Author's response to reviews

Title: Prevalence and determinants of asthma in adult male leather tannery workers in Karachi, Pakistan: A cross sectional study

Authors:
Khurram K Shahzad (drkhurrambaig@hotmail.com)
Saeed S Akhtar (saeed.akhtar@hsc.edu.kw)
Sadia S Mahmud (sadia.mahmud@aku.edu)

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Author's response to reviews: see over
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Authors:

Khurram K Shahzad (drkhurrambaig@hotmail.com)
Saeed S Akhtar (saeed.akhtar@hsc.edu.kw)
Sadia S Mahmud (sadia.mahmud@aku.edu)

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Author's response to reviews: see over
September 08, 2006
The editor,
BioMed Central,

Subject: Revised submission of MS: 1231406977103996 - Prevalence of and factors associated with asthma in adult male leather tannery workers in Karachi, Pakistan: A cross sectional study.

Dear Editor,
Please find below the responses to the comments made to the above mentioned manuscript.

Thank you and best regards,

Dr Khurram Shahzad
MBBS, MS
Comments by Eva Andersson  
Version: 1 Date: 16 July 2006

General
The health and working conditions of people in developing countries are of great interest and an important scientific subject. But it is often a hard task to do good studies of many different reasons such as economic, lack of general data about the people and health status, lack of acceptance from industries and so on. This study suffers (as the authors are aware of) from general knowledge of prevalence and incidence of asthma in Pakistan. They could have used a control group from the colonies where workers lived or in the surroundings to get people with similar socioeconomic conditions. One could always wish for more information from studies and answers of questions that were not asked, as here: when did their asthma start, did they have asthma as a child, did it start after they began their work within leather tannery, what kind of exposure do they suspect give them symptoms at work.

Occupational asthma is also a subject of interest of which much is known but still much is left to explore.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. This is a journal of Public Health and the readers could not be assumed to know about the process of leather tanning. The process and exposures should shortly (but more than now) be dealt with as should which exposures that could be related to asthma. If the paper grows to long the general information about asthma could be shortened. A comment on different kinds of chromium and which ones that are found in tanneries.
Response: A brief description of tanning process has now been added. General information about asthma is shortened.

2. Why leather tannery workers were chosen as study subjects are not clear and it could not be stated that asthma among leather tannery workers has been shown to be a major problem there are some indications but not more. But the data described in the introduction could support a need to further study the problem which is a better start than if it was already shown.
Response: The text is reviewed to show why we selected tannery workers.

“Varying prevalence of asthma (2.2 and 38%) among leather tannery workers has been reported in two studies done in India. One of these study identified moderate to high exposures at workplace to be significantly associated with asthma. There is need to further study prevalence and risk factors of asthma in tannery workers to better account for asthma burden and to identify high risk exposures in factory environment for prevention purposes”
3. The aim was to study prevalence and to identify the risk factors of asthma in leather tannery workers, the authors could not reach that aim with the study design they have. The aim must be changed to identify some determinants or risk factors.
Response: The aim is modified accordingly

4. Sex of the study subjects is not clear, probably males but that should be declared.
I have clearly mentioned it now wherever it is needed.
Response: It is now clearly declared wherever required.

5. Part of the workers were interviewed at the factories, how many of the 641 and did the results from them differ from the others?
Response: A total of 194 (30%) workers were interviewed at the factory. The variable is significant (P < 0.05) in univariate analysis. However, it was not significant in multivariate analysis.

6. Several of the information in Results is also in the tables. There is also a lot of information in table 1 that also appears in table 2. Revision in tables and text?
Response: The information in table one which was represented again in table 2 has been removed.

7. In the discussion there ought to be more about relation to work and what would have been appropriate to know about the subject’s asthma and exposure to be able to discuss the problem in a more causal way. Not only determinants (with the exception of allergy) as now. Something about the possibility to get a physician to diagnose asthma among the workers (that is what are their access to health care) and the proportion of the subjects classified as asthma that had had that.
Response: I have reviewed discussion to incorporate your comment wherever we have the data to support from this study

8. The discussion on ethnicity/illiteracy should focus more on socio-economic differences, I think, if there are any. Do they have the same type of work, are Pathans more illiterate, could some of the determinants for asthma be proxies for something else not asked for (which is a question for the other factors as well)?
Do the educated have better jobs, less exposure? I think you could say in western countries there is a trend towards more asthma among highly educated at least not less.
Response: It has been mentioned that association of ethnicity could possibly be due to socio-economic and behavioral differences among the races. Naswar use has a high prevalence of use compared to other races and we carefully evaluated its effect. However, there was neither direct relationship nor a confounding effect in this study due to naswar. There are still other important factors as you mentioned, but we do not have data to analyze their effect
9. Some words (more than generalization) in the discussion of limitations due to the sample of convenience and non-responders, proportion of workers in factories and living areas that were asked but not agreed to participate.

Response: The non response was nearly nil; mainly due to the reason we were able to develop a very good rapport with tannery owners and workers. We approached the tannery owners through their organization and approached the workers through a locally involved community based organization working for welfare of workers. However, to minimize selection bias the selection of workers from each tannery was done only by our own research team. Everyone agreed to participate; only one worker left the interview in between due to his personal reason.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

10. Abstract: R (row)2 prevalence of adult asthma, better: prevalence of asthma, as it could be mistaken for adult-onset which is not studied.
Response: It is reviewed
R2 the risk factors, better: some risk factors, or determinants.
Response: I have made the change
R11 illiterate workers were or cancel more likely to have asthma (stands in the ending of the sentence that by the way is not ended with a point.
R17 cancel at. I will not go into that detail in the rest of the paper.

Response to above two comments: I have reviewed the text carefully now for any such errors. I have tried to eliminate all grammatical and punctuation errors.

11. P (page) 4, R10, if all factories were contacted (in the Korangi industrial area) it must be known how many they are, please add the number.
Response: The number is added now

12. P4, R12 and 15 40-50% and 50-60%?? The difference between the sentences are not clear.
Response: The error is removed
13. P11, paragraph 2, there are also studies not showing association of asthma and smoking particularly with some occupational factors, short sentence about that maybe.
Response: I have added the text to elaborate this relationship

14. Table 1, expression of one of the symbols used is missing.
Response: The error is removed now

15. Table 2, Type of house are presented twice, as third and fifth variable.
Response: The error is removed now
16. Table 3, if all the variables have been in the same regression-model this way of presenting the result is not familiar to me, it could be mistaken for each factor adjusted for age.
Response: I have revised the footnote. All variables are included in the final model. Age was a confounder in this study so needed to be kept in the final model. However, its effect estimate was non-significant (that is why not shown in the final table)

Discretionary Revisions (which the author can choose to ignore)

17. Abstract: R10 would be interesting also with proportion or number that thought their asthma was work-related.
Response: I have added the information now

What next?:
Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions
Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
Statistical review: No
Declaration of competing interests:
I declare that I have no competing interests

Comments by Paul Cullinan
Version: 1 Date: 26 July 2006

General
This is a cross-sectional survey of respiratory symptoms among tannery workers in Karachi. It is very nicely written. A prevalence of asthma of 11% is estimated; and of work-related asthma about 5.5%. A number of associations are described; the most interesting of these concerns glove use.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

I think the authors need to be a little clearer about the purpose of their research. I suspect that they are interested in tannery work as an etiological factor in the development of asthma (I can’t imagine why else they would have done this survey). If I am right then:

1. Much of the early part of the introduction - that which refers to the worldwide epidemiology of asthma is unnecessary and could valuably be removed.
Response: I have removed that part
2. In its place I would substitute some thing about what is know of the asthma-risks in leather work.

Response: This has been added in short now

3. The aim needs to be stated clearly and explicitly.
Response: The aim is reviewed and stated clearly now

4. Without any point of reference the figure of 11% is impossible to interpret.
Response: Comparison of prevalence has been done with population prevalence in different areas worldwide. Moreover, comparison with prevalence identified in previous studies done in tannery workers is also done.

If you are referring to confidence interval than we did not compute it for the reason that for sample of convenience, confidence interval does not have a logical interpretation

5. Is there any information available that could be sued to generate an internal comparison; say with different tannery tasks or hours of work or some other, indirect measure of exposure (especially perhaps to chromate)? This would strengthen the paper enormously.
Response: We did make an attempt to take a proxy measure of exposure by noting the type of work in which a workers was involved. There were different stages of tanning noted e.g. raw hide, pickle, seaming, setting, dye and finishing. However, workers usually did not stay in one department and were moved to different stages quite frequently. The problem was further complicated by a frequent change in employment status and shifting to other tanneries as most of them were hired on daily wages. Skin testing to demonstrate for hypersensitivity to chromium is highly valid test for chromium exposure but was not done in our study due to limited budget. “Working hours per day” was also not significant at univariate analysis

6. Have the authors considered using work-related asthma as an outcome in their analyses? This may be a more specific outcome than simply “asthma”.

Response: Work related asthma was measured by asking workers if their symptoms worsened being on work compared to weekends or when they were off work. This method has a low validity due to the reason other factor on off days not related to exposure may exacerbate or relieve asthma. Objective tests e.g. bronchial provocation tests were not done due to limited budget.

7. I am unconvinced by the interaction with duration of employment. Why 8 and 13 years? Do these have some particular significance or are they the result of some data dredging?

Response: The multivariable logistic regression analysis indicated that there was a significant interaction between the two variables. That implies that the effect of one variable is different for different levels of the other variable. We analyzed the interaction
by fixing the reference at 8 years duration of employment (mean duration of employment in this study) and non allergic status. We then computed odds ratios corresponding to effect of allergy at 8 years, the effect of duration (for an interval of 5 years) and the combined effect of allergy and 5 years duration relative to the reference. We selected 8 years as it is the mean duration and 13 years so as to compute the effect of 5 years duration that seems to be a biologically meaningful interval.

In computing OR for a continuous variable one has to select a biologically meaningful interval (section 3.4, page 56, 57 in the text for logistic regression by Hosmer & Lemeshow). Though the pathophysiologic mechanisms of development of asthma related to chemical exposures are not well known but literature search has shown that in most cases it takes years to develop (possibility of delayed hypersensitivity been involved). That is why we chose a five year interval, which is also commonly used in other medical settings.

A few minor points:
I couldn’t find any reference to ethical committee approval.

Response: I have added it now. The study was approved by Ethical review committee (ERC) of Aga Khan University. ERC has a very rigorous process of review for research on human subjects. The research proposal and consent was reviewed by ERC and field work started only after the approval.

The distributions of some variables may need to checked. Is income really distributed normally with a standard deviation of 2233 rupees?

Response: Nowhere in the analysis are we assuming that income is normally distributed. Income is treated as a continuous variable and we reported descriptive measures (mean, median and standard deviation). The variation in income is high that is why a large standard deviation. The median income (as reported in result section) was Rs. 4000 / month. Most of the tannery workers had income between 3000 to 5000 Rs. Asking about income in a factory setting in our context was a very sensitive issue. Therefore there were 30 missing values and even the responses had limited reliability that is why we could not use this information in logistic regression analysis.

The numbers for housing type in Table 1 seem higher than the total surveyed
Response: The total is 639. Two values are missing. However, it was presented twice; the error has been removed now.

I am confused about the estimated response rate: 40-50% or 50-60%?
Response: The response rate was almost 100%. However, only 40-50% of workers related to tanning process were selected from each tannery as a sample of convenience. (The error in manuscript text in Method section has now been corrected)

Some of the terms in Table 2 (water sucker, coverage for health) may need explanation. Response: They have been explained in the footnotes now

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest
Quality of written English: Acceptable
Statistical review: No
Declaration of competing interests:
I declare that I have no competing interests