

The silent epidemic of COPD in Africa



See [Articles](#) page e44

Chronic obstructive pulmonary disease (COPD) is the third leading cause of death worldwide.¹ It is one of the most common non-communicable diseases, affecting 329 million people, and this number is likely to be an underestimate. The global economic cost of COPD is US\$2.1 trillion.² Yet it remains almost unknown in Africa.

The prevalence of COPD in sub-Saharan Africa has been poorly studied. A meta-analysis³ of nine cross-sectional studies (five from South Africa, two from Nigeria, one from Malawi, and one from Cape Verde) reported a prevalence ranging from 4.1% to 24.8%, depending on which diagnostic criterion was used. Of the nine studies, only one used population-based representative sampling and an internationally recognised case definition, whereas the other studies lacked robust designs and had inconsistent diagnostic criteria. Another meta-analysis⁴ of an additional four studies from Africa reported that the prevalence of COPD varied widely depending on whether spirometry was used or not. The eight studies that defined COPD on the basis of symptoms reported a mean prevalence of 4.0% (range 2.1–8.9), whereas the five that used spirometry reported a mean prevalence of 13.4% (9.4–22.1).

One of the main reasons why COPD prevalence studies are rare is the general lack of standardised epidemiological instruments and the need to do good quality post-bronchodilator spirometry, which requires considerable expertise and experience.⁵ Studies that use symptom-based questionnaires lack sufficient sensitivity and specificity. Moreover, considerable controversy exists about which spirometric criterion should be used to define COPD: a fixed post-bronchodilator FEV₁ to FVC ratio of 0.7, or a FEV₁ to FVC ratio less than the lower limit of normal. Each criterion has advantages and disadvantages, but the absence of an agreed standard has created confusion among epidemiologists wanting to study COPD prevalence.⁵

In *The Lancet Global Health*, Frederik van Gemert and colleagues⁶ present results of a cross-sectional study of COPD prevalence in 588 people in the Masindi district of Uganda, with COPD defined by post-bronchodilator spirometry. This study is one of the first in sub-Saharan Africa to use a robust sampling strategy and an internationally accepted diagnostic method and

criterion. The prevalence of COPD was 16.2%. The investigators also report that the prevalence of COPD did not differ between men and women, around 40% of patients with COPD were aged 30–40 years, 31% of men and 74% of women with COPD had never smoked, nearly all individuals with and without COPD had been exposed to biomass smoke.

Smoke from biomass fuel is an important risk factor for COPD. From a global perspective, it might be more important than tobacco smoking.⁷ In the study by van Gemert and colleagues,⁶ 93% of the study population used biomass fuel for cooking, as in most African countries. Women spent 3–5 h cooking with prolonged exposure to biomass smoke, often in poorly ventilated kitchens. This behaviour could explain why COPD is as common in women as in men, despite less smoking among women. Exposure to biomass smoke since childhood also explains why 40% of people with COPD in Uganda were young (30–40 years). In high-income countries, COPD prevalence studies traditionally include adults older than 40 years, because 15–20 years of exposure to tobacco smoke is needed before COPD begins to manifest.

Wheeze is a common symptom in patients with asthma and an uncommon symptom in COPD caused by tobacco smoke. The high prevalence of wheeze in this study suggests that COPD caused by biomass smoke might be a different phenotype than COPD caused by tobacco smoke. Biomass COPD mainly affects airways, whereas tobacco smoke affects both airways and lung parenchyma.⁸

What do these observations mean for countries in sub-Saharan Africa? van Gemert and colleagues have shown that high quality studies of COPD prevalence can be done with locally trained paramedical field workers. COPD seems to be highly prevalent in Africa, yet remains almost unknown. It seems to affect mainly people aged 30–40 years and the major risk factors are tobacco smoking and biomass smoke exposure, although other risk factors, such as poverty, poor nutrition, history of lung tuberculosis, or HIV infection, might also be as important. More studies are needed to understand the true burden of COPD in Africa and the risk factors for the disease. However, improved surveillance is merely the first step in addressing COPD in sub-Saharan Africa.⁹ African health-care providers, including doctors, should

be taught how to address COPD effectively; at present, diagnosis and treatment are grossly inadequate.¹⁰ Health-care policy makers in sub-Saharan Africa need to take notice of the silently growing epidemic of COPD and start taking measures to both prevent and treat COPD effectively, before it gets out of hand.

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I declare no competing interests.

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