lidA leben in der Arbeit

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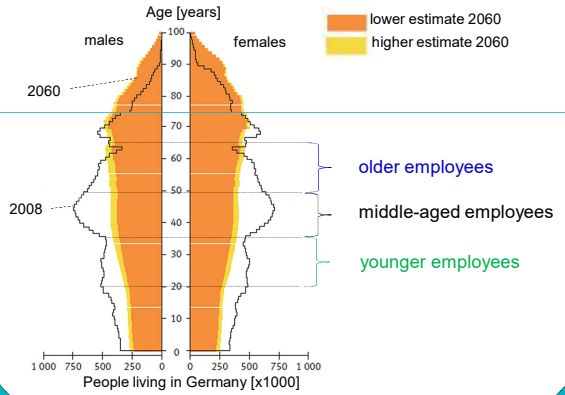
# How to prevent loss of manpower due to work stress in a shrinking and aging workforce

*Jean-Baptist du Prel,[1,2] Stefanie March,[3] Helmut Schroeder,[4] Richard Peter [2]*

1 Institute for Safety Engineering, University of Wuppertal, Wuppertal, Germany, duprel@uni-wuppertal.de 2 Institute of the History, Philosophy and Ethics of Medicine, Ulm University, Germany
3 Institute of Social Medicine and Health Economics, Otto-von-Guericke-University of Magdeburg, Magdeburg, Germany 4 Institute for Applied Social Sciences, infas, Bonn, Germany

**Introduction:** In times of aging and shrinking working populations due to demographic change (Fig. 1) loss of work force by sickness absence can become a relevant problem in Germany like in many other industrial nations. While the associations between work-related stress and mental disorders on the one hand and mental disorders and absenteeism on the other are well known, studies investigating the direct association between work-related stress and absenteeism or long-time absenteeism are rare. We investigated this research question and discuss preventive implications of our findings.

## Fig. 1 Demographical aging workforce

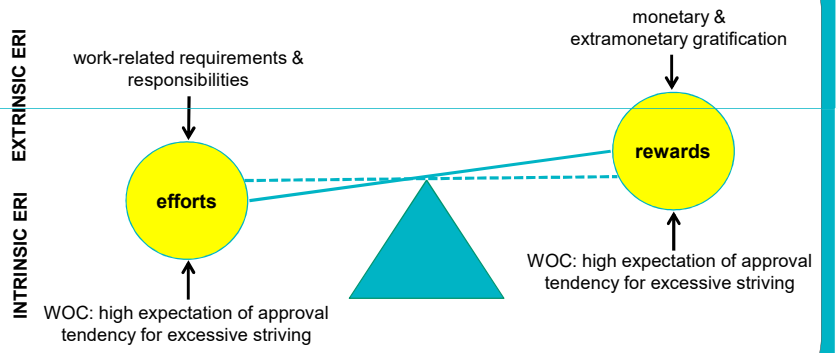



*Source: Federal Statistical Office of Germany, 2009*

## Methods:

- Nationwide representative sample of 6339 employees born in 1959 and 1965 and subject to social insurance. Interviews were performed in the the first wave of the German lidA (engl. 'living at work') cohort study. While response rate was relatively low (27.3%) the sample was highly representative for all employees subject to social insurance, yet.
- Sickness absence was defined as at least one, long-time sickness absence as at least 43 days absent from work following the definition in Germany. Work stress was parametrized with ERI-tertiles (Fig. 2).
- Stepwise multiple logistic regressions adjusted for birth year, sex, work overcommitment (WOC), occupational status, education, income, working time and mental disorders (Tab. 2). Missing values were imputed by the fully conditional specification method.

## Fig. 2 Effort Reward Imbalance-model to measure work stress




Abr.: ERI = effort-reward imbalance, WOC = work overcommitment

*modified according to Siegrist 1996. J Occup Health Psychol 1:27–41*

## Tab. 1 Description of respondents characteristics

| | No absenteeism | < 43 days absent/year | ≥ 43 days absent/year | Cramer's-V |
|---|---|---|---|---|
| **ERI:** low tertile (%) | 45.9 | 50.8 | 3.4 | 0.095*** |
| middle tertile (%) | 39.5 | 55.9 | 4.6 | |
| high tertile (%) | 31.5 | 61.0 | 7.7 | |
| **Birth year:** 1959 (%) | 39.5 | 54.5 | 6.0 | 0.037* |
| 1965 (%) | 38.5 | 57.0 | 4.5 | |
| **Sex:** male (%) | 40.2 | 54.7 | 5.2 | 0.025 |
| female (%) | 37.8 | 57.0 | 5.2 | |
| **WOC:** low (%) | 40.5 | 55.0 | 4.4 | 0.067*** |
| high (%) | 35.2 | 57.8 | 6.9 | |
| **Level of education:** high (%) | 35.6 | 61.0 | 3.4 | 0.07*** |
| middle (%) | 40.2 | 54.7 | 5.1 | |
| low (%) | 41.4 | 51.0 | 7.6 | |
| no graduation (%) | 28.2 | 67.9 | 3.8 | |
| **Occupational position:** leading (%) | 49.5 | 48.1 | 2.4 | 0.08*** |
| middle management (%) | 37.0 | 59.3 | 3.7 | |
| qualified (%) | 36.4 | 57.9 | 5.7 | |
| unqualified/semiskilled (%) | 44.9 | 47.6 | 7.5 | |
| **Income:** ≥ 3000 € (%) | 38.9 | 59.9 | 1.3 | 0.093*** |
| 2000 - < 3000 € (%) | 37.1 | 59.0 | 3.8 | |
| 1000 - < 2000 € (%) | 35.5 | 57.0 | 7.5 | |
| < 1000 € (%) | 47.0 | 48.9 | 4.1 | |
| **Working time:** full-time (%) | 37.7 | 56.9 | 5.3 | 0.058*** |
| part-time (%) | 38.2 | 56.8 | 4.9 | |
| Other (%) | 54.3 | 41.1 | 4.6 | |
| **Mental disorder:** no (%) | 40.4 | 55.7 | 3.9 | 0.203*** |
| yes (%) | 21.8 | 58.7 | 19.6 | |

## Results:

- High work-related stress was significantly associated with overall (OR: 1.64; 95%-CI:1.42-1.90) and long-term sickness absence (OR: 1.66; 95%-CI: 1.19-2.31) among older employees in the stepwise multiple logistic regression analysis after adjustment for mental disorders and other covariates (Tab. 2).
- Significant associations of socio-demographic covariates (certain levels of education and income) as well as of mental disorders with both outcomes were also observed.

## Tab. 2 Work stress and long-term absenteeism

| | Model 1 [OR (95%-CI)] | Model 2 [OR (95%-CI)] | Model 3 [OR (95%-CI)] |
|---|---|---|---|
| **ERI** (low tertile) | (ref.) | (ref.) | (ref.) |
| middle tertile | 1.25 (0.90-1.73) | 1.33 (0.96-1.85) | 1.33 (0.95-1.85) |
| high tertile | **1.97 (1.43-2.71)** | **1.91 (1.38-2.64)** | **1.66 (1.19-2.31)** |
| **Birth year** (1959) | (ref.) | (ref.) | (ref.) |
| 1965 | **0.77 (0.61-0.96)** | **0.79 (0.63-1.00)** | 0.79 (0.63-1.01) |
| **Sex** (male) | (ref.) | (ref.) | (ref.) |
| female | 1.05 (0.83-1.32) | 0.99 (0.74-1.32) | 0.86 (0.64-1.16) |
| **WOC**(low) | (ref.) | (ref.) | (ref.) |
| high | 1.21 (0.94-1.57) | **1.33 (1.02-1.73)** | 1.13 (0.86-1.49) |
| **Level of education** (high) | | (ref.) | (ref.) |
| middle | | 1.17 (0.84-1.63) | 1.19 (0.85-1.67) |
| low | | **1.63 (1.14-2.32)** | **1.68 (1.17-2.41)** |
| no graduation | | 1.21 (0.43-3.36) | 1.29 (0.46-3.62) |
| **Occupational position** (leading) | | (ref.) | (ref.) |
| middle management | | 1.48 (0.59-3.72) | 1.37 (0.54-3.48) |
| qualified | | 1.98 (0.78-4.99) | 1.80 (0.71-4.58) |
| unqualified/semiskilled | | **2.79** (1.09-7.18) | 2.52 (0.97-6.53) |
| **Income** (≥ 3000 €) | | (ref.) | (ref.) |
| 2000 - < 3000 € | | 1.84 (0.81-4.18) | 1.81 (0.79-4.12) |
| 1000 - < 2000 € | | **3.12 (1.37-7.10)** | **2.98 (1.30-6.80)** |
| < 1000 € | | 1.76 (0.68-4.54) | 1.71 (0.66-4.47) |
| **Working time** (full-time) | | (ref.) | (ref.) |
| part-time | | 0.97 (0.68-1.37) | 0.97 (0.68-1.38) |
| other | | 1.13 (0.63-2.04) | 1.00 (0.55-1.83) |
| **Mental disorder** (no) | | | (ref.) |
| yes | | | **5.10 (3.86-6.76)** |

**Conclusions:** We found for the first time in Germany an association of work stress and long-term absenteeism in agreement with the majority of existing prospective studies. It was mainly independent of mental disorders. Cross-sectional design limits interpretation. Preventive measures to reduce work stress (e.g., work place health promotion) may help preserve manpower in aging and shrinking workforces.