Reviewer's report


Version: 1 Date: 28 April 2010

Reviewer: Ewan MacFarlane

Reviewer's report:

This is a well-prepared and written manuscript concerning an interesting study which appears to have been of high scientific quality. I offer the following comments as constructive criticism to the authors.

The question posed by the authors is novel and well defined. The methods are appropriate and described in sufficient detail for replication. I am limited in my ability to critique the particular analysis method chosen (ordinary least squares linear regression model) since I am not familiar with this particular regression model, however the description provided is clear and would seem to justify its use. The data and study design appear to be sound. The format of the manuscript follows an appropriate format and the results are presented in a clear and conventional format. The discussion and conclusions are balanced and supported by the data. The title and abstract are appropriate and the writing style is generally acceptable, though a few minor imperfections in the English require correction.

Specific points for attention:

Abstract

- (Abstract (Conclusions) last sentence) The word “secular” is used correctly according to its original meaning (ie over a long period, usually >10yrs), however this meaning has become nearly obsolete in English over the past couple of decades and I doubt that most English readers would understand it in this way anymore. I suggest an expression such as “long-term” would improve clarity.

Background section

- (1st paragraph, first sentence) It would make more sense to add the term “exposure” in this sentence, for example: “risk of exposure to occupational hazards such as...”.
- (1st paragraph, 3rd sentence) The word “have” is unnecessary, ie “…may harm humans...” is fine.

Methods section

- (1st paragraph, 3rd sentence) I wonder if the reference [25] should go at the end of this sentence since it appears that both the population/age and occupation data are all from the census. Otherwise, if the occupation data are from another
source, add reference.

• (2nd paragraph, 1st sentence) The term “farming couples” would make more sense in English than “couples of farming”.

• (4th paragraph) For the benefit of international readers not familiar with the local farming industry structure, please add something describing the typical employment/business arrangements of these farmers. For example, are they predominantly farm owner/operators, employees, share-croppers etc.

• If the data are available, please indicate what proportion of survey respondents were living in houses on the farm property itself and what proportion lived elsewhere.

• Please also indicate if the 1998 and 2006 survey samples included any of the same individuals – ie were the 1998 farmers included in the 2006 survey or was the later survey a totally different group.

• Please mention why were wives not included in the 2006 survey? It was interesting to see that in the 1998 survey wives were highly involved in the family farming tasks and this is an interesting finding in itself and leaves the reader wondering why wives were not included in 2006.

Discussion section

• Throughout the discussion the authors have compared their results with studies from Palestine and other developing countries. This is good but it would strengthen the international interest in this study if, in addition, the authors also compared the findings with results from developed countries. This would indicate whether the findings are specific to agriculture in developing countries or if they are more generally applicable. For example low PPE use is also seen in farmers in developed countries (Perry MJ et al, Am J Ind Med 2002;41:70.3 and MacFarlane et al, Occup Environ Med 2008;65:141-146). Similar comparisons for each of the main findings would be most illuminating and would contextualise the results more broadly and strengthen the discussion considerably.

• It is possible that the apparent general reduction in pesticide use seen between the 1998 and 2006 surveys may have been influenced by the apparent dramatic difference in the number of farmers who were raising animals as part of their farming activities between the two surveys (Table 2). This would be worth mentioning in the discussion since in general animals may be associated with less intensive pesticide use than crops (see also MacFarlane et al, Occup Environ Med 2009;66:497-501).

• (1st paragraph, 4th sentence) “...there are large rooms for further improvements...” is idiomatically incorrect, it should be “...there is room for further improvement...”

• (1st paragraph, 5th sentence) This sentence repeats what is already documented in the results section and does not add to the discussion. Therefore I recommend deletion of this sentence (“Sixteen out of 47...”).

• (”Interpretation of the results”, 1st paragraph, 3rd sentence) This sentence is a bit unclear. I think the authors may be referring to “cumulative exposure”, if so the
use of this term would clarify. Otherwise, a clearer explanation of why long agricultural work history with pesticide use implies higher exposure is needed.

- (“Interpretation of the results”, 2nd paragraph) The discussion of the reasons reported by the surveyed farmers for not using PPE is good but presumably these are survey results which should be summarised in the Results section prior to this discussion.

- (“Interpretation of the results”, 2nd paragraph, last sentence) It is noted that in 1998 many of the surveyed farmers believed they developed immunity from the effects of pesticides. This is very interesting but just as interesting is whether this belief remained prevalent in the 2006 survey. Please mention if this belief was or was not also common in 2006. If this data was not collected in 2006, please explain.

- (“Interpretation of the results”, 3rd paragraph) The first part of this paragraph deals with the important issue of what is often referred to in occupational epidemiology as “take-home exposure”. If the authors were to define this exposure type using this or an equivalent term it would clarify this section. I suggest also using a reference such as Lu et al, 2000 [43] in this context (there are many other references that would also be suitable).

**Level of interest:** An article of importance in its field

**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 have no competing interests