The effects of extended working hours on health and social well-being

– a comparative analysis of four independent samples

Anna Wirtz
Friedhelm Nachreiner

GAWO Gesellschaft für Arbeits-, Wirtschafts- und Organisationspsychologische Forschung e.V.

19th International Symposium on Shiftwork and Working Time
Venice, 2009-08-02 to 06
long working hours have been shown to lead to impairments of employees’ health and social well-being

moderating effects of work load, working conditions, individual characteristics, other characteristics of the work schedule

Are such results valid, reliable, and can they be generalized?
Cross-validation: Can similar effects of long working hours on health and wellbeing be found in different data sets?

<table>
<thead>
<tr>
<th>Survey</th>
<th>Origin</th>
<th>Size</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>German survey on the quality of work („Was ist Gute Arbeit?“)</td>
<td>DE 2004</td>
<td>n = 3,455</td>
<td>GA 2004</td>
</tr>
<tr>
<td>German survey on working conditions („BIBB/BAuA Erwerbstätigenbefragung“)</td>
<td>DE 2006</td>
<td>n = 16,005</td>
<td>BB 2006</td>
</tr>
<tr>
<td>3rd European Working Conditions Survey</td>
<td>EU 15 2000</td>
<td>n = 16,793</td>
<td>EU 2000 (EU 15)</td>
</tr>
<tr>
<td>4th European Working Conditions Survey</td>
<td>EU 15 2005</td>
<td>n = 11,041</td>
<td>EU 2005 (EU 15)</td>
</tr>
</tbody>
</table>
Method

➢ independent variables
  – usual number of weekly working hours
  – chronology of working hours
    • working in shifts,
    • working on saturdays, sundays, evenings, nights

➢ dependent variables
  – list of different health complaints

➢ moderating variable
  – subjective work-life balance
Method

Problems:
- different operationalisations
- different variables
- different facets

of the underlying constructs of working time and health

Structural Equation Modelling (SEM)
- analysis of structural relations between latent constructs

- cross-validation of the same model over 4 samples
  - Does the model hold in each sample?
  - Goodness of fit?
  - Similar path coefficients?
Theoretical structural model

chronology of WT

saturdays
sundays
shiftwork
nights

weekly working hours

balance WT / free time

PVI

overall fatigue
stomach ache
headache
sleep probl.
irritability
anxiety
stress

*(covariance of errors)
SEM EU 2005 (EU 15)

Model Fit:
- CFI = .964
- NFI = .962
- RMSEA = .048

(saturdays) ➔ chronology of WT ➔ balance WT / free time ➔ weekly working hours

(sundays) ➔ chronology of WT ➔ balance WT / free time ➔ weekly working hours

(shiftwork) ➔ chronology of WT ➔ balance WT / free time ➔ weekly working hours

(nights) ➔ chronology of WT ➔ balance WT / free time ➔ weekly working hours

(balance WT / free time) ➔ PVI ➔ overall fatigue ➔ stomach ache ➔ headache ➔ sleep prohl. ➔ irritability ➔ anxiety ➔ stress

*(covariance of errors)
SEM EU 2000 (EU 15)

Model Fit:
CFI = .943
NFI = .941
RMSEA = .043

*(covariance of errors)
Model Fit:
CFI = .949
NFI = .947
RMSEA = .041
*(covariance of errors)
SEM GA 2004 (DE)

Model Fit:
CFI = 0.955
NFI = 0.937
RMSEA = 0.049

chronology of WT

weekly working hours

balance WT / free time

PVI

overall fatigue
stomach ache
headache
sleep probl.
irritability
depressiveness
feeling tense

saturdays
sundays
nights

.34*
-.24
-.13

.01 (n.s.)
-.29
.06

*(covariance of errors)
Conclusions

- The same structural model holds in all samples
  - good / very good model fit
  - almost identical path coefficients

- results are thus independent of
  - sample
  - method of the inquiry
    - including specific observed variables
  - survey period

→ high validity and reliability of the results
Conclusions

- Future analyses should be conducted, differentiating / controlling for
  - individual & work load characteristics
  - job types

- Investigation of reciprocal effects
  (e.g. between work hours and health impairments)

- What about relations between working time and leisure activities?
Thank you for your attention!

Contact information

anna.wirtz@uni-oldenburg.de
nachreiner@gawo-ev.de
www.gawo-ev.de

supported by a grant from Universitätsgesellschaft Oldenburg