EXAMPLE OF AN ANALYSIS PLAN

Work-related psychosocial risk factors in relation to the occurrence of neck complaints.

Research question

What is the influence of the following psychosocial factors in the occurrence of neck complaints within 1 year in symptom-free employees?

1. Quantitative job demands

2. Skill discretion

3. Decision authority

4. Supervisor support

5. Co-worker support

Population

All 977 individuals who were symptom-free at baseline measurement and had a full follow-up.

Outcome measure (dependent variable)

Dichotomous variable: Presence (1) or absence (0) of neck complaints

Time variable: Time prior to neck complaint arising (minimum length of time of 1 day) in days

Independent variables

All independent variables and confounders are dimensions of the Job Content Questionnaire (Karasek questionnaire).

1. Quantitative job demands

2. Skill discretion

3. Decision authority

4. Supervisor support

5. Co-worker support

Confounders

1. Qualitative job demands

2. Job security

For each analysis with 1 central psychosocial factor, the other 4 will be analysed as potential confounders.

Other potential confounders

- Age
- Sex
- Coping styles (3 variables): Avoidance behavior, seeking social support, approaching problems actively
- Life events
- Physical factors in leisure time (9 variables): Intensive sport/heavy physical activity during the last 4 months requiring a lot of exertion; Long-term sitting, computer screen work, working with hands above shoulder height, exertion with hands/arms; having to work in the same position for long periods of time, having to make the same hand/arm movements numerous times per minute, driving a vehicle, bending/twisting the upper body numerous times per hour.
- Work-related physical factors (11 variables): Percentage of work time neck flexion >45 degrees; Percentage of work time seated; Percentage of work time neck rotation >45 degrees; Frequency of lifting >25 kg per working day; Percentage of work time making repetitive movements with arms/hands and frequency >4 times per minute; Percentage of work time upper arm elevation >60 degrees; Working with hands above shoulder height, Computer screen work; Working with vibrating or pulsating objects; Driving a vehicle at work; Bending/twisting of the upper body numerous times per hour.

Statistical analysis

One regression model for each psychosocial factor:

- Firstly, univariate Cox regressions; dependent variable neck complaints, independent variable is the central psychosocial factor

Confounding

- Firstly, split up the confounders in two group: demographic factors (age and sex) and psychological and behavioral factors (coping styles, life events, physical factors in leisure time and work-related physical factors)
- Secondly, correct for all potential confounders regarding demographic factors (corrected model 1).

Subsequently, correct for all potential confounders regarding psychological and behavioral factors (corrected model 2)

If the sample size is not big enough relative to the number of potential confounders, than only correct for those confounders really of importance. To select the relevant confounders, a forward selection procedure will be performed. In this case the confounders are added to the model one by one. Subsequently, there will be considered to what extent the effect of the variable of interest is changed. Then first choose the strongest confounder in the model. Subsequently, repeat this procedure till no confounder has a relevant effect (<10% change in regression coefficient).

Effect modification

- Sex: Create a sex* psychosocial factor interaction. Add the interaction to the final model (with confounders). If the interaction is significant, then there is significant effect modification.