

Chronic obstructive pulmonary disease mortality and prevalence: the associations with smoking and poverty: a BOLD analysis—authors' reply

We are grateful to Dr Stanojevic and her colleagues¹ for their interest in our paper.²

On their first point we assume that they mean mortality rates not national prevalence rates. In either case the weak association between diagnosis and spirometric findings is already well known and unsurprising given that very few people have spirometric testing. In the case of death

certificates the situation is further confounded by the limited choice of International Classification of Disease codes for people dying with chronic lung disease.

Their second paragraph deals with two separate issues, the potential divergence between national and local statistics and the interpretation of ecological analyses. They are right to repeat our *caveat* that national data do not necessarily reflect local conditions. For gross national income there is by definition no local equivalent and readers are free to speculate on what else might be strongly related to national income and local prevalence of low lung volumes, bearing in mind that national income is correlated with both local levels of low lung volumes and national mortality from COPD. In the case of smoking the national data reflected in the Tobacco Atlas correlate well with the local data on smoking collected directly by the BOLD study. In this case we can compare national smoking estimates with national mortality and local smoking rates with local lung function data. On the second point, ecological associations may or may not reflect individual associations but are not in themselves biased. Our data are entirely compatible with a large excess of deaths confined to rich people living in poor countries. The evidence that this interpretation is unlikely comes not from our study but from other sources. BOLD could only address this point directly with a follow-up study of mortality within the cohort.

On ethnicity we hold an agnostic view as to how much of between population variation is due to 'race', our objection is to the assumption made by some that ethnic differences in lung volumes are hard wired into the DNA. We do maintain however that, on the current evidence, the prognostic significance of a given FVC is not dependent on ethnic group and that all groups are equally disadvantaged by a low value. This view is consistent with our findings.

Dr Stanojevic and her colleagues are right to imply that more evidence is required; there is still almost no direct evidence on the prognosis of one of the commonest conditions in low income countries.

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