

## Detection of airflow limitation using a handheld spirometer in a primary care setting

### ABSTRACT

**Background and objective:** Early diagnosis of chronic obstructive pulmonary disease (COPD) in primary care settings is difficult to achieve chiefly due to lack of availability of spirometry. This study estimated the prevalence of airflow limitation among chronic smokers using a handheld spirometer in this setting. **Methods:** This is a cross-sectional study performed on consecutive patients who were  $\geq 40$  years old with  $\geq 10$  pack-years smoking history. Face-to-face interviews were carried out to obtain demographic data and relevant information. Handheld spirometry was performed according to a standard protocol using the COPd-6 device (Model 4000, Vitalograph, Ennis, Ireland) in addition to standard spirometry. Airflow limitation was defined as ratio of forced expiratory volume in 1 s (FEV1)/forced expiratory volume in 6 s  $< 0.75$  (COPd-6) or FEV1/forced vital capacity  $< 0.7$ . Multiple logistic regression analyses were used to determine predictors of airflow limitation. **Results:** A total of 416 patients were recruited with mean age of 53 years old. The prevalence of airflow limitation was 10.6% ( $n = 44$ ) with COPd-6 versus 6% as gauged using standard spirometry. Risk factors for airflow limitation were age  $> 65$  years (odds ratio (OR) 3.732 95% confidence interval (CI): 1.10061.280), a history of "bad health" (OR 2.524, 95% CI: 1.03766.142) and low to normal body mass index (OR 2.914, 95% CI: 1.19167.190). **Conclusions:** In a primary care setting, handheld spirometry (COPd-6) found a prevalence of airflow limitation of  $\sim 10\%$  in smokers. Patients were older, not overweight and had an ill-defined history of health problems.

**Keyword:** Chronic obstructive pulmonary disease; Malaysia; Prevalence; Primary care; Smoke