Reviewer’s report

Title: Correlation of respiratory symptoms and spirometric lung patterns in a rural community setting, Sindh, Pakistan: a cross sectional survey

Version: 1 Date: 26 August 2012

Reviewer: Nigel Bruce

Reviewer’s report:

MAJOR ESSENTIAL REVISIONS

1. Abstract/methods: please provide information on number (%) male and females, and some information on age distribution. Other revisions following on comments below on assessing the validity of the questionnaire would need to be reflected in the abstract.

2. Background/methods: the authors make a good case for having valid screening questionnaires for the settings they describe in Pakistan, and in other low-income countries. It is important however to formulate the research question more clearly, in respect of testing the validity of the questionnaire as means of identifying subjects with potentially important lung function deficit and developing or developed COPD. To do this, they need to assess the questionnaire using standard measures of validity, that is sensitivity and specificity (and predictive value), and examine not just the correlation, but the extent to which the questionnaire detects people with significant lung function deficit, and also the degree of detection of false positives. This is possible with the data they have, albeit not with great statistical power – but it is recognised this is small, pilot study. The authors should consider revising the approach to assessing validity of the questionnaire.

3. Methods/respiratory questionnaire: generally definitions of symptoms are clear, but for wheeze – which is a term for which the meaning is notoriously difficult in most languages however it is defined – needs some further description. The authors should explain what measures were taken to check the comprehension of the term (as whistling sound heard on expiration) in the local Sindhi language.

4. Methods/lung function. Can the authors explain what predicted values were based on, and how appropriate they were to the population studied. Also what criteria were used for quality assessment of the spirometry manoeuvre – for example ATS repeatability criteria?

5. Methods/statistical analysis/paragraph 3: The use of logistic regression is not inappropriate, but a more efficient alternative may be to use linear regression, with the lung function value as the dependent variable, which would show the average decrement in lung function associated with the presence of the symptom. On the other hand, in order to assess validity as recommended above,
it would be helpful to have a dichotomous outcome. The authors should however explain the rationale for the cut-off values used in defining the dichotomous lung function outcome variables. One way to address this question of which outcome to use, is to use both continuous (for average effect) and dichotomous (for validity assessment) outcomes.

6. Results/paragraph 1: the results for FVC and FEV1 are stated to be in millilitres, yet the values of less than 100 are far too small (one would expect average values for both of these lung function measures to be in the range 2,000 to 3,000 ml for a broad age group of adults). Are these % predicted values? This needs clarification.

7. Discussion/Paragraph 1: In the Discussion, the authors need to pay careful attention to reporting which findings were significant, and which were not. In respect of this (see comment on Table 3), p-values should be given to 3 significant places (not 2). Also, it is not clear that findings for asbestos workers are relevant to this study population.

8. Discussion/paragraph 4: the authors discuss the higher prevalence of asthma in their study, in comparison with the WHO (WHS) data. However, the value of 5.5% has a 95% CI of 2.34 – 8.66, which includes the range quoted for the WHS. This should be recognised, and less made of the difference, for which random sampling error is one (likely) explanation. (Same paragraph) Also, what is your reasoning for stating that you believe ‘these estimates may be generalisable to similar settings in rural Pakistan? You may well be right, but this needs some more justification.

9. Discussion/paragraph 5: the discussion at the end of this paragraph relates to the earlier comments on testing the validity of the questionnaire against LFT results, and should include assessment of false positives (that is, the number and % of people with symptoms who have lung function in the ‘good’ range).

10. Table 1: it would be very helpful to have a breakdown of some of these key variables by sex, even though it is recognised that the numbers are relatively small. However, given that probably few women smoke (and men do), but women are exposed to wood/dung smoke in the kitchen, this sex disaggregation would be important to see. Also, note earlier comment on the values for FEV1 and FVC which cannot be in millilitres. Finally, the n=188 implies some isot data probably due to inadequate spirometry – this needs to be described clearly as to how many were inadequate, and how this was determined.

11. Table 2: Denominators should be provided in this table

12. Table 3: P-values should be given to 3 significant figures, e.g. p=0.002, or p<0.001, or p=0.045. The issue of numbers mentioned under Table 1 is also important for the analysis of restrictive (n=118) and obstructive (n=125) patterns. First, given that these use the same two criterion measures, it is unclear why the numbers available differ. Second, that the numbers are far lower than the 188 quoted in Table 1 indicates that many subjects failed to produce adequate values
for both FEV1 and FVC. This also needs thorough description and discussion.

MINOR ESSENTIAL REVISIONS:

13. Generally the English is clear and well written, but the authors need to address the frequent lack of use of the definite article (the) and in some cases the indefinite article (a/an) where this really is needed to improve the flow of the text, and seek advice on this if needed.

DISCRETIONARY REVISIONS

14. One of the issues not addressed by the paper is the reasons for the symptoms and lung function values seen in some subjects. This was not the objective of the paper, and it is noted that the role of arsenic is included in analysis. It would however be of interest to examine this, and one factor that is not mentioned at all is the use of biomass fuels and traditional stoves. Were any data collected on cooking fuel and stove? If so, can this be included at least in descriptive analysis (e.g. in Table 1), to provide background information on this important cause of COPD in women, especially non-smoking women.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests