

Effects of extended working hours on health and well-being - results from a secondary analysis of a European survey

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Why do we have to bother with this question?

- There is an increasing request for extending working hours (mostly for economic reasons)
- The literature on extended working hours indicates some negative effects related to the number of hours worked per week (e.g. Spurgeon, 1997; Beermann, 2004)
- Shift work and flexible working hours may both include long working hours, so there might be some combined effects as well

Background (1)

- The European Directive on working time restricts working time to a maximum of 48 hours/week at 6 work days (on average), with an absolute maximum of 60 h/week
 - the draft for a revision of the Directive provides for a maximal working time of up to 65 h/week
 - with a provision to opt out of this limits

Background (2)

A request for extending working time can be observed in many countries, with regard to different reference periods:

- daily,
- weekly,
- monthly,
- yearly and
- life time working hours.

Can such extensions of working time be recommended?

especially from an ergonomics point of view?

with regard to

- Health and well-being,
- safety and
- performance.

Health and safety problems associated with long working hours

- Clear effects of extended working hours on safety (e.g. Nachreiner, 2002; Folkard & Lombardi, 2004)
- Relatively little is known about the effects of extended working hours on health and well-being
- Some theoretical and empirical analyses show serious gaps in literature
 - inconsistencies of research results (e.g. Spurgeon, 1997)
 - methodological pitfalls (Folkard & Lombardi, 2004)
- The bulk of research data is limited to a number of effects
 - mental health
 - cardiovascular diseases

Research question

Are there any effects on health and well-being due to extended working hours?

Methods (1)

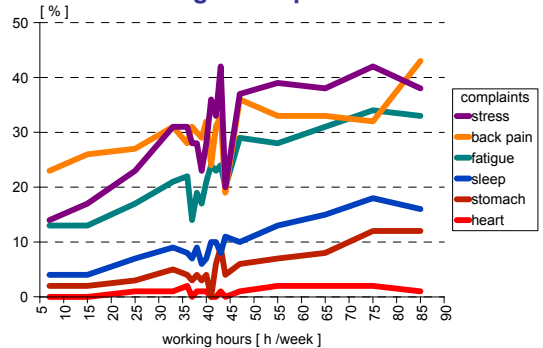
- **Secondary analysis**
- Data from the **3rd European Survey on working conditions***, 2000
 - n= 21.703
- employed workers
 - n= 17.821
- from 15 member states of the EU

*we acknowledge the support of the European Foundation in providing the data for these analyses

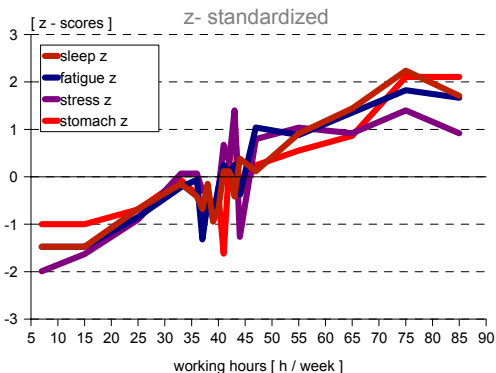
Methods (2)

- statistical analyses
 - descriptive analyses
 - factor analyses for reduction of variables
- ANOVAs
- regression analyses
- canonical correlations
- with the number of hours/week as the *central independent variable*
- and various health and psychosocial complaints as *dependent variables*
- cross validation on selected subsets of data from the survey in the ACs and CCs, 2001

Frequencies of health complaints as a function of working hours per week



Frequencies of health complaints as a function of working hours per week



Methods (3)

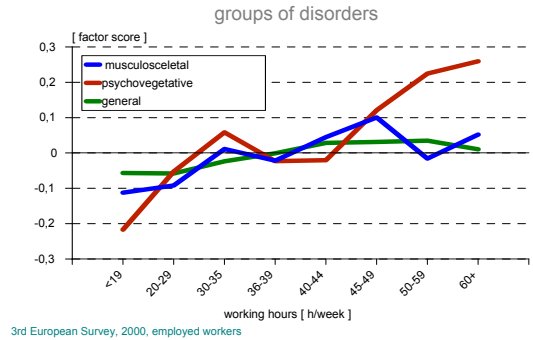
- reduction of the number of health symptom variables to three resp. two work related factors (by factor analysis) and using factor scores for the subsequent analyses
- the same was done for family and social life variables
- restricting the analyses to employed workers (affected by the directive)

Selected topics for this presentation

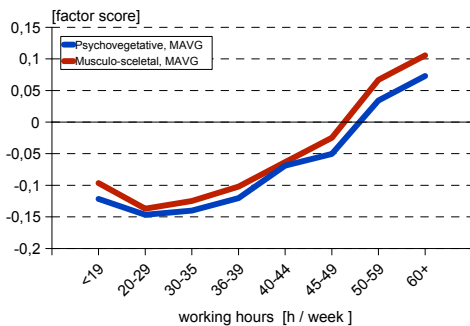
Effects on health:

- musculoskeletal & psychovegetative effects
- Effects on psychosocial well-being: impairments in family life, leisure and social activities
- Effects of extended working hours in combination with other stressors

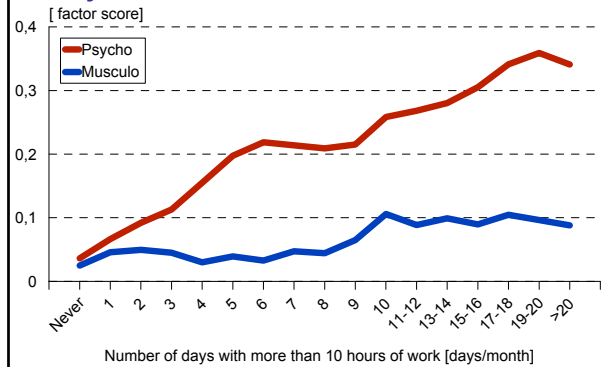
Health complaints as a function of working hours



Complaints as a function of working hours - Germany



Health complaints as a function of days with >10 h of work

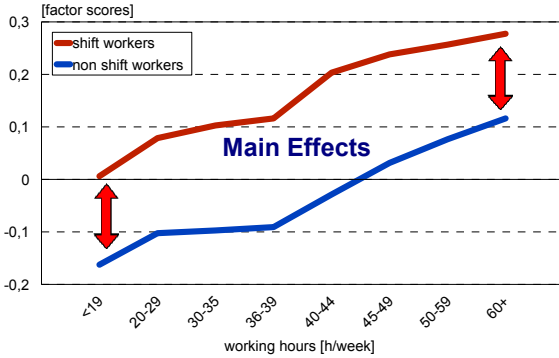


Weekly working time and working conditions: What are the effects of a combination of different stressors?

Main Effect for psychovegetative symptoms and shift work



Main Effect for psychovegetative symptoms and shift work



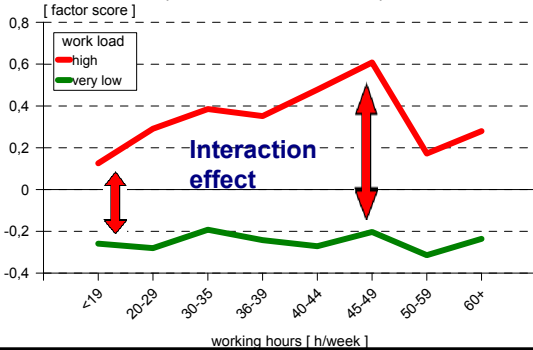
Main effects

such main effects can be found for several other stressors, e.g.

- monotonous tasks
- control over speed of work
- muscular workload

Musculoskeletal disorders as a function of working hours and environmental work load

(noise, vibrations, etc)

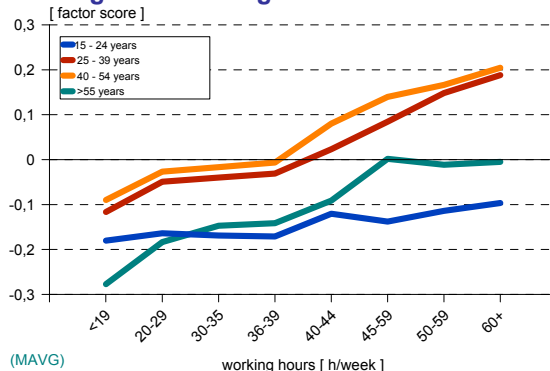


Interaction effects

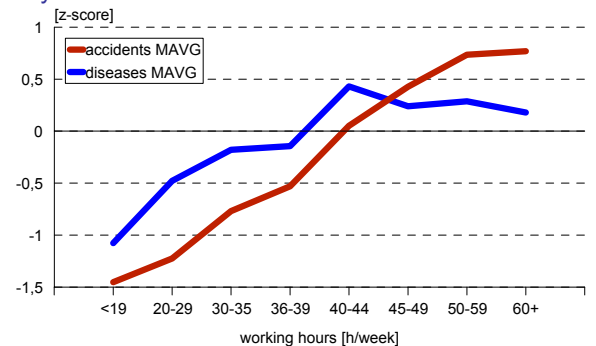
similar interaction effects have been found for several other stressors, e.g.

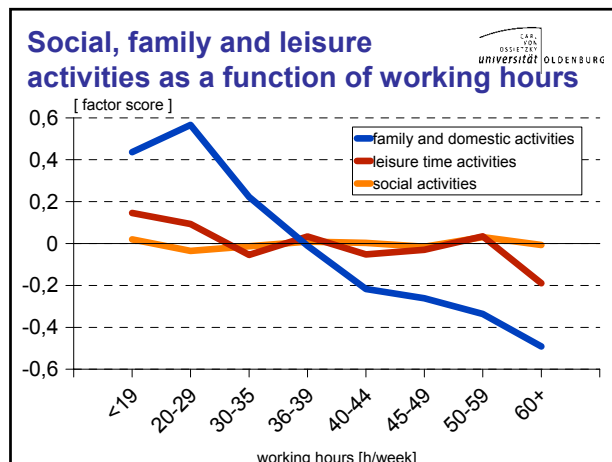
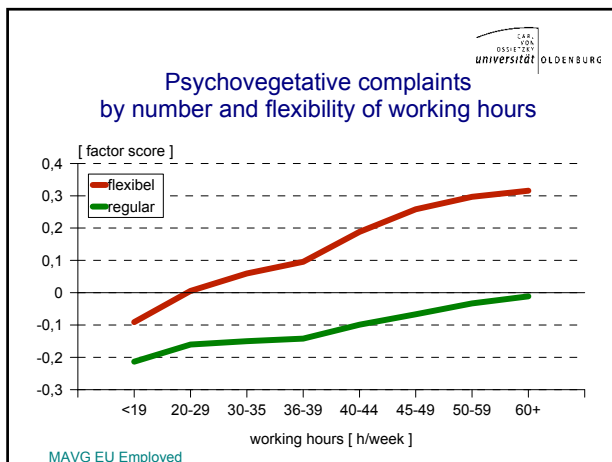
- short cycled work tasks
- muscular work load
- environmental work load
- and a very interesting one for

Psychovegetative complaints by working hours and age



Extended work hours and reported days lost due to work related accidents or diseases





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Conclusions (1)

- besides the well known risk to safety, extended working hours also seem to increase the risk to health and well-being
- the results are in agreement with common hypotheses on the effects of intensity and duration of workload
- requests for extending working hours are thus to be dealt with care
- there seems to be a tear and wear effect with age, resulting in increasing effects of extended working hours with increasing lifetime exposure

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Conclusion (2)

- Besides applying the available evidence
 - in legal and agreed regulations
 - as well as in the design of socially acceptable working hours at the shop floor
- more specific research is needed on the theoretical background of these impairments
- more research is needed on effective intervention strategies, based on empirical evidence on the mechanism of the effects of working time on human well-being and economic efficiency

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Thank you for your attention!

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