The respiratory health effects of exposure to tissue paper dust
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ABSTRACT

A cross sectional study design was used to investigate the prevalence of chronic bronchitis, asthma, and work related respiratory tract symptoms in a population of 390 workers currently working in a mill manufacturing tissue paper products.

Subjects were investigated using a respiratory questionnaire and spirometry. Workers were initially categorised into 3 groups of exposure intensity based on current exposure and an overall cumulative exposure estimate: "low" (<1 mg/m$^3$ 8h TWA), medium (1-5 mg/m$^3$ 8h TWA), high (5-10 mg/m$^3$ 8h TWA). Subsequent reclassification into dichotomous groups of "low" (<1 mg/m$^3$ 8h TWA) and "medium+high" (1-10 mg/m$^3$ TWA) exposure allowed a cross tabulation analysis of symptoms between these exposure groups.

Significantly increased rates of chronic bronchitis OR 1.8 (95% CI 1.4-2.3), work related (WR) symptoms of cough OR 1.9 (95% CI 1.6-2.3), nasal OR 1.5 (95% CI 1.1-2.1) and eye OR 1.5 (95% CI 1.1-2.1) were observed in the higher exposure groups particularly using the cumulative estimate.

Binary regression analysis was used to adjust for the potential confounding effect of smoking on symptoms previously identified as showing significantly higher prevalences.

The results continued to show significant positive correlations in higher exposure groups for rates of chronic bronchitis (cumulative estimate), WR rhinitis (cumulative estimate), and WR eye symptoms (current & cumulative estimate), even after allowing for the effects of smoking. A non-significant but high value positive correlation for high exposure on WR cough was observed after allowing for smoking.

The study also investigated, using logistic regression, the relationship between tissue paper dust exposure on lung function using FEV1 as the measured variable against continuous estimates of cumulative dust exposure.

No significant effect of exposure to tissue paper dust on FEV1 was apparent after adjusting for age, height and total pack years of smoking.