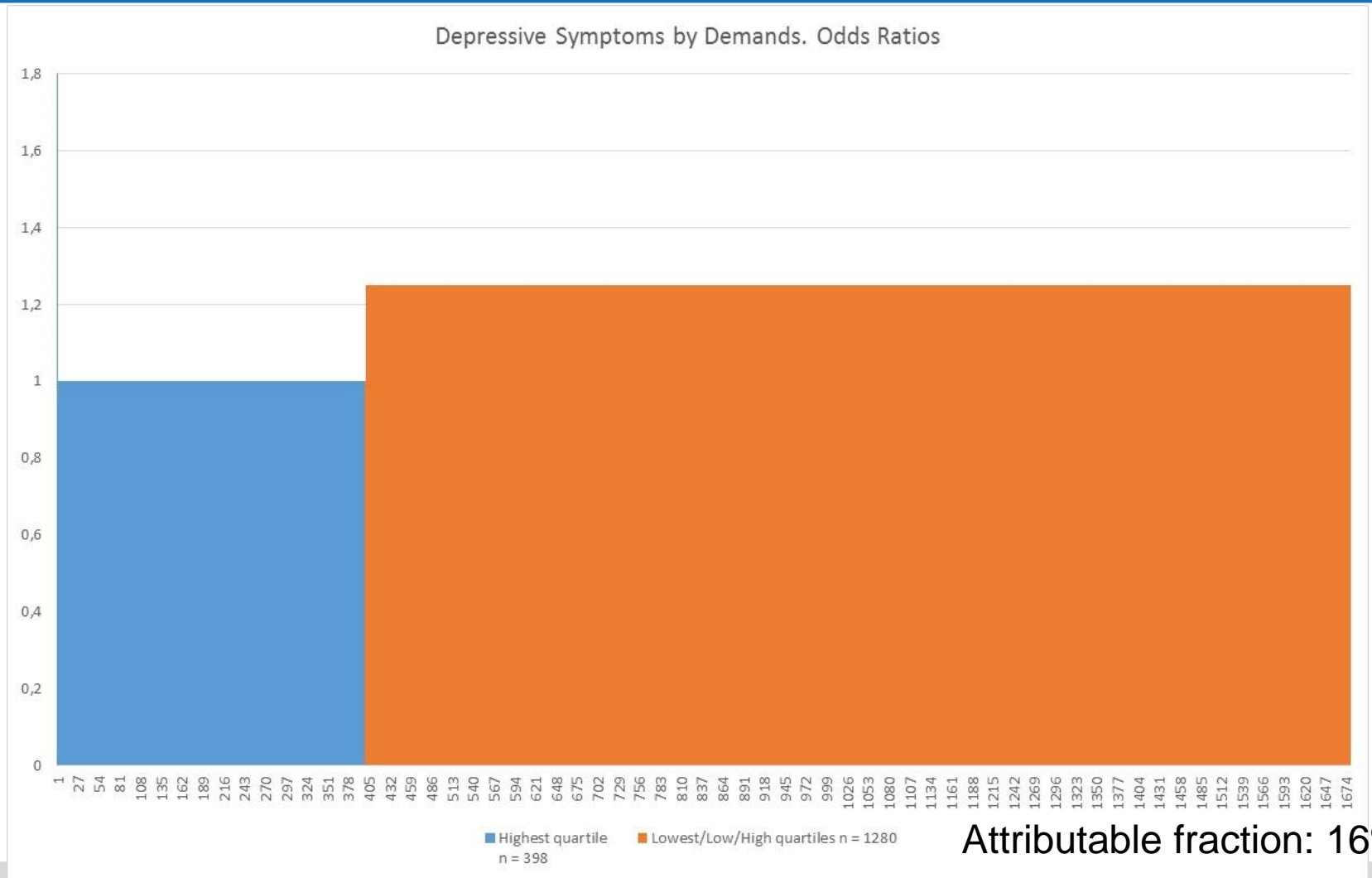
Results, Logistic regression

Index	N	OR	95% CI
DEMANDS			
Lowest/Low/High quartiles	398	1	
Highest quartile	1280	1.25	0.74;2.11
RESOURCES			
Lowest quartile/Low/High	1188	1.65	0.95;2.87
Highest quartiles	490	1	
Total	1678		

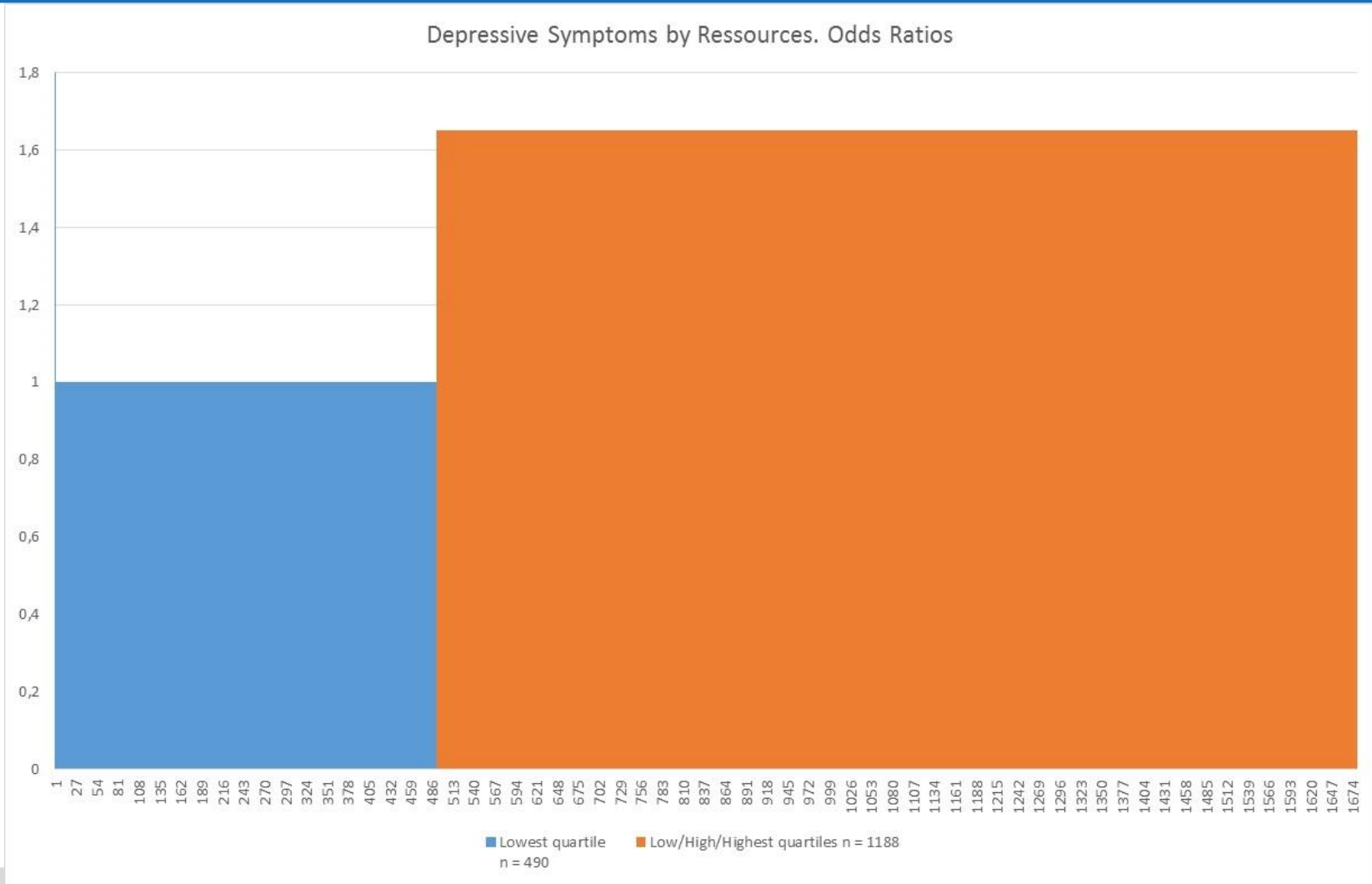
Multiple logistic regressions examining the associations of the Demands and Resources Indexes at baseline with depressive symptoms at follow-up. Workers without emotional exhaustion and depressive symptoms at baseline (n=1678). Odds Ratios

(Conway et al 2023)

Results, fraction of depressive Symptoms attributable to *demands*



Results, fraction of depressive Symptoms attributable to *ressources*



Discussion

- **Considerable attributable fractions, demands 16% and resources 32%**
- **To be considered**
 - What would a combined demand-resource index explain?
 - Further control for depressive symptoms (as continuous measure) at baseline
 - Quality of leadership to be included as resource
 - What about job insecurity and work family conflict?

Thank you for listening 😊

Hermann Burr

burr.hermann@baua.bund.de

Paul Maurice Conway

paul.conway@psy.ku.dk

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