Title: Associations between obstructive sleep apnea syndrome (OSAS) and chronic airflow limitation in a general Norwegian population

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Body: Background: Several studies have investigated associations between OSAS and obstructive airway disease, with inconsistent results. Aim: To study the relationship between OSAS and pulmonary function in a general Norwegian population. Methods: An age and sex stratified random sample of all adults aged 47-48 and 71-73 living in Bergen, Norway, were invited to a cross-sectional study. The 3506 attendants completed a questionnaire including symptoms of OSAS. Subjects were classified as having OSAS if they reported snoring, breathing cessations, and daytime sleepiness using the Karolinska Sleep Questionnaire, previously validated against polysomnography. Spirometry including bronchodilator test inhaling 400 ug Salbutamol was performed by all subjects. Logistic regression analyses, including interaction analyses between sex and pulmonary function, were used to examine associations between OSAS and pre- and postbronchodilator (postBD) FEV1, FVC and FEV1/FVC. Results: The prevalence of OSAS was 4.8% (20/322) in subjects with chronic airflow limitation as defined by postBD FEV1/FVC<0.7 and 4.4% (119/2829) in subjects with FEV1/FVC>0.7 [P=0.74]. FEV1 and FVC (% of predicted) were not associated with increased risk of OSAS, after adjustment for age, sex, BMI, waist-hip ratio and smoking. Women with postBD FEV1/FVC<0.7 had an increased risk of OSAS with an OR of 3.53 (1.17, 10.60) compared to women with an FEV1/FVC>0.7, but this relationship was not present among men; OR 0.70 (0.31-1.58). Conclusions: Chronic airflow limitation, assessed by post bronchodilator spirometry, was associated with OSAS among women only. There was no relationship between OSAS and FEV1 or FVC.