

# The Influence of HIV-infection and Respiratory Risk Factors on Pulmonary Condition in Sub-Saharan Africa



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## BACKGROUND

Data about obstructive lung disease (OLD) in HIV from Sub-Saharan Africa (SSA) are scarce, and the association between HIV-infection and OLD in SSA remains unclear.

## PARTICIPANTS AND METHODS

We conducted a cross-sectional study in April and May 2016 embedded in the Ndlovu Cohort Study in rural Limpopo, South Africa.

### We performed

- A respiratory questionnaire
- Pre- and post-bronchodilator spirometry measurements

Airflow obstruction was defined as a FEV<sub>1</sub>/FVC-ratio less than the lower limit of normal. Multiple regression analysis was used to investigate if HIV was associated with OLD, adjusted for pulmonary risk factors and occupational exposure.

## RESULTS

201 consecutive participants were enrolled in the study, of whom 84 were HIV-positive and 117 were HIV-negative. 195 participants provided acceptable pre- and postbronchodilator spirometry.

## AIMS

We investigated the relation between

- HIV-infection
  - Respiratory symptoms
  - Occupational and lifestyle factors
- and
- Prevalence of airflow obstruction in a rural South African population

**Table 1 Baseline characteristics**

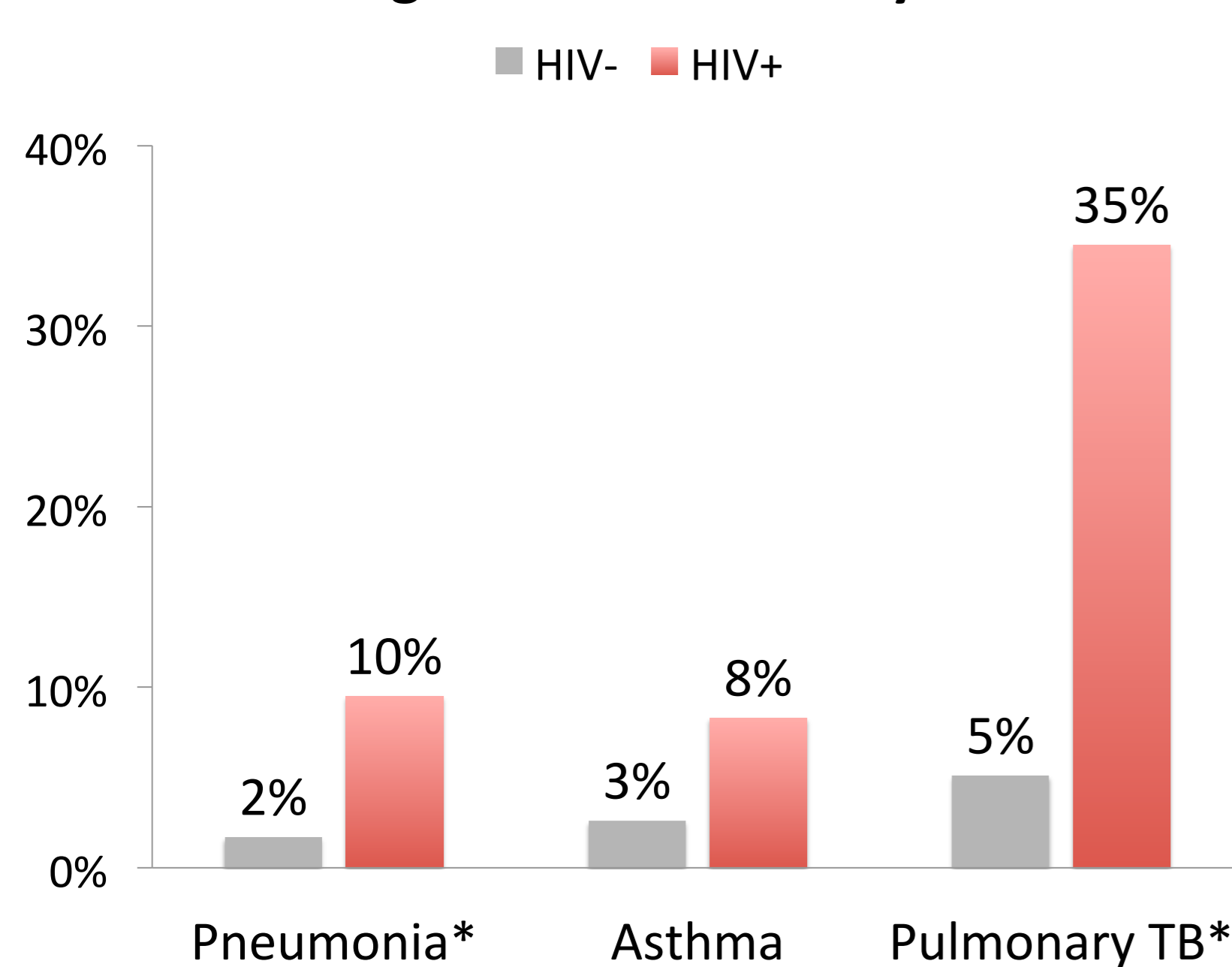
	All N=201	HIV- N=117	HIV+ N=84
Men	101 (50.25%)	76 (65.0%)	25 (29.8%)*
Age	38 (22)	39.0 (14.8)	42.4 (10.4)
Receiving cART	NA	NA	69 (82,1%)

cART, combination antiretroviral therapy

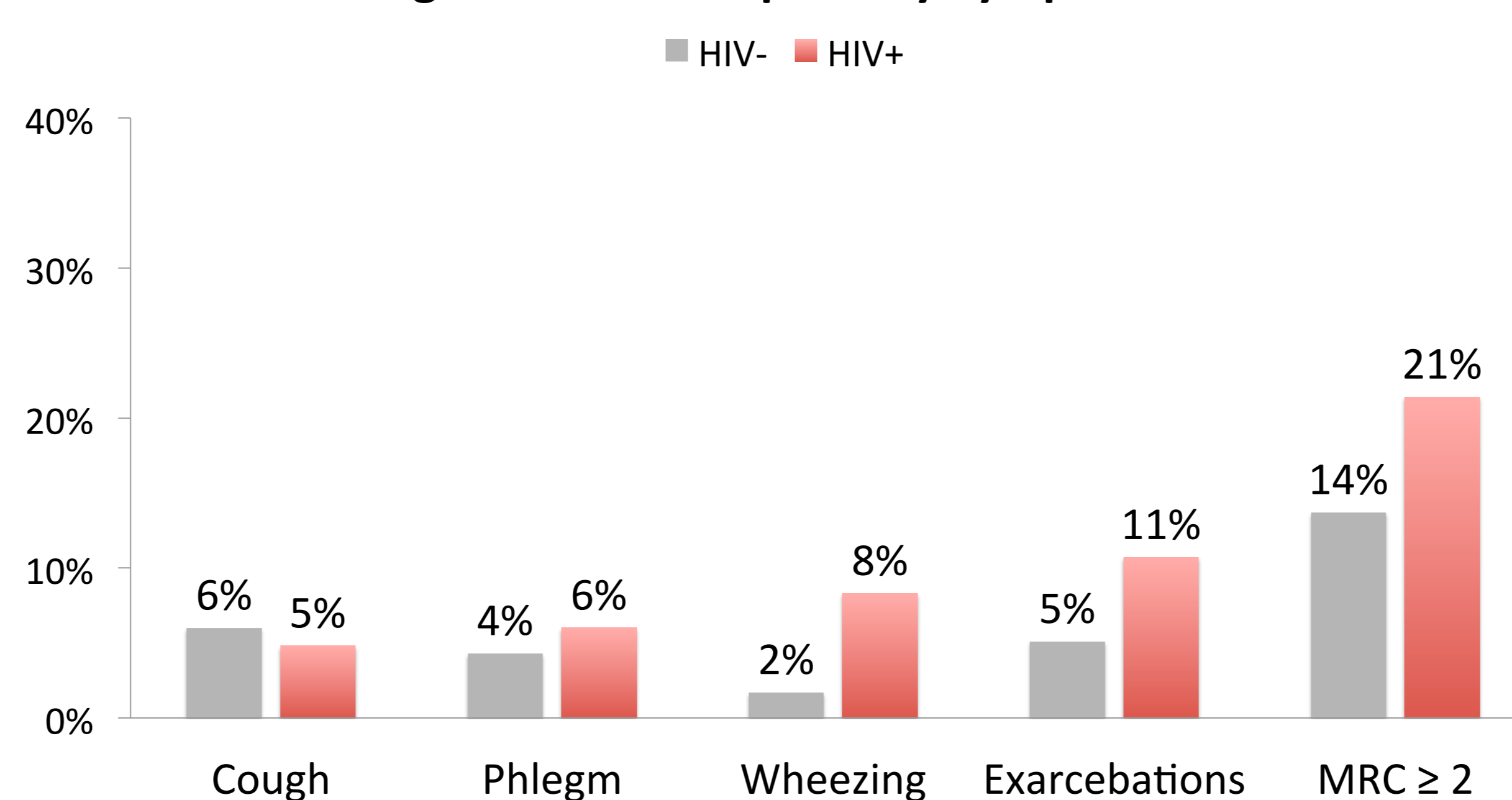
Data in n (%), mean (SD) or median (IQR). Analyses adjusted for sex and age.

\*p<0.05

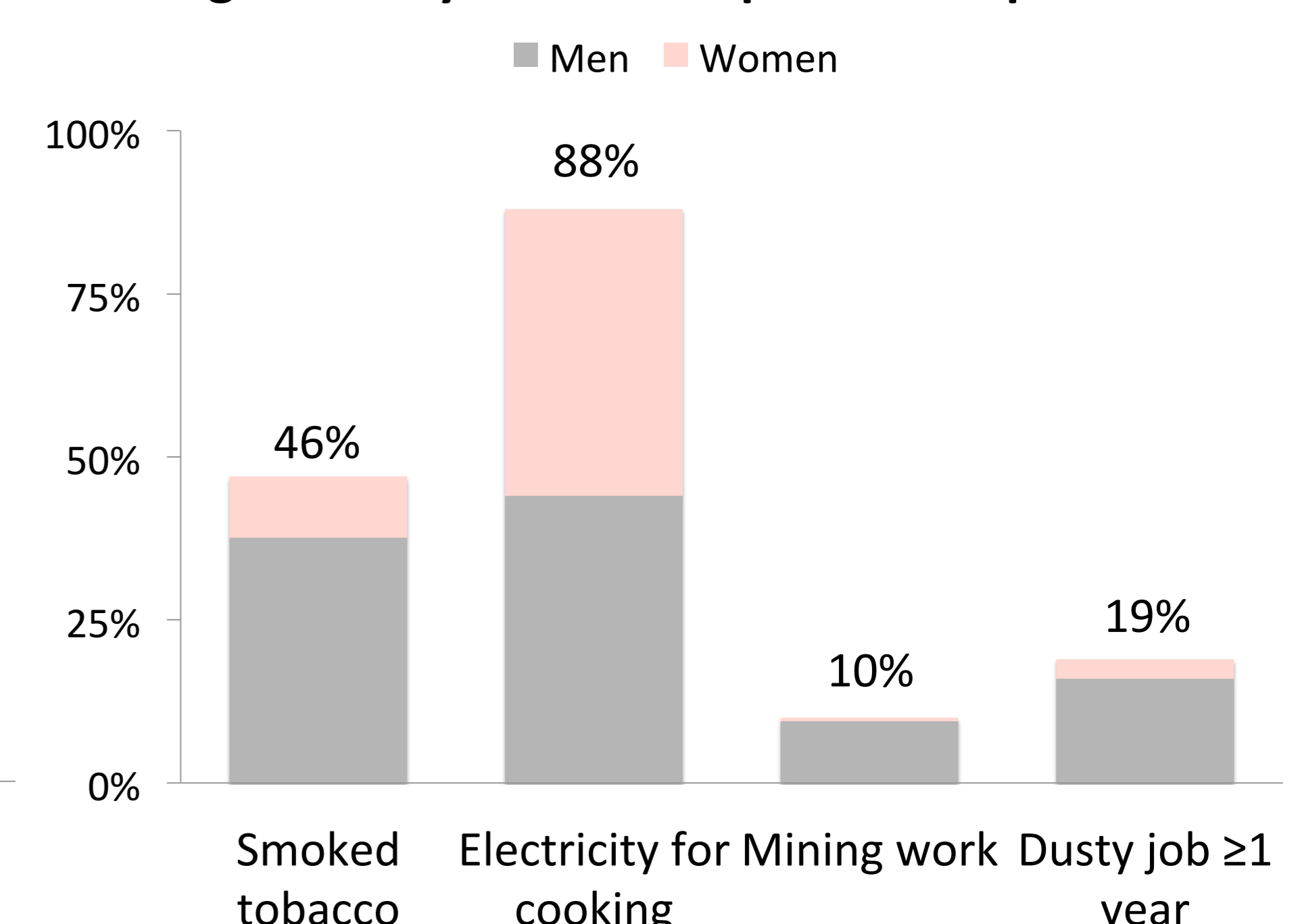
**Fig. 1 Medical History**



**Fig. 2 Chronic Respiratory Symptoms**



**Fig. 3 Lifestyle and Occupational Exposure**



**Table 2 Spirometry results**

	All N=195	HIV- N=113	HIV+ N=82
Post- FEV <sub>1</sub> (L)	2.943 (0.79)	<b>2.987 (0.047)</b>	<b>2.800 (0.057)*</b>
Post-FVC (L)	3.514 (0.81)	3.525 (0.051)	3.441 (0.062)
Post- FEV <sub>1</sub> /FVC -ratio	0.84 (9.03)	<b>0.85 (0.008)</b>	<b>0.82 (0.009)*</b>
FEV <sub>1</sub> /FVC < LLN	14 (7.2%)	<b>4 (3.5%)</b>	<b>10 (12.2%)*</b>

FEV<sub>1</sub> forced expiratory volume in 1 s; FVC, forced vital capacity; LLN, lower limit of normal

Data in n (%), mean (SD). Analyses adjusted for sex and age.

\*p<0.05

- Men in SSA appear to have a higher burden of lifestyle and occupational risk factors than women (Fig. 3)
- When correcting for pulmonary risk factors (Fig. 1 & 3) in multivariable analysis, HIV was not an independent factor for decreased FEV<sub>1</sub>/FVC (p=0.88).
- Independent risk factors for decreased lung function in men were older age, history of TB and having worked in a dusty job for more than one year (R<sup>2</sup>=0.492).

## CONCLUSIONS

- HIV+ group had lower FEV<sub>1</sub> and FEV<sub>1</sub>/FVC than HIV- controls
- Prevalence of airflow obstruction was significantly higher in HIV+ group
- HIV-infection was not independently associated with decline in lung function

