

Associations between type of office workspace, work environment factors and physical complaints

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- “Ergotool” Selfscreening
 - online self assessment tool
 - risk analysis for computer workers
 - immediate individual feedback on attitude with regard to computer workstation
- primary aim
 - creating healthy work environment
 - advising on ergonomically workstation setting
 - providing training concerning a correct and comfortable posture at work
- secondary aim
 - use pooled data for scientific research

Aim

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- to explore perceived work environment and physical complaints in different types of office workspaces

Study population

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- cross-sectional study
- data 2017-2018
- Flemish and Walloon employees
- both public and private sector organizations

- n: **4404**
- **Participation rate: < 40%**
- 56.5% women
- mean age: 39.3 yr (16yr – 68yr)

Type of office workspace

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- In which type of office workspace do you work the most?
 - in an open space office (at least five people) without fixed places
 - a fixed place in an open space office (at least five people)
 - a fixed place in an office intended for three to four people
 - a fixed place in an office intended for two people
 - a fixed place in an office intended for one person
 - no fixed place, but in a separate room (not an open space office)
 - usually work at home

- perceived work environment
 - dissatisfaction with ventilation
 - dissatisfaction with artificial lighting
 - dissatisfaction with air quality
 - dissatisfaction with temperature
 - discomfort from disturbing noise
- physical complaints
 - eye complaints
 - recurrent headaches

Considered variables

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- 7 types of office workspaces
- gender
- age group
 - <25 ; 25-29 ; 30-34 ; 35-39 ; 40-44 ; 45-49; 50-54 ; ≥55
- average number of hours computer work per week
 - <10 ; 10-14 ; 15-19 ; 20-24 ; 25-29 ; 30-34 ; 35-39 ; 40-44 ; ≥45

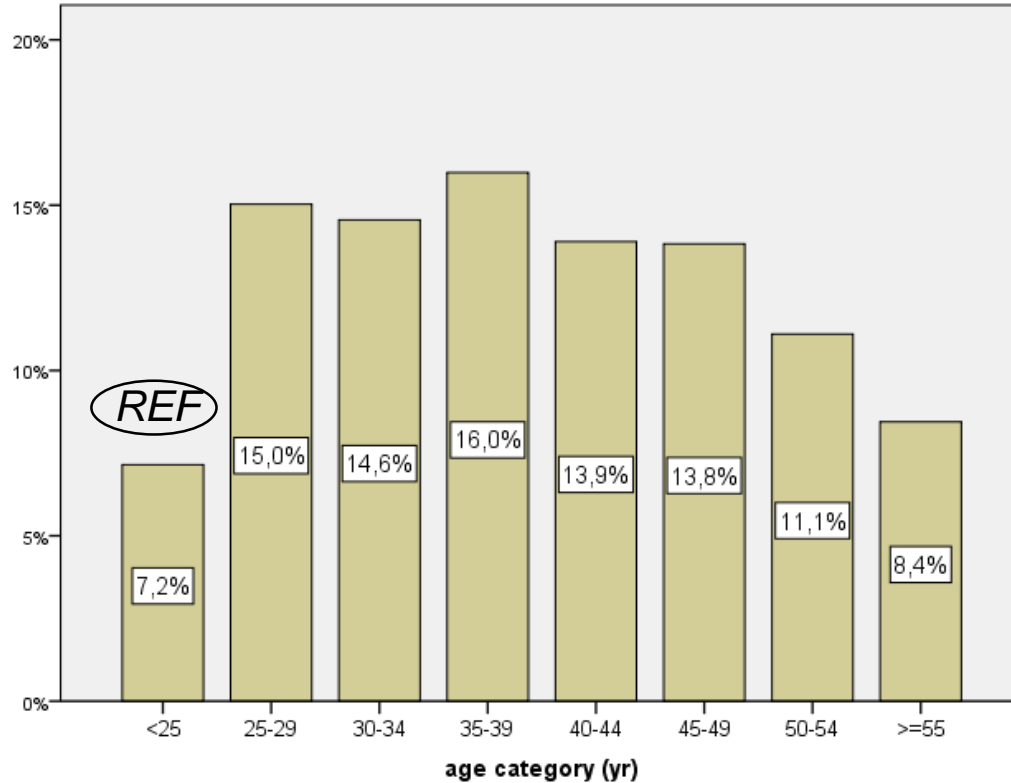
- univariate analyses
 - prevalence by type of office workspace
 - chi-square test
- multivariate analyses
 - logistic regression analysis

Logistic regression analysis

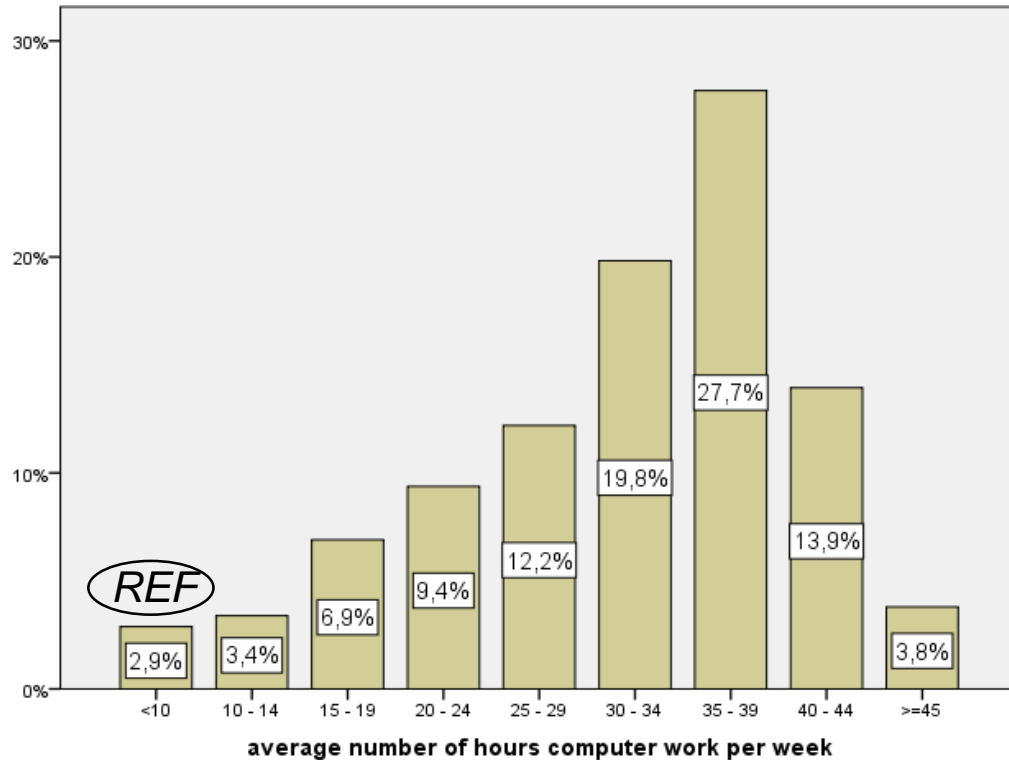
- dependent variable
 - perceived work environment (5)
- independent variables
 - gender: W vs. M
 - age group: youngest age group (<25 yr as reference)
 - average number of hours computer work per week (<10 hr/wk as reference)
 - types of office workspaces (“fixed place in office intended for one person” as reference)

- dependent variable
 - physical complaints (2)
- independent variables
 - gender: W vs. M
 - age group: youngest age group (<25 yr as reference)
 - average number of hours computer work per week (<10 hr/wk as reference)
 - perceived work environment (5)
 - (eye disorders)

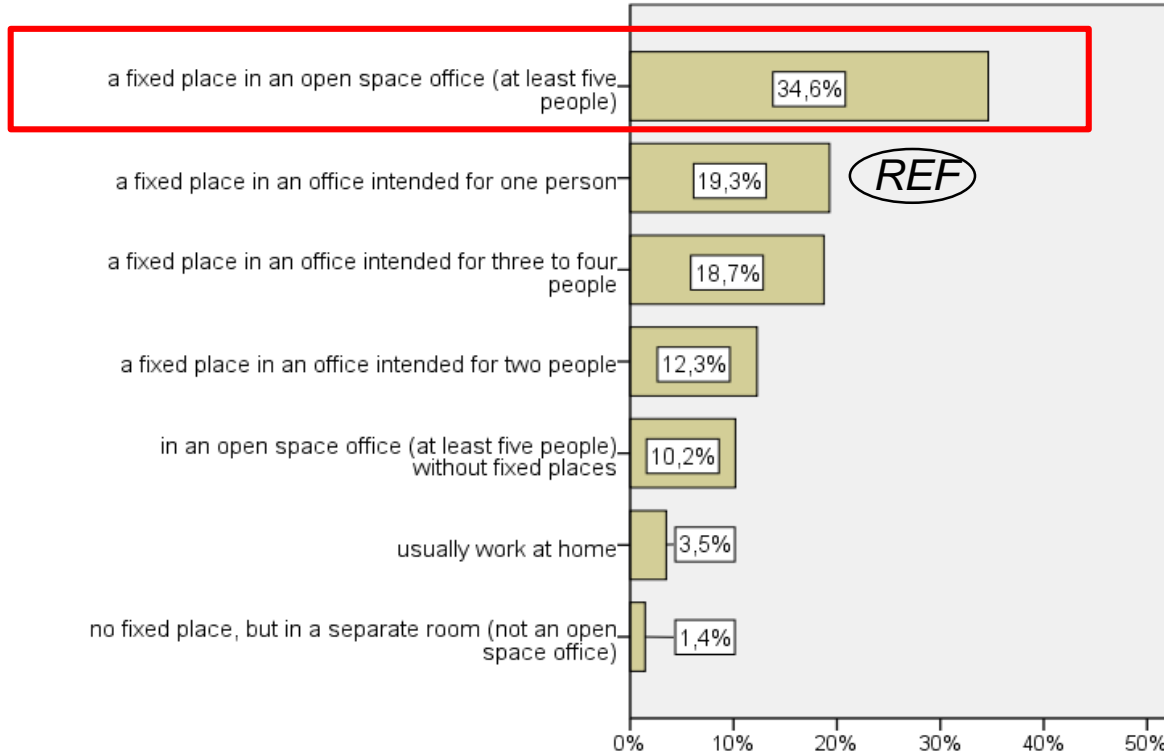
Age distribution



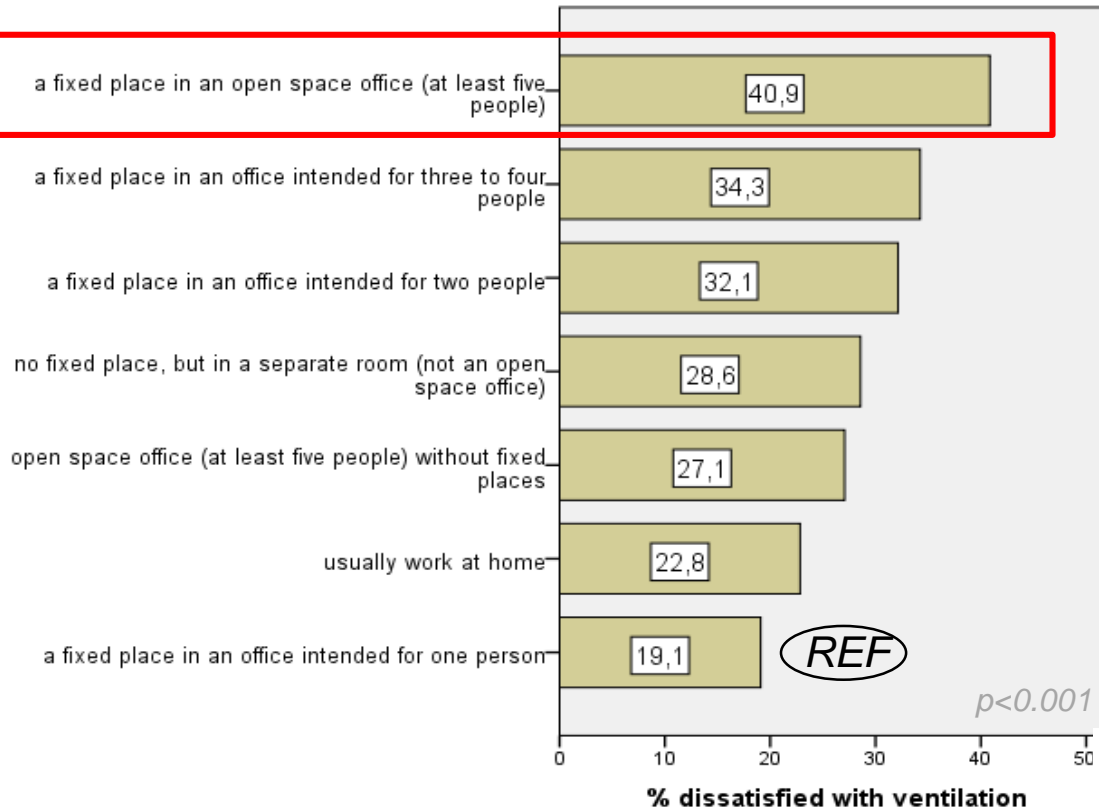
Number of hours computer work per week



Type of office workspace



Dissatisfaction with ventilation



OR (95% CI)
vs. one person office

3.03 (2.44-3.76)***

2.20 (1.73-2.81)***

1.96 (1.49-2.57)***

1.74 (0.91-3.32)

1.69 (1.25-2.28)**

1.27 (0.81-2.00)

1

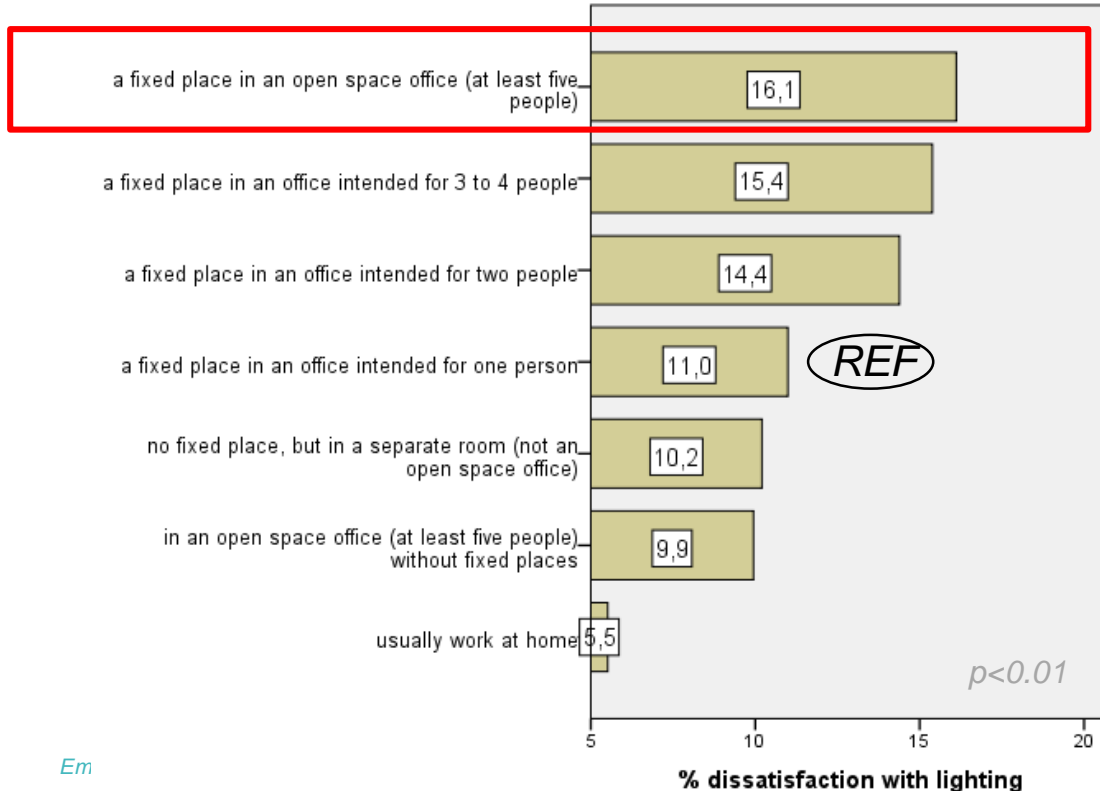
controlled for gender (W vs M)***,
age group and hours of computer
work per week

*** $p < 0.001$

** $p < 0.01$

* $p < 0.05$

Dissatisfaction with artificial lighting



OR (95% CI)
vs. one person office

1.59 (1.20-2.11)**

1.52 (1.11-2.09)**

1.37 (0.96-1.95)

1

0.99 (0.38-2.59)

0.94 (0.61-1.43)

0.65 (0.28-1.47)

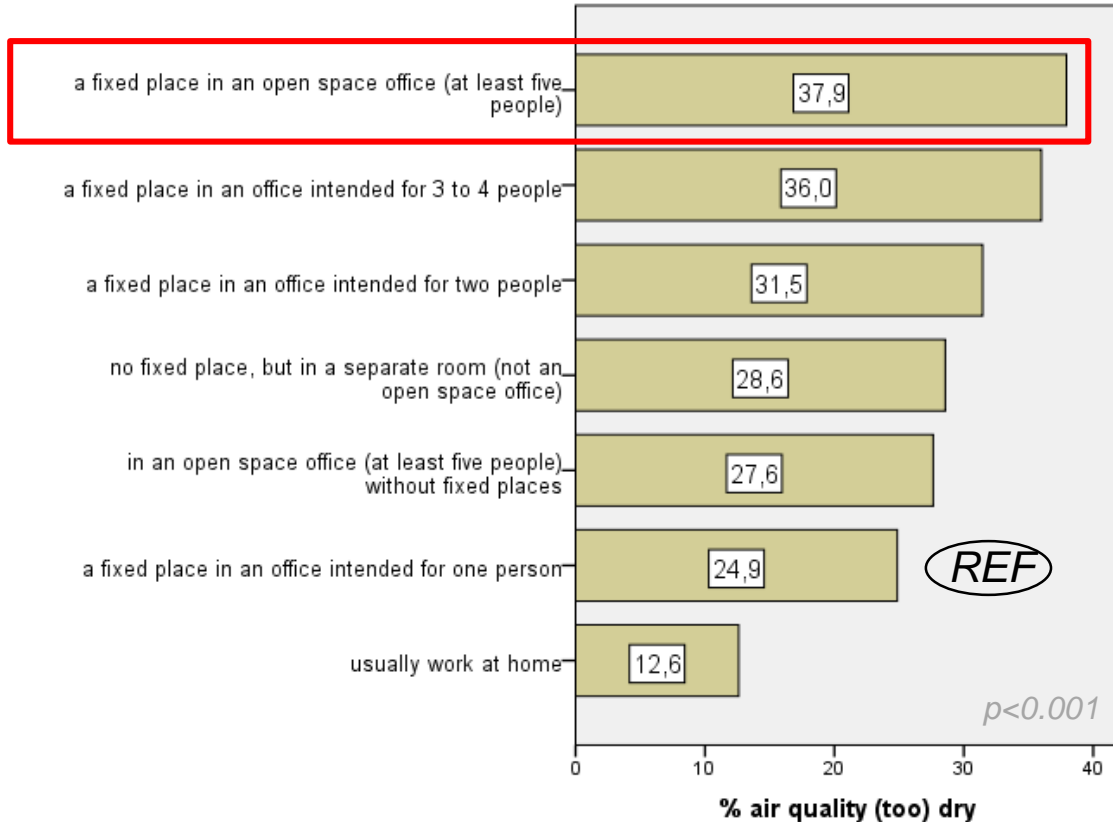
****p* < 0.001

***p* < 0.01

**p* < 0.05

controlled for gender (W vs M)***,
age group and hours of computer
work per week*

Dry air



OR (95% CI)
vs. one person office

2.15 (1.75-2.66)***

1.78 (1.41-2.25)***

1.35 (1.04-1.76)*

1.29 (0.67-2.47)

1.41 (1.05-1.88)*

1

0.45 (0.26-0.79)**

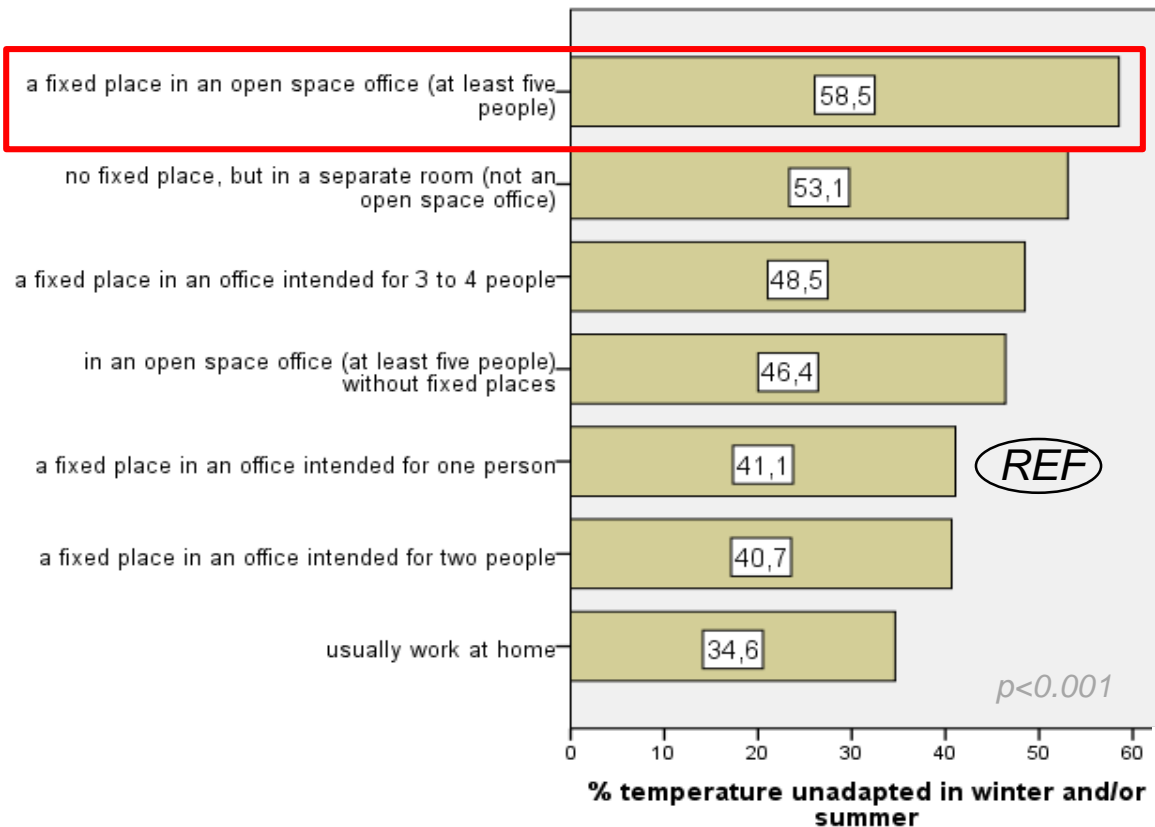
*** $p < 0.001$

** $p < 0.01$

* $p < 0.05$

controlled for gender (W vs M)***,
age group*** and hours of computer
work per week

Unadapted temperature in winter and/or summer



OR (95% CI)
vs. one person office

1.96 (1.61-2.37)***

1.62 (0.90-2.93)

1.30 (1.05-1.61)*

1.28 (0.99-1.66)

1

0.94 (0.74-1.20)

0.80 (0.52-1.22)

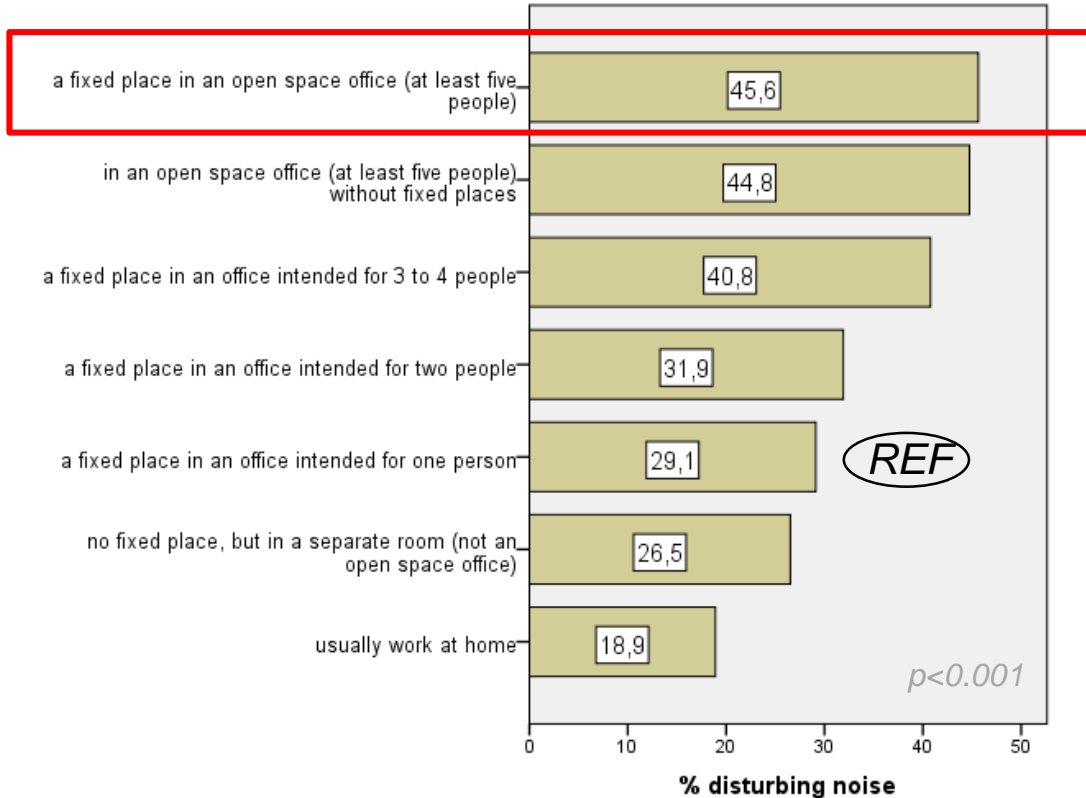
*** $p < 0.001$

** $p < 0.01$

* $p < 0.05$

controlled for gender (W vs M)***,
age group and hours of computer
work per week*

Discomfort from disturbing noise



OR (95% CI) vs. one person office
2.08 (1.72-2.53)***
2.07 (1.59-2.69)***
1.67 (1.34-2.09)***
1.12 (0.87-1.45)
1
0.89 (0.46-1.71)
0.57 (0.36-0.92)*

controlled for gender (W vs M)**,
age group and hours of computer
work per week

*** $p < 0.001$

** $p < 0.01$

* $p < 0.05$

Work environment and complaints

OR (95% CI)
for having eye complaints

OR (95% CI)
for having headache

dissatisfaction with ventilation

1.38 (1.53-1.65)***

1.37 (1.14-1.65)**

dissatisfaction with artificial lighting

2.05 (1.67-2.52)***

1.59 (1.28-1.97)***

dry air

1.64 (1.37-1.95)***

1.56 (1.30-1.88)***

disturbing noise

1.98 (1.69-2.33)***

*controlled for gender (W vs M)***, age group***, hours of computer work per week*** and eye disorder****

*controlled for gender (W vs M)***, age group*** and hours of computer work per week***

Summary

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- the most prevalent type of office workspace: fixed place in an open space office (at least five people) (34.6%)
- increased risk of dissatisfaction with environmental factors were found in workspaces with **fixed places** in an open space office
- home based computer workers are better off
- trend: Increasing risk with increasing number of people in an (open space) office
- employees in office types with unsatisfactory ventilation, artificial lighting and dry air, have the highest risk to develop eye and headache complaints
- shortcoming: no objective environment assessment

Conclusion

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- study confirms earlier findings
- need to take these decisive factors into consideration when designing office workspaces

THANK YOU