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Title: Geographical variation of prevalence, and under-diagnosis of COPD in urban and rural communities of China: Finding from China Kadoorie Biobank of 0.5M people

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Body: Rationale: COPD is a major cause of mortality and morbidity in China. But, relatively little is known about the interregional variation of the disease prevalence and rate of under-diagnosis in the general population. We estimate the prevalence of air flow obstruction (AFO) using measured lung function in a large population-based study and compare it to self-reported physician diagnosed COPD. Methods: China Kadoorie Biobank involves 512,891 adults, aged 30-79, who were recruited during 2004-8 from 10 diverse regions of China. All the participants performed spirometry and gave information on self-reported history of doctor-diagnosed chronic bronchitis/emphysema, current medication and possible COPD risk factors. Results: The prevalence of AFO (ie, FEV_1/FVC<0.7) was much higher in rural than in urban areas (men: 8.2% vs. 4.6%; women: 5.2% vs. 3.0%). In both sexes, the prevalence was also higher in those with poor education, lower income and older age. Similar trends were seen when using the lower limit of normal of FEV_1/FVC for diagnosing AFO. Compared with self-reported COPD, 86.4% of the AFO cases were undetected prior to the survey; higher in women than in men (88.4% vs. 84.5%) but lower in rural than in urban areas (85.9% vs. 87.5%) with clear heterogeneity across regions for both men (75.4%-96.1%) and women (77.1%-98.0%). In both sexes, <40% of doctor diagnosed COPD were currently under medication. Conclusion: There was wide heterogeneity in prevalence of AFO across the ten different regions of China, with the large majority of them being undetected in both men and women.