

Discussion and conclusions: It is common in occupational epidemiology to analyze studies where individual data on smoking are not available. Indirect methods exist to take into account the potential role of tobacco in observed excesses, if data on tobacco consumption in population are available. Systematic data on smoking prevalence by industry were produced recently in France, allowing exploring smoking contribution in lung and bladder cancer mortality differences by industry. The statement that tobacco seems not to explain excesses observed in many cases – orienting the discussion on other risk factors including occupational factors – is not new but this kind of analyze gives a quantitative view on potential magnitude of respective contributions.

We-O-39 THE UPPER MIDWEST HEALTH STUDY: GLIOMAS AND FARM CROPS, ANIMALS, AND ACTIVITIES

*Ruder AM.

Background and aims: Several studies have found excess brain cancer in farmers despite generally lower cancer incidence. The National Institute for Occupational Safety and Health Upper Midwest Health Study previously evaluated farm pesticide exposure and glioma risk and found no increased risk for ever vs. never exposed. This analysis focuses on other farm activities to determine possible associations with risk of glioma.

Methods: The study included 798 glioma cases and 1175 population-based controls, adult (18-80) non-metropolitan residents of Iowa, Michigan, Minnesota and Wisconsin. Multiple logistic regressions controlled for farm residence, age, age group, sex, state, and education.

Results: There were no strong associations between farm crops, animals, or activities and risk of glioma. Prudent practices in handling farm chemicals (washing after pesticide use, not storing pesticides in the house, applying solvents by brushing or dipping rather than spraying) were associated with decreased risk.

Discussion and conclusions: No specific farm exposures or activities that we asked about were associated with increased glioma risk. Farmers' increased risk of glioma may be due to other activities or to intrinsic rather than extrinsic factors.

PSYCHOSOCIAL FACTORS IN THE WORKPLACE

We-O-40 INTERRELATION BETWEEN WORK-RELATED STRESS, BURNOUT AND DEPRESSION IN A WORKING POPULATION: CROSS SECTIONAL RESULTS FROM THE DANISH PRISME-STUDY

*Kaergaard A, Kolstad H, Kaerlev L, Thomsen JF, Hansen A.

Background and aims: PRISME is a longitudinal study with the object of investigating how work-related psychosocial strains impact on the risk of developing stress, burnout and depression (incident cases). Stress and burnout are also looked at as mediators of an association between job strain and depression. To succeed in doing that it is necessary initially to analyze the overlap of the three outcomes. The aim of the present study is to explore the overlap of the three entities: stress, burnout and depression.

Methods: The study population comprises 4491 civil servants (22% men, 78% women, age 19-66 years) employed in a Danish city community. In a self-administered questionnaire stress was measured with Cohen's Perceived Stress Scale, personal burnout (as a state of prolonged physical and psychological exhaustion) was measured with Copenhagen Burnout Inventory and depression with Symptom Checklist, SCL-DEP6. For selected individuals in PRISME the questionnaire is followed by a structured face-to-face interview, anthropometric measurements and measures of cortisol and genetic variation.

Results: The correlation (Pearson's r) between burnout and stress is 0.547, between burnout and depression $r=0.558$ and between stress and depression $r=0.583$. All correlations are significant at the 0.01 level. If arbitrary cut-offs are made on the three scales to dichotomize into cases and non-cases we illustrate an example where approximately half of the participants (2210) fulfilled the criteria for being a case on minimum one of the outcomes. The overlap between stress, burnout and depression in this group shows that 54% of cases with stress also have depression, 53% of cases with burnout also have depression and 55% of cases with stress also have burnout. However, we also found that 18% solely fulfilled the criteria for stress, 18% solely for burnout and 12 solely fulfilled the criteria for depression.

Discussion and conclusions: We found a high correlation between self-reported stress, burnout and depression. Still, studying the actual overlap between the three outcomes leaves us with relatively large groups of individuals who fulfill only the criteria for one outcome. This is important and makes it possible in the longitudinal design of the PRISME-study to study possible developmental sequence of the outcome in relation to work-related strains.