Title: Occupational air pollutants – More hazardous for respiratory health than smoking? Report from the obstructive lung disease in northern Sweden studies

Body: Background: Both smoking and occupational air pollutants (OAP) are risk factors for impaired respiratory health. Comparisons of their effects and how they interact are scarce. Aim: To compare the effects of ever smoking and ever OAP on non-malignant respiratory disorders and to assess their interactions. Material and methods: In a population-based incidence study of asthmatic and bronchitic disorders in northern Sweden, 5896 subjects answered a postal questionnaire in 1996 and in 2006 (79% of the responders in 1996). Cumulative incidences were calculated. Risk factors were analyzed in multiple logistic regressions adjusted for possible confounders and the results are presented as odds ratios (OR). Ever/never smoking (S) and ever/never OAP were used as a combined variable with four categories or as dichotomous variables, respectively. Result: Cumulative incidences for 10 years were for S₀/OAP₀ 3.2 - 7.4, S₁/OAP₀ 3.3 - 9.5, S₀/OAP₁ 3.8 – 11.0, and for S₁/OAP₁ 7.1 – 15.0. Using a combined variable with S₀/OAP₀ as the reference odds ratios were for S₁/OAP₀ 0.99 – 1.8 with some significant results, S₀/OAP₁ 1.0 – 2.2, with more significant results, and S₁/OAP₁ 1.4 – 3.4 with all results significant. Interactions between smoking and OAP were mostly multiplicative for both asthmatic and bronchitic disorders. Population attributable risks based on dichotomous variables were for smoking about 15%, for OAP about 20%, and for smoking and/or OAP about 25%. Conclusion: OAP were at least as strong a risk factor as smoking for impaired respiratory health. Both smoking and OAP ought to be considered as possible confounders.