



**Finnish Institute of
Occupational Health**

Understanding occupational health intervention studies

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Overview



1. What's so special about OH intervention studies?

- Not much of them
- Hard to find (>>> COSH database)
- Huge variance in methods (randomisation = a swear word)

2. Why do we need to learn more about them?

- Every review starts with a title = what is it about
- Setting the range of interventions = what it can be about
- Basis for inclusion criteria session tomorrow

3. Study designs

4. OH outcomes

- What was intended is not always measured!

5. Exercise: coding abstracts

Why study occupational health interventions?



- Strong knowledge base on occupational exposure
 - has led to legislation for improving working life
 - surveillance of occupational diseases to monitor effectiveness
- Weak knowledge base on OH interventions
 - noise induced hearing loss still prevalent
 - what are most effective interventions to reduce noise exposure not really known
- Synthesis of evaluation studies needed
 - basis for practice guidelines
 - white spots to guide research agenda

Why do we need a separate database for OH intervention studies?



- OH intervention studies are hard to find
 - Occupational health covers a vast range of medical fields
 - No specific indexing like MeSH terms in Medline
- With an OH specialty database it is easier:
 - for researchers to conduct reviews and to find out what has not yet been studied
 - for OH professionals to refer to current best evidence
- Classification helps in finding information:
 - about specific OH problems
 - a lot faster

What is an acceptable occupational health intervention study? PICO(S)



1. Participants: workers or employed patients
2. Intervention: purposely induced change
3. Comparison: e.g. usual care (placebo in drug trials)
4. Occupational health outcome(s)
 - exposure
 - behaviour
 - occupational disease, symptoms or signs
 - work ability, disability, return to work
 - injuries
 - quality of OHS
 - public health in the workplace
5. Study design: preferably RCT to minimize risk of bias

COSH codes for OH intervention studies



Study designs (A1-A4)

- A1 Randomised Controlled Trial (RCT)
- A2 Controlled Clinical Trial (CCT)
- A3 Interrupted Time-Series (ITS)
- A4 Before-After study (B-A)

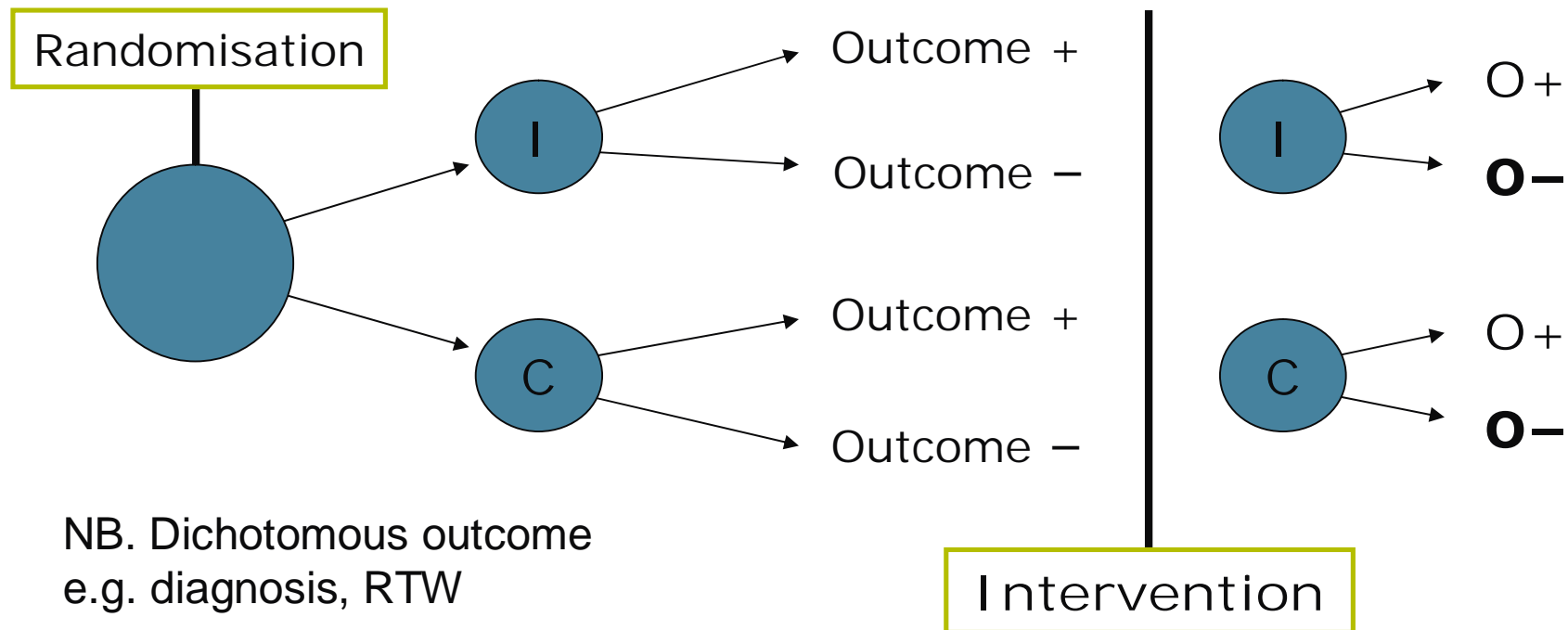
Occupational Health outcomes (B1-B7)

- B1 Exposure ↓ (to e.g. chemicals, noise, stress)
- B2 Behaviour ↑ (e.g. wearing PPE)
- B3 Occ. disease and symptoms ↓ (e.g. eczema, asthma)
- B4 Disability, sickness absence, RTW ↓
- B5 Injuries ↓
- B6 Quality of OH services ↑
- B7 Public health at the workplace ↑

Randomised controlled trials (A1)



Randomisation reduces systematic error or bias

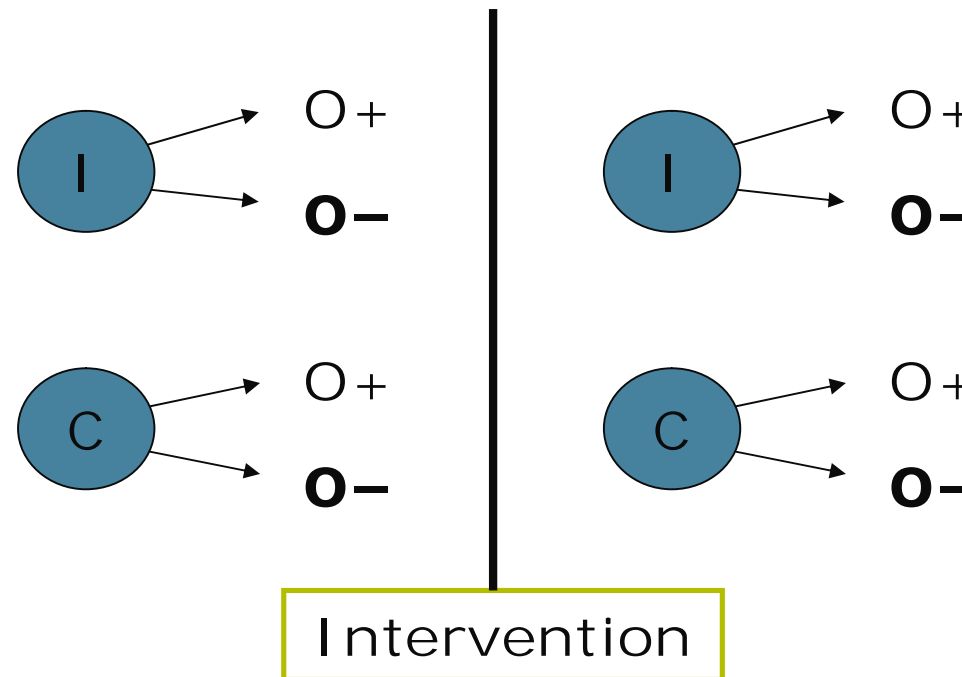


NB. Dichotomous outcome
e.g. diagnosis, RTW

Controlled clinical trials (A2)



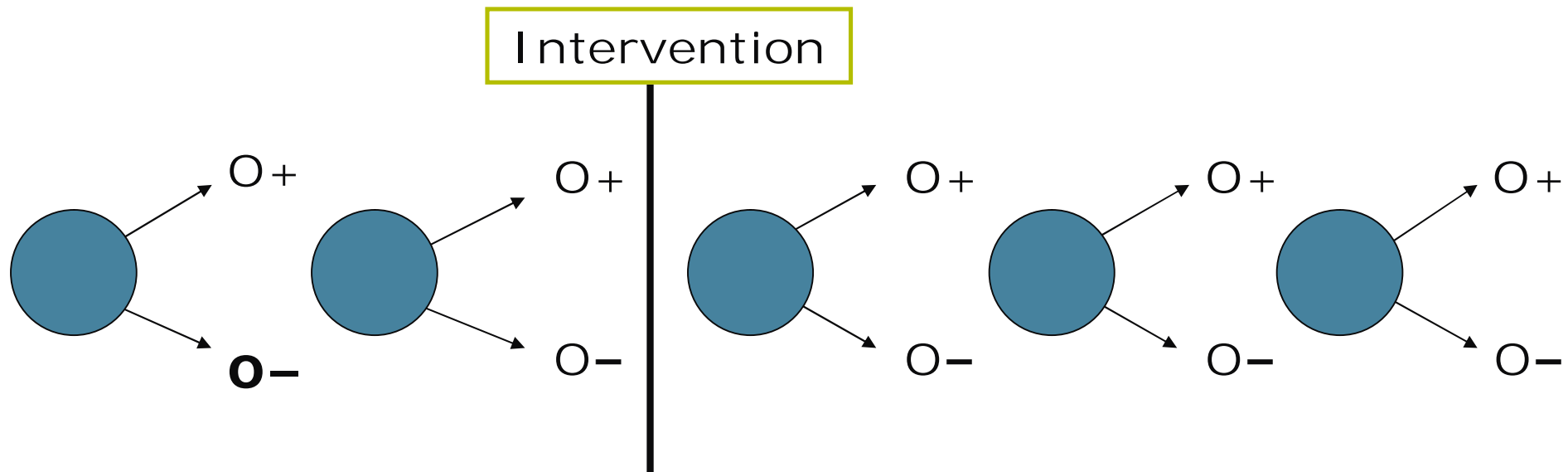
- Prospective, controlled studies, quasi-experimental



Interrupted time-series (A3)



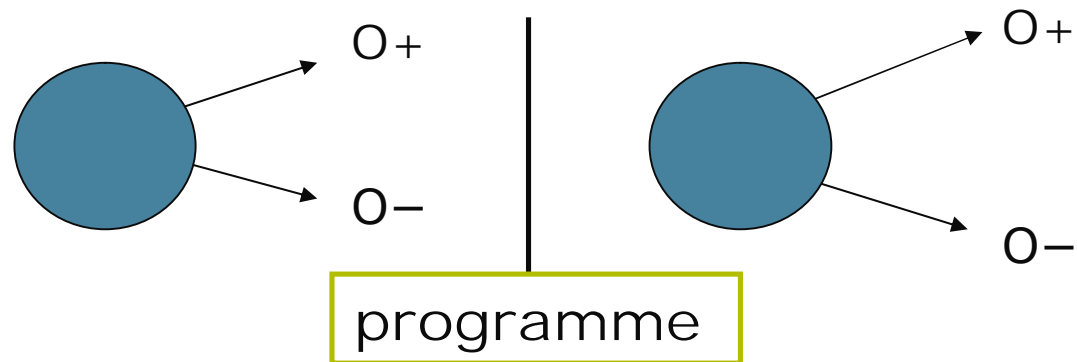
- Three measurements before and after



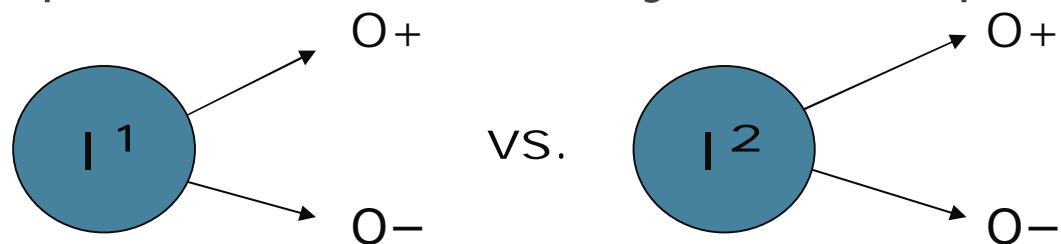
Before-after studies (A4)



- Before-after assessment of programme evaluations or quality of care studies



- Comparison with arbitrary or incomparable controls



Exercise



- Code the abstracts you are given according to:

Study designs

- A1 Randomised Controlled Trial (RCT)
- A2 Controlled Clinical Trial (CCT)
- A3 Interrupted Time-Series (ITS)
- A4 Before-After study (B-A)

One of these

OH outcomes (what was measured?!)

- B1 Exposure ↓ (to e.g. chemicals, noise, stress)
- B2 Behaviour ↑ (e.g. wearing PPE)
- B3 Occ. disease and symptoms ↓ (e.g. eczema, asthma)
- B4 Disability, sickness absence, RTW ↓
- B5 Injuries ↓
- B6 Quality of OH services ↑
- B7 Public health at the workplace ↑

One or more of these

For example



Ketola, R. et al. Effects of ergonomic intervention in work with video display units *SJWEH*, 28[1], 18-24. 2002.

OBJECTIVES: This study evaluated the effect of an intensive ergonomic approach and education on workstation changes and musculoskeletal disorders among workers who used a video display unit (VDU). **METHODS:** A randomized controlled design was used. The subjects (N=124) were allocated into three groups (intensive ergonomics, ergonomic education, reference) using stratified random sampling. The evaluation involved questionnaires, a diary of discomfort, measurements of workload, and an ergonomic rating of the workstations. The assessments were made 2 weeks before the intervention and after 2 and 10 months of follow-up. **RESULTS:** The intensive and training groups showed less musculoskeletal discomfort than the reference group after 2 months of follow-up. Positive effects on discomfort were seen primarily for the shoulder, neck, and upper back areas. No significant differences were found for the strain levels or prevalence of pain. After the intervention the ergonomic level was distinctly higher in the intensive ergonomic group than in the education or reference group. **CONCLUSIONS:** Both the intensive ergonomics approach and education in ergonomics help reduce discomfort in VDU work. In attempts to improve the physical ergonomics of VDU workstations, the best result will be achieved with cooperative planning in which both workers and practitioners are actively involved.

Coding: A1, B1, B3

Small group exercise

- You all have a list of abstracts
- Now, in pairs or in groups of three read through as many as you can and code each one according to the COSH system (I will leave it visible on here)
- After 10 minutes we discuss



Correct answers



Bøggild H, Jeppesen HJ. Intervention in shift scheduling and changes in biomarkers of heart disease in hospital wards. **A2, B1, B3**

Rasmussen K, et al. Prevention of farm injuries in Denmark. **A1, B2, B5**

Smits PB, et al. Problem-based learning versus lecture-based learning in postgraduate medical education. **A1, B6**

Wergeland EL, et al. A shorter workday as a means of reducing the occurrence of musculoskeletal disorders. **A4, B1, B3**

Hanlon P, et al. Health checks and coronary risk: further evidence from a randomised controlled trial. **A1, B7**

Joy GJ, Middendorf PJ. Noise exposure and hearing conservation in U.S. coal mines--a surveillance report. **A3, B1, B2**

Thank you for your attention!

