

# Musculoskeletal symptoms among office workers - prevalence and predicting factors

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**Background:** The relationship between symptoms in the upper extremities and work at visual display terminals (VDT) is a recurring topic. Reliable data regarding the prevalence of musculoskeletal disorders among German VDT workers are hardly available.

**Aims:** The aim of this study was to determine the prevalence of work-related symptoms of the upper extremities and neck in employees who regularly perform VDT work. The study was carried out in the year 2005 at four sites of a large chemical company with a total of approximately 2,700 employees at that time (Figure 1).

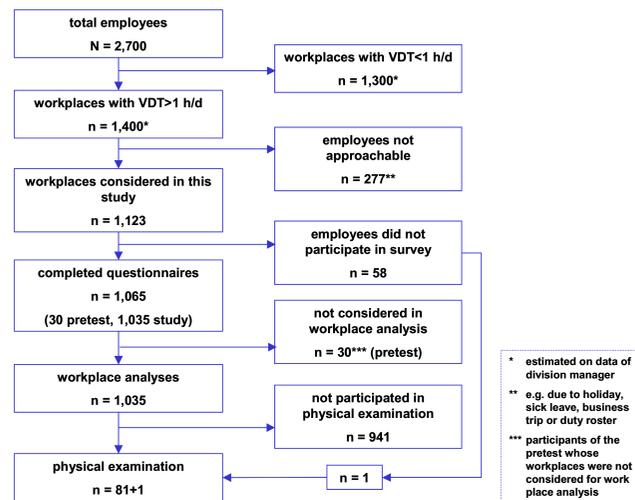


Figure 1: study participants

**Methods:** Employees working more than 1 hour per day at a VDT were asked to answer a standardised questionnaire based on the Nordic Questionnaire [1] and selected items of the COPSOQ [2]. Various types of VDT workplaces (e.g. office, laboratory, production) were considered and included in the study. Workplace conditions were documented by external specialists using a checklist [3]. The influence of individual, psychosocial, work-related and workplace-related factors were calculated by means of logistical regression analysis for symptoms occurring in the neck, shoulder, elbow/forearm, and hand/wrist. Possible predicting factors as well as moderating factors were summarised in four modules and included in multivariate analysis (Figure 2).

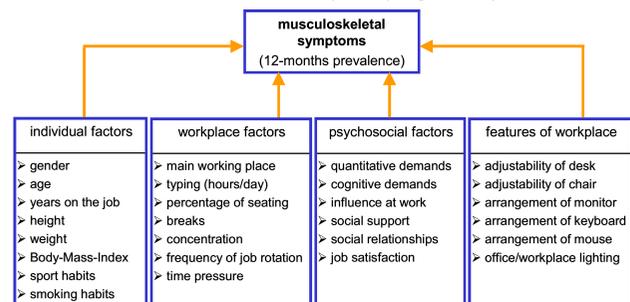


Figure 2: Factors with possible influence on symptoms

**Results:** Women constituted 35.9% of the evaluated group of employees. The average age was 39.9 (+/-9.5) years; the average daily VDT use amounted to 5.1 (+/-2.3) hours/day. In a 12-month period, 55% of the employees reported neck symptoms and 38% pain in the shoulder region. The hands/wrists and elbows/lower arms were less affected with a prevalence of 21% and 15% respectively (Figure 3).

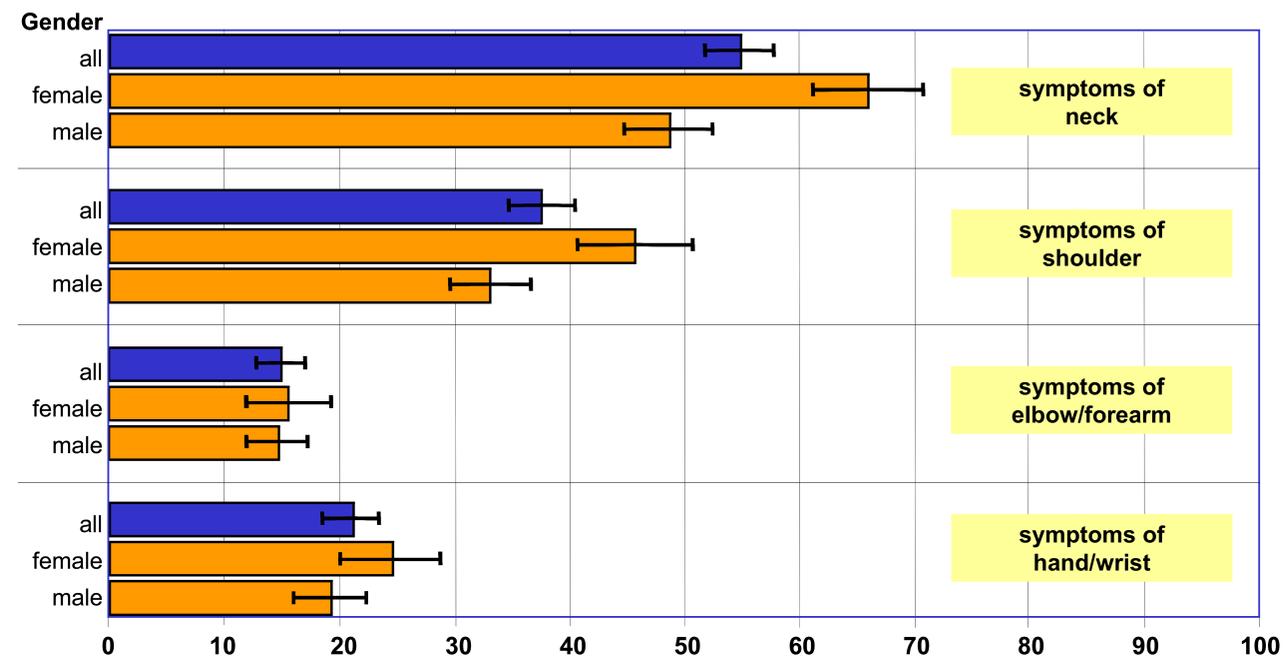


Figure 3: 12-month symptom prevalence (incl. 95%-confidence interval, n = 1,065).

Women suffered significantly more frequently from neck and shoulder symptoms than men. Moreover, shoulder pain increased with the employees' age. For employees working more than 6 hours per day at a VDT, the duration of such work had a significant impact on the severity of the symptoms (Figure 4).

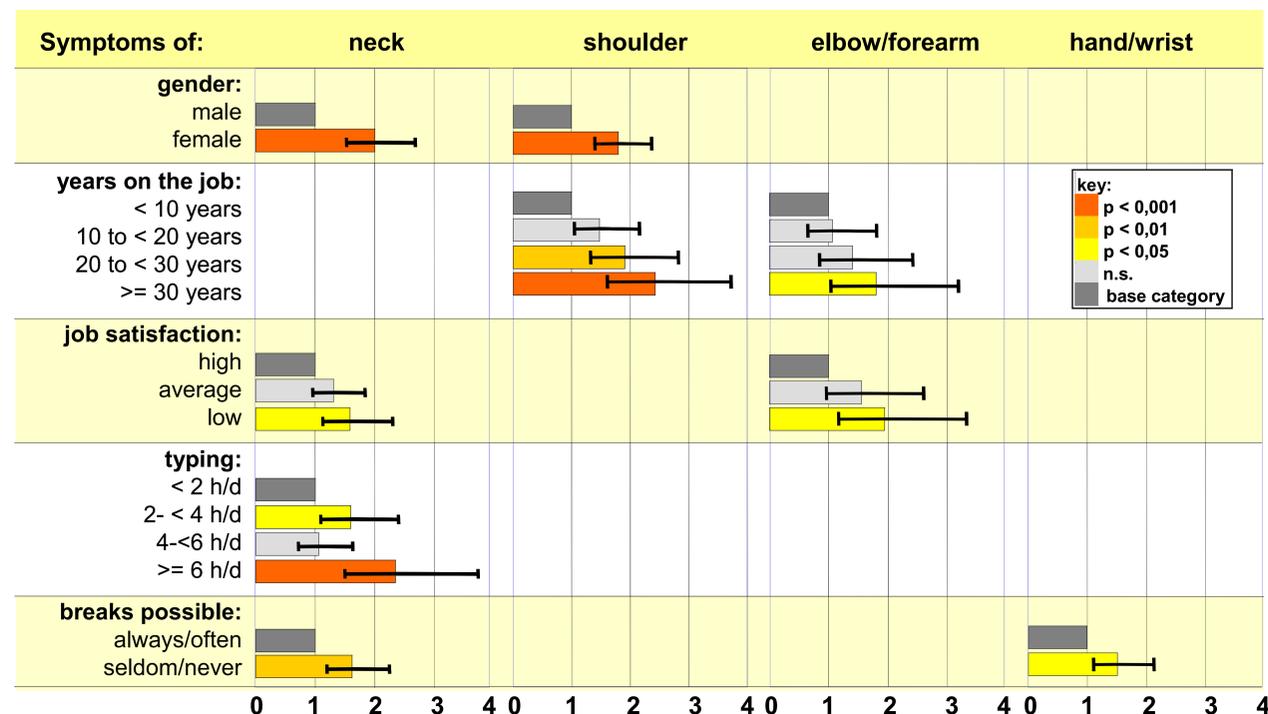


Figure 4: Predicting factors for the 12-month symptom prevalence. Odds ratio with 95%-confidence interval.

**Conclusions:** Interestingly enough there was - besides job satisfaction - no apparent relationship between psychosocial aspects of the job on the one hand and physical symptoms on the other hand. With regard to musculoskeletal symptoms of the upper part of the body, preventive measures at VDT workplaces should focus on the neck and shoulder region. As derived from this study, work organisation plays an important role, especially when ergonomic measures are largely implemented. The organisation of work should allow regular breaks of VDT work and avoid large amounts of continuous typing. In this way, other associated symptoms (e.g. dry eyes, headache) might be prevented as well.

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**References:**

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**This study was published:**

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